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THE ARCHITECT

AND

Contract Reporter.

A WEEKLY

ILLUSTRATED JOURNAL

OF

ART,

CIVIL ENGINEERING,

AND

BUILDING.

No intellectual taste or force has exerted such a shaping influence upon civilisation as Architecture.

ELIHU BURRITT.

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THE WEEK.

To-day the Workmen's Compensation Act comes into operation. There is no denying it is looked upon with alarm by employers, for its spirit can be expressed by saying that an employer is assumed to be guilty of some neglect whenever an accident occurs. One of the consequences is that, in self-protection, employers will be forced to dismiss old workmen and those who are awkward in their movements. Never was the law of the survival of the fittest so rigidly applied as it will be during the next six months. The interest which the Act excites is evident when we find Messrs. Minton-Senhouse and G. F. Emery, barristers-at-law, preparing a people's guide, which can be purchased for one penny from Bemrose & Sons, Limited. It is, we suppose, the cheapest legal treatise in existence. But the workmen have a superabundance of legal advisers at command, and we are afraid the new Act will give occasion to many a repetition of John Selden's exclamation, "Woe to the State where lawyers flourish."

Two years ago there was a fire at Sharpe's Wharf, Wapping, of which the Governors of Bridewell Hospital are the freeholders. The origin of the fire was ascribed to the erection of new boilers and a flue, partly against the wall of the warehouse and partly within it, by the occupants of the adjoining premises, which were used as soapworks. The heat of the flue set fire to a large wooden girder. The Governors declared that the wall was a party wall or structure, and therefore they should have received the notice prescribed in the Building Act. The cost of reinstating the premises (1,005*l.* 2*s.* 7*d.*) was claimed, together with 100*l.* damages for trespass. The defendants, Messrs. Paton & Charles, denied that the wall was a party structure, and also alleged that no effort was made to extinguish the fire on the part of the Governors or their tenants, and that more was done than reinstating the premises as they were before the fire, for that work need only have cost 550*l.*, which sum was lodged in Court. Mr. Justice Channell, who heard the case, decided there was no trespass committed, and that the action could only be maintained on the ground of damage to the reversion of the lessee. His lordship assessed that damage at 666*l.* The judgment is interesting as the defendants were not made liable for the cost of the improvements in the building, which were required by the provisions of the Act of 1894.

Temporary partnerships are sometimes arranged for carrying out engineering works, and in England there is no difficulty in dividing the profits. But a Canadian appeal case which came before the Judicial Committee of the Privy Council on Tuesday reveals that disputes can easily arise between the partners. In 1877 the late Simon Peters obtained a contract amounting to 529,296 dols., for the construction of a dock in Quebec. An extra work of 18,393 dols. was afterwards ordered. Mr. Peters entered into an arrangement with Messrs. Moore & Wright to do part of the work on the understanding that, while appearing as partners, each would be paid at contract price for whatever was done. Instalments were duly received, and when the dock was completed the Harbour Commissioners offered 52,011 dols. as the balance. The amount was considered insufficient, and the Courts afterwards awarded 87,468 dols. as the amount due. The partners could not agree about the proportion in which the money should be divided, and 68,972 dols. were lodged in bank. Litigation began, and in 1896 the Court held that as the agreement between the parties was not definite, the section of the Civil Code should be applied which affirms that when the shares of partners are not fixed, they must be considered to be of equal amount. On appeal it was decided that Mr. Peters's representatives should be paid 27,667 dols., the remainder becoming the property of Messrs. Moore & Wright, who were dissatisfied with the arrangement, and appealed to the Judicial Committee of the Privy Council. The decision was given against the appellants on most of the points raised, and they were ordered to pay three-fourths of the costs. The result is another instance of the risks which are incurred by indefiniteness in the language of deeds, for in this case it was evidently intended that neither party in the partnership should earn a dollar through the labours of the other.

M. Benjamin Constant, who is charged with the commission for the ceiling of the new Opéra Comique in Paris, has not only completed the studies and sketches, but has made some progress with the painting on the canvas. But with all his experience in the management of colours he has come to the conclusion that it would not be prudent to proceed further until he has made a trial of the effect of what he has already accomplished. For that purpose he proposes to have his canvas temporarily affixed to the ceiling of one of the theatres which has closed its doors until the end of autumn, when the theatrical season commences. Then when he sees his work illuminated by the electric light he will be able to realise what modifications are necessary to produce the full effect. The artist in painting has made allowances for the difference between daylight and artificial light, and he is eager to assure himself that he has done enough to satisfy spectators when they see his *plafond* from various points of view in the theatre.

The Opéra Comique was destroyed by fire on May 27, 1887, when nearly 100 people who were present at the performance of "Mignon" lost their lives. An action was taken against the lessee, two firemen, a machinist, and the official architect. They were acquitted in both the courts where they appeared. Several children were left destitute by the death of both parents who were among the victims. Their guardians endeavoured to obtain a little compensation for them by suing the State as a defendant. But the case went against them, and the utmost concession that was allowed was to refrain from demanding the costs, amounting to about 600*l.*, which the judges had ordered the plaintiffs to pay. Among the claimants were the guardians of the children of an Austrian banker, and they resolved to continue the process from court to court. The Tribunal of the Seine decided that the State could not be made a party to a civil action. But last week the Cour de Paris held that the State took the place of an ordinary proprietor of a theatre, and must be responsible for compensation. A decree for the payment of 4,000*l.* was given, with interest at the rate of 5 per cent. for the time which has elapsed since the claim was made.

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THE ORCHARD STREET CASE.

AFTER the inquest on the victims who were killed by the fall of the building in Orchard Street, Westminster, we expressed a doubt whether any jury directed by one of the judges of the High Court would endorse the finding of the coroner's jury.* That finding was as follows:—"The deceased met their deaths through injuries received by the collapse of a portion of the south block of Abbey Mansions. The cause of the collapse was owing to the faulty design and construction of the pier due to the culpable negligence of the architect. The jury are of opinion that some of the concrete in the roof was carelessly mixed and irregular in quality, but it was not the initial cause of the collapse." The points to which we took exception were, first, that sufficient importance was not attached to the removal of the centring, which was followed by the inevitable descent of the concrete roof. The initial cause of the catastrophe arose in that way. We also pointed out that although an array of specialists attended the inquest, not one of them was asked, or attempted to express in plain figures, what a fall of so large a mass of solid materials signified as a destructive agency. Mr. Justice GRANTHAM took a similar view. "The primary cause of the accident," said his lordship, "was clearly the removing of the centring from the concrete. A crash is heard and down goes the roof to the girder below. That fell on to the girder on the next floor. The weight of the falling mass would be increased as it fell, and so it goes down with increasing weight." We also explained how authorities differed about the weight which a brick pier or, rather, a column, should sustain, for in experiments a column rather than an attached pier is subjected to the crushing weights, and there was no justification of the theory that to the faulty design and construction of the pier the loss of life must be attributed. Mr. Justice GRANTHAM said there was "no evidence whatsoever that the cause of the accident was the collapse of the pier." It is hard on the Superintending Architect of the County Council that his elaborate disquisition on the construction should not be regarded as evidence, but the word has a meaning in the mind of a lawyer which differs from that accepted in Spring Gardens. Once admit, as the judge said, that "the real cause of the accident was the removing of the centring from the concrete, and it would be most unfair to ask anyone to find the prisoner guilty." His lordship accordingly directed the jury to bring in a verdict of not guilty.

We have no wish to claim extraordinary prescience in our conclusions. They were simply those which must arise in the mind of any practical man who has had to take a part in building operations. That Mr. Justice GRANTHAM should have arrived at the same end by the guidance of the laws of evidence alone—for his lordship acknowledged that at first he did not understand the importance of centring in concrete—is creditable to his lordship's acumen and impartiality. Architects and others who are acquainted with the mysteries of construction took a different side, and for a time DISRAELI's proposition about hanging an architect as the only means to insure sound building in London appeared to be concentrated wisdom worthy of an oracle.

We have no desire to hold up the disorganisation which, according to the evidence, prevailed in Abbey Mansions as worthy of imitation in other places. There was enough brought forward to demonstrate that chaos had come again, and that latter-day building, although inspired by science, was a revolt against common sense. All the co-operation was independent. Directions might be given, but there was nobody with sufficient power to see they were carried out. The man who, in ordinary circumstances would be considered the builder had to be content with an occasional glance at the labourers. If anything provided was inadequate, nobody would take the trouble to have it remedied. Witnesses differed about the simplest facts, which was not surprising when we remember the general indifference which prevailed. The working drawings were worthless, for they did not come into existence until after the catastrophe. The whole of the operations were, however, of the kind which might be expected with an architect who declared he was trained in the South Kensington School of the Science and Art Department. There was also a mystery about the source whence the money was derived, and the complications are so numerous it is likely the relatives of the victims will not be able to attach responsibility to any individual. Taken altogether, the case is one which is enough to make all lovers of English building mourn for the decadence into which we have fallen.

But if the wrongdoers merit punishment it is only fair to them that their prosecution should be equitable throughout. In the case of the architect the early proceedings were as unlike the ordinary English course of law as the works were unlike an ordinary English builder's. The procedure began with a letter from one of the workmen to one of the County Council, in which it was said that the pier was made up of soft bricks and mortar. The County Council could not neglect the opportunity of making capital out of the occasion and posing as the champions of the martyrs of industry. The inquest consequently became a sort of state trial of an enemy of the people, a second STRAFFORD. With the letter before them the jurymen were convinced of the cause of the collapse before any evidence was heard, and had all the Council of the Institution of Civil Engineers declared that if the concrete arches of the roof were allowed time to consolidate the building would still be standing, the jurymen's finding would be unaltered. With such men as are usually placed on coroner's juries, prejudice cannot be easily overcome. The workman's statement was declared to be false by the judge, but it is still accepted in Westminster as the solution of the case. So much is said about the virtues of operatives by their flatterers, we must not be surprised if the men are strong in the belief of their immunity from error. The blame for all accidents is left on those who are in authority. The feeling will have its effect in the working of the new Compensation Act, for when the men employed on works are biassed we cannot expect them to become suddenly impartial, and to testify that an accident was caused wholly or partially by the negligence of the sufferer.

The moral to be drawn from the case is that the old-fashioned system of employing trained, experienced and responsible builders for the erection of mansions in Westminster and elsewhere is not obsolete, and should be adopted by building owners in their own interests. The workmen, however, prefer the haphazard mode which was employed in Orchard Street until seven of their representatives were sacrified to the assertion of their liberty. The time had not arrived for the removal of the centres, but those connected with that part of the edifice were of a different opinion, and they maintained their rights to act as they pleased. The County Council upheld their independence of authority, and preferred the theory that bad bricks and mortar, for which London workmen could not be held responsible, were the real factors in the tragedy, and that the architect should pay the penalty for their failure.

The remedy which the jury proposed to prevent a recurrence of such disasters was "a greater amount of public control." But it cannot be expected that a district surveyor or one of his assistants is to examine every load of bricks that is brought on a building site and every bag of cement, or is to be present at the laying of every joist or the removal of every prop. The interference of authority in building cannot be expected to be more constant than is allowed in other businesses. No doubt it is a misfortune that the funds for the erection of buildings are now often supplied by investors who may know nothing about the quality of the work which is performed for them, and are indifferent as long as dividends are paid. Perhaps a greater misfortune is that buildings are entrusted to the charge of men who claim to be competent because they attended "the Government School of Architecture at South Kensington" but as the character of that wonderful institution should be universally known by this time, people who lose over such buildings as Abbey Mansions are not to be pitied, and it would be absurd to protect them in building when they are allowed to impoverish themselves by other ventures. If competent architects and competent builders are employed and fair prices are given there is no need for any additional exercise of authority, but if checks must be imposed let the building workmen and the authorities who back them in their carelessness be selected for the experiments.

* See *The Architect*, June 3, 1898.

LA ROCHELLE.

By John A. Randolph.

OFF the beaten tracks of tourists, and almost as unknown to them as Luçon, or the quaint little town of Richelieu, lovers of the picturesque and of the architecturally and historically interesting will find much to reward them for the extra time and expenditure incurred in travelling, from the main touring lines, to La Rochelle; and forty eight hours or more can be profitably spent in investigating what the town possesses in the way of vestiges of the Middle Ages, and in sketching dainty nick-nacks of architecture or ornamental carvings and ironwork.

In the limited space at our disposal we shall try to point out some of the noteworthy features, both Gothic and Renaissance, which still remain to tell us of the architectural splendour which greeted the sight of Cardinal Richelieu and his retinue at the end of that memorable siege in which this country played so important a part.

Close to the town, the train passes through a charming and wooded suburb, which comes as a welcome relief after the flat and barren plains that extend from well-nigh Nantes to well to the south of this town—a barrenness all the more striking for want of any salient architectural feature, barring Luçon Cathedral and the church of Bressuire (near La Roche sur Yon), to relieve the dreary monotony of the fatiguing journey. To the eastward, however, the landscape is more undulating, and, architecturally, more interesting; but our route lay, for the nonce, from Nantes, and the approach to the sea was signalised by a decided change of atmosphere and sky as well as a change of landscape; fields giving way to dunes, or sand hills, such as skirt the Belgian coast from Heyst, and extend as far Francewards as Boulogne and Etaples.

The station at La Rochelle is an awkwardly planned terminus, and one is landed on the wrong side of the building, and has to walk round the train to get to the 'busses, which await the passengers. It is well to use those conveyances to the hotels on a first visit to the town, as the routes to those necessary establishments are generally erratic (especially so at Rennes) and the extra-large-sized cobbles very trying.

As soon as the 'bus clears the station, it passes under a double triumphal arch of fairly good design, battlemented and medallioned—the Porte St. Nicolas—a modern construction, and suggestive of antiquities "within the walls."

Skirting the docks and harbour on the left, church towers and turrets of divers sorts abound on all sides, and, strange to say, actually in the street, at some little distance to the right as the 'bus turns to the left, a small lighthouse is visible. Its light is in a line with the entrance to the harbour, which is on the left on leaving the station.

A short drive alongside the harbour quay, and the route into the town proper takes the traveller under the great Porte de l'Horloge, a few yards up the street. It is a Gothic edifice, with Renaissance superstructure, very pleasing in design and imposing in effect. From this point the approach to the hotel is of exceeding interest, parts of the street having arcading, both plain and ornamental, chiefly of the Renaissance period, but occasionally of the Gothic style. The curious feature of this arcading is that it is—to use an appropriate word—fitful. For yards there may be none at all, and then perhaps about a dozen houses or more will have some very fine examples, on one side of the street, while on the other side nearly the whole length is arcaded. The by-streets, small and irregular, sometimes contain arcading, but chiefly timber-framed fronts, something like those to be seen at Lisieux, Angers, and Nantes, but on a simpler scale of ornamental carving, which many will probably prefer. We do not remember to have found in so small a place so many timber houses, and fortunately for art's sake there is very little, if any, of the modernising process going on in the town. It is an old-world settlement, quiet and dignified, and has not even yet numerically recovered from the awful famine and slaughter caused by the siege.

Several of the houses in this thoroughfare have historical associations or associations with historic people, and doorways and chimney-pieces and other ancient fragments abound, even in houses of a very simple exterior. The restaurant entrance to our hotel just off the Place d'Armes, alongside the Musée, is a charming and well-preserved example of the middle of the seventeenth century—the date is still on it—and it struck us as having probably served as a model for the doorway that used to serve as entrance to the London School Board Offices previous to their completion.

Of course, the main attraction of La Rochelle, architecturally speaking, is the Town Hall, with its Gothic court wall battlemented and pierced with a large and a small canopied doorway (like those of the Hôtel de Cluny at Paris), its graceful circular Gothic turret—it is hardly a tower—with octagonal top, its truly sumptuous Renaissance frontage to the court yard and its exquisite balcony at the rear. Inside is beautiful wainscoting and the historic table which the Mayor pierced with his dagger when vowing that the enemy would have to trample over his body at the gates before they entered the town.

At one corner of the Place d'Armes is a large plain church, locally known as the Cathedral. It is Renaissance, and externally is imposing enough, but internally most unsatisfactory, the only objects of interest being the *ex-voto* pictures offered by the fishermen in recognition of safety from drowning or shipwreck. These pictures are chiefly modern, and of anything but good draughtsmanship, but the older ones show "impossible ships in impossible seas composed of impossible waves." The stained-glass in the church and the fittings are terrifying in their crudeness and ugliness. Outside the choir end, however, of this huge church, and detached from it, is the beautiful fourteenth-century tower of St. Barthelémy, at a corner of which shafts and their capitals are still visible which served to support one of the nave arches.

The Place d'Armes is the site of the old royal castle, demolished by the Rochelais in 1372, at the instigation of Mayor Chauldrier, when the English were made to leave it by false pretences, to be instantly occupied by the garrison of the town. The Museum off the Place d'Armes should also be attractive to the visitor. The library connected with it has about 45,000 books, many of which formerly belonged to the Rochelle Academy and to the Oratory of the town. Several sixteenth, seventeenth and eighteenth-century historical books are there, and nearly 1,000 MSS., some of which are illuminated. In the Museum is a painting of Richelieu and his retinue inspecting the defences of the celebrated Digue.

The guide-books say that the bishop's palace contains the chalice used by the Cardinal at Mass on November 1, 1628 (after the end of the siege), in the now demolished church of Ste Marguerite; but on inquiry there, in the hopes of seeing it, we were informed that the statement was erroneous. The Auffrédi Hospital was founded in 1203, when the town was developing itself. Its site is now occupied by the Hôpital Militaire, which bears a commemorative inscription.

Between the Town Hall and the harbour is another simple but lofty Gothic tower, belonging to the church of St. Sauveur. Close to is a fine fifteenth-century timber-framed house. Besides the churches and towers and arcading, some fine Gothic vaults or cellars are dotted here and there about the town, especially at 11 Rue St. Nicolas, where is also a magnificent chimneypiece representing the Sacrifice of Abraham; 3 Rue des Merciers is Mayor Guiton's house—the man who vowed the enemy would have to walk over his body; and 11 Rue des Augustins, the splendid house of Henri II., or, as locally known, of the ubiquitous Diane de Poitiers. It has several fine statues on its front, and dates from 1555. There used to be seven gates to the old fortifications, of which the Porte de l'Horloge was one. The St. Nicolas tower, which defended the harbour, and dates from 1384, still stands, but has recently been restored. The other two towers of the harbour deserve attention—the Martello, a squat, round, plain structure, and the Tour de la Lanterne (1445-76), cylindrical in shape, with seven floors, two side turrets, and a stone octagonal crocketed spire and pierced parapet. It was formerly a lighthouse.

A pleasant semi-countrified drive through Laleu, where Louis XIII. and Richelieu slept during the siege, may be taken from the Place d'Armes to La Pallice, the new port of La Rochelle.

The remains of the famous Digue are only visible at low water, and are close to the Bains Richelieu, at the extremity of the "gardens" to the left of the road to Laleu from the Place d'Armes.

Near La Rochelle is the curious fortified church of Esnandes, formerly surrounded by a moat. It dates from the twelfth century, and the central of the three west doors has Romanesque carving. The building is a *monument historique*, kept in repair at the expense of the country.

From La Pallice is a regular service of steamers to St. Nazaire and the South of England, and there is also one to Liverpool.

WAXEN IMAGES.

WORKS of art in wax suggest collections of imitations of fruit under glass shades which are prepared for the adornment of houses where a fine taste does not prevail. Small figures in wax are occasionally to be seen in museums, and surprise is expressed at the large sums which had to be paid for them. Portraits in wax on a miniature scale are to be found in the Salon and other foreign exhibitions. But in general wax is not a material which finds much favour with amateurs. From its pliability it is supposed to be easy to work, and a high price for an example appears to be an imposition, while the ease with which it melts causes a work for which it has been used to become a source of anxiety. A modern amateur must, therefore, be puzzled when he hears of the extensive use of wax among the ancients. It seems to be incredible that wax was used not only for portraits which were intended for preservation in order to uphold the reputation of a man among his descendants, but also for wills and documents which were to be the titles to estates, so much so that the word *cera* became another term for page, sheet, or folio, in deeds. The *tabulae ceratae* had, it is true, a foundation of wood, and precautions were taken to keep the surface from injury, as in the case of diptychs. But the fact remains that the covenants of legal deeds were inscribed on what is to us an evanescent material. When the poet in "Timon of Athens" talks of "a wide sea of wax" for his forthcoming work, we naturally think of praises which are inspired by the necessity of the moment, but to a Greek or Roman the phrase might mean a sort of immortality. They would be satisfied with such fame as could be conferred by the stylus of an able hand on wax.

It was not only in tablets wax was employed. It was an ingredient in paints and served instead of oil. To paint with wax, *ceris pingere*, signified the production of forms which were more brilliant than was possible with distemper. It is supposed heat was employed to bring out the full effect of the material, but although both VITRUVIUS and PLINY have left an account of the process, what they say is not sufficient to produce successful results. Another use of wax was to impart a peculiar velvety surface to marble statues, and to diminish the crystalline appearance of the material. In this case also we must suppose there was a dexterity in the application which is beyond the power of a modern sculptor.

The most remarkable use of wax was in the preparation of the ancestral images which were at one time the glory of a Roman house. The satisfaction of a collection of family portraits is as strong as ever among us. Time has condoned the misdeeds of the subjects. Unjust judges, rapacious placemen, stupid generals, or even "bishops who had not left a single sermon," attain some value as evidence of respectability. If portraits are not forthcoming by inheritance, Wardour Street can supply substitutes at reasonable rates. Whether the antique Romans in wax were always authentic representatives of the men whose names were attached to them cannot now be determined. Both MARTIAL and JUVENAL had their doubts on the subject, but contemporary writers who claimed to be also guardians of public morals considered the wax figures were not only signs of respectability but aids to the encouragement of virtue. There is little doubt the practice of preserving images was directly suggested by the honours paid to the Egyptian mummies, but it may also have been a survival of the ancient ancestral worship which is still practised with fervour by the Chinese. Whatever was their origin, the family images in the *armaria* of the *atrium* almost rivalled the household gods in their hold on the reverence of a household, and of course the oldest and dingiest examples were held in most esteem. Mrs. JARLEY would not be likely, however, to value them at a high rate. For a long time the privilege to possess waxen images of forefathers was restricted to the patricians, and they could only exercise it after serving as consul, ædile, prætor, &c. But when the plebeians became eligible to be seated in the curule chairs they could no longer be supposed to belong to a race without ancestors. The people appear to have had a voice in the matter, and as they at all times were endowed with far-reaching memories, a patrician's sins were fatal to his own chance of a highly-coloured portrait and to the distinguishing of his family. That the waxen portraits were sometimes prepared while the subjects were living is evident from the circumstance that one of the consequences of a crime against the State was the destruction of the culprit's image by his family. It was a sort of symbolic refusal to him of the respect of posterity. On some occasions the images were withdrawn from the *armaria* and carried in procession through the streets by relatives. On such occasions similar robes of office to those which were worn when living were set up on the images. Some archæologists believe that in the processions, instead of draped figures which were carried, portrait masks of the deceased worthies were placed over men's faces just as the tragic or comic masks were worn on the stage, and in that way a more vivid spectacle was secured. There is no improbability in the theory, for "making up" in imitation of particular individuals was practised among the ancients to an extent that would not be tolerated in a Paris *revue*.

The Romans were not able to preserve the effigies of their fathers under glass shades with so much success as, unhappily, awaits wax fruits and flowers. As there was a custodian for the *armaria* in all well-regulated houses, he would, we suppose, be able to patch and colour over defects, or, when required, to make reproductions. The *atriensis* was likely to have some acquaintance with various processes of the arts, for they were so largely employed as adjuncts to luxury, there must have been restorers of various classes who could make themselves useful whenever accidents occurred. The waxen images would not be huddled together in a corner of the *atrium*; they were too valuable to be neglected like the old portraits which in a modern house are often relegated to an attic. We may assume they were placed like images in Italian churches, and that wreaths and flowers were placed near them, with the inscriptions and eulogies which from time to time were inspired by the man's deeds. They were not objects of worship, but of affectionate respect. Many a Roman gentleman could perhaps say with Sir LUCIUS O'TRIGGER, "Though the mansion-house and dirty acres have slipped through my fingers, I thank heaven our honour and the family pictures are as fresh as ever."

The State appears to have aided the Roman O'TRIGGERS in preserving ancestral memories in spite of the vicissitudes of fortune. An old house might change hands, but the trophies of the old owners had to be respected. The houses, as PLINY says, always triumphed over Fate, and became a rebuke to those new proprietors who thought that wealth could take the place of courage and virtue. Whether the images of the former owners had to be taken over with the tokens of foreign conquests and patriotism is not known. But when we learn that VARRO published the lives of 700 of the illustrious men of Rome and other countries with their portraits, it is allowable to conclude that although imagination might be exercised with the faces of foreigners, for the counterfeit presentments of the old Romans there must have been some materials which at least had tradition to give them value. As works of art waxen images are generally without value, and the ancient examples could hardly be of a higher character. But with such a material there is a necessity for more fidelity to nature than is required with portraiture in stone or wood. VARRO was too grand a Roman to neglect any means which would insure correct likenesses of the old citizens, and he would not have attempted portraits if they were no more than exercises of the fancy of artists.

What kind of reproductions were employed by VARRO must remain a subject for speculation. WINCKELMANN supposed the copies were reliefs in plaster on a small scale,

resembling casts of coins and medals. But that would hardly be a creation which was described as sufficient to excite the envy of the gods. We may, however, conclude they were not full-size copies of the figures, busts or masks in wax, although originals of the kind may have been used from which to make copies.



GABLE OF "MAISON DES BATELIERS," OR "FOUR WINDS," ANTWERP.

THE HISTORY OF ATHENS.

THE subjoined address was recently delivered from the steps of the Parthenon by the acting director of the American School in Athens to a party of his countrymen :—

According to Thucydides, Attica consisted originally of twelve scattered towns. To his period undoubtedly belong the remains of the prehistoric palace and walls on the Acropolis, which correspond closely to the palace and walls of Tiryns, and which are generally identified with the "goodly house of Erechtheus," mentioned by Homer. The legendary hero, Theseus, combined these scattered settlements into one political organism, and with him Athenian history really begins. After the reign of a long line of semi-mythical kings, we have recorded a long struggle between nobles and commons, which finally resulted in the legislation of Solon and the establishment of a sort of democracy based upon revolt. This took place in 594 B.C. But hardly was the democracy established when it was subverted by Peisistratus, who maintained his power over forty years and was the first great builder. To him we owe not only the collection and collaboration of the Homeric poems, the establishment of the great Panathenaic festival, and the foundation of the Dionysiac celebrations—the origin of our modern theatre—but it was he who began the Temple of Olympian Zeus, who built the first great public fountain of Athens, the Enneacrounos, and supplied it with an aqueduct which can still be traced along the south side of the Acropolis and through the king's garden ; and who completed the old Temple of Athens, recently discovered by Dr. Dörpfeld, between the Parthenon and the Erechtheum.

Peisistratus died in 514, and was succeeded by his sons, Hippias and Hipparchus. Their reign lasted only four years, for in 570 Hipparchus was killed by Harmodius and Aristogeiton, the liberators of Athens and founders of true democracy. Hippias was driven into exile and retired to the court of the king of Persia, where he constantly endeavoured to incite that monarch to invade Greece.

Then came the Persian wars, with the great battles of Marathon and Salamis, the capture and sack of Athens, and finally the utter defeat of the Persian hosts on the plain of Platæa and in the waters of the Ægean, near Mycale, in Asia Minor. These victories were the real foundation of Athenian greatness. They were the inspiration of all her later achievements. With them begins a period of fifty years such as no other city can boast of, the period of Æschylus and Sophocles, of Pheidias and Polycleitus, of Herodotus and Thucydides.

At first, it must be admitted, the outlook was not encouraging. On their return to their homes in 479 B.C. the Athenians found a city in ruins, its temples burned and overthrown, its walls destroyed. Themistocles was the leading spirit of the times. It was under his influence that the wall of Athens was extended to the limits which it occupied throughout the classical period, extending about the city in a great circle, including the Hill of the Muses, the Pnyx, the Hill of the Nymphs, crossing the Sacred Way near the point where the road to Eleusis now leaves the Peiræus road, and so in a wide circle through the king's garden to the Ilissus and the Hill of the Muses again. A few years later the Peiræus was also fortified and connected with Athens by the famous "long walls," one of which now forms the roadbed of the Peiræus railroad. At the same time that these great building operations were being carried out the power of Athens was confirmed by the formation of the Delian Confederation, under Aristides, a confederation that made Athens the head of all the islands of the Ægean and brought her in the revenues necessary to her public undertakings.

But if Themistocles and Aristides made Athens the most powerful city of Greece, it was their successors, Cimon, son of Miltiades, and above all, Pericles, who made her the most beautiful. To Cimon we owe the plan for a new Temple of Athena to replace the old Temple of Peisistratus, which had only been hastily repaired after its destruction by the Persians. For this temple Cimon found the Acropolis too narrow and too uneven ; for the rock of the Acropolis was not originally flat, as it now appears to be, but sloped gradually down from a point east of the Parthenon, its appearance resembling the roof of a house more than anything else. For his new temple Cimon laid a deep foundation on the south slope of the rock, using the old Pelasgic wall, which had formed the fortification of the Acropolis in pre-Persian times, as a retaining wall, and strengthening it by the great wall which now forms the southern boundary of the Acropolis. The ground on all sides of the temple was levelled up with alternate layers of stone chips and earth, and especially with hundreds of statues and votive offerings which had been left in fragments by the Persians. It is to this fortunate chance that we owe almost the entire contents of the Acropolis Museum—the archaic sculpture and terra-cottas there collected are the relics of the Persian invasion, buried for centuries under the surface of the Acropolis, and only brought to light in the general excavation of 1885 and the succeeding years.

The plan of the Parthenon, then, was due to Cimon ; but it was carried out in its present form by Pericles, who, in one office or another, usually as general of the Athenians, exercised a commanding influence over the development of Athens for over thirty years (from about 429 to 460). Pericles apparently found the ground plan of the temple, as built by Cimon, too narrow, for he widened the original foundation by several feet, at the same time moving the axis of the building slightly to the north. This widening was probably due to the introduction of the plan for the gold and ivory statue which was to stand in the central hall. Of course, such a building required years for its completion. In fact, it was probably not entirely finished until about 434, although the formal dedication took place in 438, when Athena Parthenos was first exhibited to the people. No expense was spared to make the temple the finest offering to a patron goddess the world had ever seen. The entire building was of Pentelic marble, from the quarries which we can see even to-day on the slopes of Pentelicus. Not only were the pediments filled with groups of figures representing the birth of Athena from the head of Zeus and her contest with Poseidon for the land of Attica, but the metopes, which were usually left plain in Greek temples or only partly sculptured, were all filled with reliefs calculated to arose the enthusiasm of the Athenians, the battle of the Centaurs and Lapithæ, the capture of Troy, the contest of the Athenians and Amazons ; while around the cella wall ran the great frieze of the the Panathenaic procession, culminating over the door in the assembly of the gods and the ceremonies connected with the delivery of the sacred robe which was borne every four years by Athenian maidens and laid on the knees of the old statue of the goddess.

But the plan of Pericles did not stop at one temple. At the same time that the Parthenon was in course of construction, the little Temple of Athena Nike was built on the great bastion that formed the western end of Cimon's wall, and on the hill of Colonus Agoræus, overlooking the market-place, rose the Temple of Hephaestus, which we have come to know falsely as the Theseum. Other temples were built or remodelled in other parts of Attica, at Sunium and at Eleusis, the Acropolis was filled with a multitude of statues, dedicated both by private individuals and by the State; and finally, in the years between 432 and 437 was built the great Propylæa as a fitting entrance to the most glorious sanctuary of the Greek world.

It was probably during the period of Pericles's leadership that the other great building of the Acropolis, the Erechtheum, was planned and begun, although it was not finished until after 408. The cause of this was the war between Athens and Sparta, which, at first favourable to the Athenians, ended in the crushing defeat of Ægospotami in 404, the destruction of the long walls and the placing of a Spartan garrison on the Acropolis. To be sure, this foreign domination was soon overthrown. In the very next year, Thrasybulus, the second saviour of Athens, came over the passes of Parnes from Thebes, captured the border post of Phyle and drove out the Spartan garrison. The Athenian fleet regained its power, and in 393, after a series of successful campaigns in the Ægean, Conon was able to return in triumph to Athens and to rebuild the long walls. But the power of Athens was broken. The victories of Conon with the aid of Pharnabazus, a satrap of the great king, and of Evagoras, king of Cyprus, and his policy of relying on foreign aid, now became the leading principle of Athenian politics.

But if the fourth century is a time of political degradation, in the realms of the mind it is almost more distinguished than its predecessor. In this century Plato and Aristotle founded their schools—the Academy, on the banks of the Cephisus, the other in the Lyceum, on the slopes of Lycabettus, near the spot where the American school now stands. The age of the great tragedians was over, but the younger branch of comedy eceived its fullest development in the fourth century. In sculpture, although the age of Pheidias and Polycleitus is passed, the fourth century gives us Scopas and Praxiteles and Lysippus ; while in the field of oratory we have only to recall the great name of Demosthenes to be convinced of the mental attainments of the age of Alexander the Great.

Naturally, such a period of weakness in the State, although accompanied by great mental progress, was not favourable to large building operations. Most of the public monuments of this time are private undertakings, like the monument or Lysicrates and the monument of Thrasyllus, meant to commemorate private victories in musical and dramatic contests. Fine grave monuments also were in fashion, as one sees at the Street of the Tombs, outside the Dipylum, and in the collection in the National Museum. Yet, under Lycurgus, the Athenians found means to build their first permanent stadion and first gave their theatre and marble covering.

After the death of Alexander in 323 the politics of Athens sank to the lowest level ; any support from outside was gladly welcomed, and the latest benefactor was the most popular. It was the kings of Pergamum especially who adorned Athens at this period—Attalus I., with the groups of gods and giants, Amazons and Athenians, Greeks and Persians, Gauls and

Greeks, of which so many copies exist. Eumenes II. built the long stoa to the west of the theatre, and Attalus II. adorned the market with another even larger stoa.

With the capture of Corinth by the Romans in 146 the whole of Greece fell under the sway of Rome, and a new and, on the whole, happier era began for Athens, for the Romans loved and respected her as the home of their own higher culture, and their rule was never so severe in most of the provinces. To this period we owe many of the extant buildings—the Temple of Rome and Augustus, east of the Parthenon, the Tower of the Winds, built by Andronicus of Cyrhestes, the gate of the oil market near it, built by Augustus, and the pedestal of Agrippa, erected by the Athenians themselves. The last additions to her glories Athens received under the Emperor Hadrian, who finally completed the Temple of Zeus, almost seven hundred years after its inception under Peisistratus, and built his gate to divide the new quarter he had established from old Athens. The great gymnasium in the market is another of the buildings of Hadrian, while his contemporary, Herodes Atticus, who owned all the country about Marathon and Pentelicon, covered the stadion with marble, as his modern successor, M. Arcroff, has so lately proposed to do, and built the theatre which bears his name in honour of his wife Regilla.

Thus we have the completed picture of Athens as she stood in the days of her greatest splendour—the second century A.D. —the Acropolis crowded with statues and offerings and crowned by the Parthenon, her gods the apparent rulers of the civilised world, her streets crowded with the youth of every land, who gathered about her philosophers and scholars. And yet this was only the last flare of the fire before its extinction. Only a little more than a century after the death of Hadrian the Goths appeared before Athens, and were with difficulty repulsed; and in 395 the Ostrogoths, under Alaric, captured the city.

Another influence, too, was at work to destroy the prestige of Athens. About the middle of the first century, in 58 A.D., a Jew had appeared in Athens and proclaimed an "unknown god," and then he had gone away and no one had thought any more about him. Yet the seed he sowed had been working, and in 325 the Emperor of Rome declared himself a convert to the new faith of Christianity. In spite of all this the philosophers continued their teaching in Athens, and it was not until 529 that the Emperor Justinian formally closed the philosophic schools. The Parthenon was converted into a Christian church, at first of the Sacred Wisdom, then of the Holy Virgin.

In fact, the whole later history of Athens is summed up in the history of the Parthenon. In 1204, after the capture of Constantinople by the Venetians in the fourth crusade, Athens became subject to Frankish dukes, and the Parthenon church was transferred from the Eastern to the Western church. In 1456 Athens was captured by the Turks, and a few years later the Parthenon was changed into a Mohammedan mosque. Finally, in 1687, a Venetian army under Morosini, in an attempt to capture Athens, dropped a bomb through the roof of the building upon a lot of powder which the Turks had stored inside, and, after a life of over 2,000 years, the pride and glory of the age of Pericles was shattered into a thousand pieces. The siege was successful. The Turks evacuated the Acropolis, but Morosini was unable to hold his conquest, and in a few months Greece groaned again under the Turkish yoke—a yoke that was not lifted until the war of 1821 and the establishment of the Greek kingdom.

The subsequent events of the history of Greece are well known. In 1832 Otho of Bavaria became the first King of Greece, to be driven out, after a reign of thirty years, in 1862. In the next year William of Sonderburg-Glücksburg was elected king, and as George I. he has reigned ever since. The events of last spring are too recent to need repetition—the utter weakness and absolute worthlessness of the Government were only too plainly shown. But the weakness and worthlessness of the Greek people were not shown and cannot be shown. They are like all southern peoples, quick, impulsive and utterly unpractical. What they need is a strong foreign control by honest rulers, a government that will lay the greatest stress on internal improvement and education along practical lines—that will try, in fact, to rule the country according to nineteenth-century ideas, and will not rely on a reputation made over 2,000 years ago.

THE SOUTH KENSINGTON MUSEUM.

THE following is the text of the memorial addressed to the Prime Minister, to which we referred last week :—

Whereas in 1890 Parliament voted 100,000*l.* for the purchase of a site at South Kensington upon which to erect suitable buildings for the Science Museum of the Department of Science and Art and for the extension of its science schools, in accordance with the recommendations of the Royal Commission over which the Duke of Devonshire presided in 1874, as well as of various committees and other high scientific authorities and of a Treasury committee appointed in 1889;

And whereas when in 1891 the Government had proposed to erect an art gallery on the site, a memorial signed by the President and officers of the Royal Society and representatives of the Universities of Oxford, Cambridge and of many other learned bodies both in London and in the provinces, was addressed to your lordship, showing cause why the site should not thus be allocated;

And whereas the scheme was withdrawn, and it was stated by the late Right Hon. W. H. Smith, M.P., in the House of Commons on April 16, 1891, that the "Government has at disposal more than three acres of vacant land facing the Imperial Institute, and considerable areas beyond to the south of the present Southern Galleries. A portion of these vacant lands can be utilised for the extension of the College of Science and for the future growth of the science collections. Additions to the College of Science must, in any case, take the form of a separate building divided from the present building by Exhibition Road," while the Chancellor of the Exchequer, the Right Hon. G. J. Goschen, informed the deputation which waited on the Lord President of the Council in May 1891 that "We hope to bring science into one centre fronting the Imperial Institute;"

And whereas this arrangement which left the ground on the east of Exhibition Road for the extension of the Art Museum has been generally accepted since 1876, when the Royal Commission for the Exhibition of 1851 offered land and a building with a view of carrying out the recommendations of the Duke of Devonshire's Commission in 1874 to provide the needed accommodation for science at South Kensington;

And whereas we are informed that this arrangement is in danger of being altered by the erection of science buildings on the east side of Exhibition Road;

We, the undersigned members of the Royal Academy and others practising various branches of the arts as a profession, desire most respectfully to express to your lordship our strong opinion that it is desirable to adhere to the former policy, which has been acted upon and publicly acknowledged by the Government since 1890. Considering the urgent need of much additional space even for the present art collections of the South Kensington Museum and the necessity for making some provision for their proper development, we are convinced that any attempt to provide on the east side of Exhibition Road for the necessary expansion of the science buildings will render it impossible to meet the future requirements of the industrial arts, for the promotion of which the South Kensington Museum was founded. We also feel that in praying your lordship to reserve for art that portion of the land which still remains vacant on the east of Exhibition Road we are not making an exorbitant demand. The whole plot of ground belonging to the Government on that side is much smaller than that devoted to the Natural History Museum, which only represents one branch of science without either teaching or applications, while the space on the east of Exhibition Road has to provide not only for the Art Museum but also for the administrative offices of the Department of Science and Art, the Royal College of Art, and part of the Royal College of Science.

The memorial has been signed by the following ladies and gentlemen :—

Sir Edward J. Poynter, P.R.A., Sir W. B. Richmond, R.A., Frederick Goodall, R.A., G. W. H. Boughton, R.A., Walter W. Ouless, R.A., Ernest Crofts, R.A., Thomas G. Jackson, R.A., Hamo Thornycroft, R.A., H. H. Armstead, R.A., Harry Bates, A R.A., Alfred Gilbert, R.A., Briton Riviere, R.A., E. Onslow Ford, R.A., William Stott, of Oldham, John M. Jones, W. P. Frith, R.A., Frank Dicksee, R.A., Phil. R. Morris, A.R.A., George Frampton, A.R.A., Hugh de T. Glazebrook, Luke Fildes, R.A., Val Prinsep, R.A., Marcus Stone, R.A., Colin Hunter, A.R.A., G. F. Watts, R.A., John R. Clayton, Reginald Barratt, Frederick Smallfield, Lewis F. Day, Thomas J. Grylls, Morant & Co., L. Alma-Tadéma, R.A., Andrew C. Gow, R.A., Sydney P. Hall, Alfred East, John Charlton, Oliver Murray, A.R.A., C. E. Johnson, J. Y. Hunter, R. Phené Spiers, F.S.A., Gordon Thomson, Sir John Tenniel, Edmund M. Wimperis, Herbert Schmalz, S. Melton Fisher, Cyrus Johnson, Frank Walton, Ernest A. Waterlow, P.R.W.S., Walter C. Horsley, Charles Fowler, I. D. Grace, Edwin Bale, R.I., M. R. Corbet, Edith Corbet, W. J. Hennessy, H. R. Mileham, James E. Grace, Harold Rathbone, H. R. Hope-Pinker, H. Cecil Drane, G. E. Wade, Lionel Cust, Walter McLaren, Alfred Drury, Fanny W. Currey, W. Hounsom Byles, L. Fairfax Muckley, R. Falconer MacDonald, Elinor Halle, J. Fitz Marshall, R.B.A., May E. Gordon, A. T. Yowell, Mary Grace, Henry T. Wells, R.A., J. Callcott Horsley, R.A., retired, William F. Yeames, R.A., Seymour Lucas, R.A., elect, Eyre Crowe, A.R.A., G. D. Leslie, R.A., Thomas Brock, R.A., W. Holman Hunt, Sir Edward Burne-Jones, Arthur Severn, C. E. Hallé, Thomas Stirling Lee, Gleeson White, Walter Crane, Lord Carlisle and W. Q. Orchardson, R.A.

The First International Congress of Public Art, organised by L'Œuvre Nationale Belge, will be held at Brussels from September 24 to 28 next.

NOTES AND COMMENTS.

IT must be galling to any one who holds opinions about ecclesiastical art resembling those of Lord GRIMTHORPE to find that he has been an agent for the erection of images which are supposed to be the signs and tokens of lawlessness. Lord GRIMTHORPE, having got hold of a faculty, was able to gratify himself as an amateur builder with a transformation of the old abbey of St. Albans. But he could not make up his mind about the altar-screen. Empty niches were appeals for figures, and his lordship had not the courage to fill them with statuettes of his rivals of the Parliamentary Bar and the old Benchers of Lincoln's Inn. To remove what was left of the screen was more than he could screw himself up to do, for Lord GRIMTHORPE is not a complete vandal, although by his principles he should be merciless towards things which were supposed to be objects of idolatry. While he was hesitating through theology and archæology pulling his robe in opposite ways, Mr. H. H. GIBBS appeared. He asked for permission to introduce the statues which were required, and it was given by the holder of the faculty. The niches were filled very slowly, and after five years Mr. GIBBS proposed to introduce sculpture on a larger scale and of more importance in an ecclesiastical sense than the figures of saints, which were harmless, for few of the congregation could identify them. Lord GRIMTHORPE demurred, but Mr. GIBBS decided to seek a faculty of his own, and although there was a compromise necessary, he became independent of his lordship. Mr. GIBBS was afterwards raised to the peerage, and a few days ago he obtained another faculty. Lord GRIMTHORPE and Lord ALDENHAM can now claim to be the co restorers of St. Albans. According to Lord GRIMTHORPE, "anybody can see in a minute the absurdity of comparing the cost of restoring visibly ten times the area and twenty times the bulk of the parts done before Lord ALDENHAM began with what remained to be done." But however big may be the area and bulk they only lead up to the rival restoration which becomes the crown of the work, and Lord GRIMTHORPE must have a misgiving that all his expenditure will, in the eyes of posterity, be treated as no more than a means for producing area and bulk. This is to be regretted, for in common with most architects we have a weakness for Lord GRIMTHORPE. His airs of infallibility are always exhilarating. If he had followed the prudent jog-trot course and employed an architect there would be no hesitation at the crucial moment about the treatment of the screen, and Lord GRIMTHORPE'S name would be associated with St. ALBAN'S as long as the church endured, instead of his resembling one of the two kings of Brentford, who are indistinguishable.

IT is remarkable that JAMES WYLD'S great globe, which was erected in Leicester Square as one of the attractions of 1851, should not have inspired any geographer with a desire to erect a bigger and more perfect model of the terrestrial ball. Professor ELISÉE RECLUS had contemplated a work of the kind for Paris in 1900, but as politics have driven him from France, it is doubtful whether any man or a company will have the courage required for such an undertaking. A paper read by M. RECLUS at the meeting of the Royal Geographical Society on Monday suggests that the project was not inspired by financial considerations. He maintains that truthful representation of a fragment of a sphere is impossible on a plane surface; a sphere or fragment of a sphere must be reproduced by another sphere or fragment of a sphere. But spherography, although the most important department of geography, has not kept pace with cartography, in which immense progress has been made. Even scientific people are not yet sufficiently convinced of the absolute necessity of studying geography on images of our planet reduced to a given scale with the real proportions. If the scale of the globe were very small—one to ten or twenty millions, for example—the surface had to be kept exactly even, polished, so to say, because the proportional size of highlands and mountains could not be represented. In larger spheres another element of truth and beauty was added, in that the actual relief appeared on the curvature of the model. The system of exaggerating altitudes was utterly bad, contrary to real science, and to be discouraged by all geographers having respect for nature and her laws. But as soon as the sphere was large enough to show at least one-millionth part of the real proportions then the heights and depths as well as the planimetric dimensions should be represented on that scale. On a large globe on a scale of 1 : 100,000, rugosities of the surface might be finely shown, even hillocks 50 metres in height. Such representation of ordinary heights would afford an unexpected advantage by furnishing a standard of comparison, since those looking at a relief would easily estimate the real dimensions of a country by the sight of the ridges and mountains that diversified the surface. Professor RECLUS said the moment had come for a grander representation of the earth than had hitherto been made, for the erection of a model globe which would be as scientifically accurate as possible, and which, being kept continually under correction, would become not only a thing most beautiful to look at, but also a standard study for travellers and geographers. There is much sympathy for M. RECLUS in England, as elsewhere. His books suggest his competence to direct the construction of a model of the world as it is known. But the work should not be left to private enterprise. All civilised countries have an interest in the realisation of M. RECLUS'S project, and should bear a share in the expense. But where is the most fitting site for the great globe to be found? A piece of ground 500 feet long and 500 feet wide would be large enough, but the difficulty is to discover the city that would be universally admitted to be a sort of centre of the world to contain the model.

ONE of the most attractive parts of the Paris Exhibition of 1900, at least for architects and builders, should be the annexe which will contain models of some of the most important modern buildings of the city. They will be very costly representations. The model of the Hôtel de Ville is to cost 58,000 frs. As the model of the great church of the Sacré-Cœur on the top of the hill of Montmartre will not be in plaster but in cut stone, the expense will reach a larger sum. The New Sorbonne is also to appear, but the model will cost the comparatively small amount of 25,000 frs. The two palaces of the exhibition in the Champs-Elysées, and the Pont Alexandre III. will be among the structures to be reproduced on a small scale. Architectural models, which at one time were not uncommon, appear to be out of fashion, but if the collection which will be seen in Paris attains the success that is anticipated, we may expect to see a revival of an art with which SHAKESPEARE was better acquainted than with architectural representations on paper.

WAGNERITES and Ruskinites may not be aware that their idols were boarders in the same *pension* at Mornex, near Geneva. There was, however, a difference of eight years between the periods of their residence. In order that so interesting a circumstance may not be overlooked, a tablet of black marble has been placed on the wall of the pavillon they occupied, at the cost of Professor HENRI KLING and MM. ROBERT and LAWRENCE HARVEY. It bears the following inscription:—"Ici vécurent deux Immortels—RICHARD WAGNER, 1856; JOHN RUSKIN, 1863-64." WAGNER was implicated in the political movements of 1848, and after wandering from place to place found, like many other great men, a refuge in Switzerland. It was at Mornex he composed *Siegfried*, and sketched the libretto of *Tristan und Isolde*. Mr. RUSKIN'S admiration for Geneva and the country around is well known. The city he describes as "the centre of religious and social thought and of physical beauty to all living Europe, the most lovely spot and the most notable without any possible dispute of the European universe." Geneva is associated with many other celebrities to whom it gave hospitality and protection, and the example which MM. KLING and the Brothers HARVEY have set is deserving of repeated imitation.

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: SOUTH TRANSEPT, FROM CLOISTERS. ROOF IN RETRO-CHOIR.

NATIONAL PROVINCIAL BANK OF ENGLAND, PICCADILLY.

ST. PAUL'S CHURCH, CAMDEN SQUARE.

THE WESTMINSTER ACCIDENT.

AT the Central Criminal Court, before Mr. Justice Grantham, on June 23, Mr. Charles James Chirney Pawley was indicted for and charged on the coroner's inquisition with the manslaughter of seven persons.

Mr. C. F. Gill appeared for the prosecution and Mr. Horace Avory and Mr. Hugo Marshall for the defence.

Mr. C. F. Gill: My Lord, in this case I am instructed by the Director of Public Prosecutions to take charge of this prosecution, and having had an opportunity of reading and considering the case as disclosed by the coroner's depositions, and having had an opportunity of forming an opinion on the material on which the conclusion was arrived at by the coroner's jury, and also the form of the verdict of the coroner's jury, it does not appear to me, subject to your lordship's view, that there is such evidence of gross culpable negligence as would entitle me to ask the jury to find a verdict of manslaughter. The case arises in consequence of the collapse of the interior of the portion of a block of unfinished buildings called Abbey Mansions, Orchard Street, Westminster, the property of Mr. Pawley.

Mr. Justice Grantham: I have not had an opportunity of seeing the finding of the coroner's jury, and I wanted to see on what it was founded.

Mr. C. F. Gill: The finding of the coroner's jury was as follows:—"The deceased met their deaths through injuries received by the collapse of a portion of the south block of Abbey Mansions. The cause of the collapse was owing to the faulty design and construction of the pier due to the culpable negligence of the architect. The jury are of opinion that some of the concrete in the roof was carelessly mixed and irregular in quality, but it was not the initial cause of the collapse. In the opinion of the jury a greater amount of public control should be exercised over the construction of buildings."

Mr. Justice Grantham: What is that about the concrete in the roof?

Mr. C. F. Gill: That is part of the finding, my lord.

Mr. Horace Avory: I have a shorthand note of it here.

Mr. Justice Grantham: No, there is nothing here on the Coroner's depositions as to that. I see there are several men who have been killed, it may be I may find one to which it is added. It is certainly most remarkable. I will go through them all. No, each of these seven is limited to the pier.

Mr. Gill: It is clearly wrong that should be so.

Mr. Avory: The finding of the coroner's jury was a special finding, and the passage with regard to the concrete in the roof should have been recorded.

Mr. Gill: It is clearly wrong; it was a written special verdict. The verdict ought to have been returned in the form in which it was handed in by the jury. There is no doubt that it was a verdict returned in the terms I have read to your lordship. One question in the case was the state of the concrete in the roof. A considerable amount of evidence was given as to the concrete, and the jury expressed the opinion that some concrete in the roof was carelessly mixed and irregular in quality, but it was not the initial cause of the collapse.

Mr. Avory: I was there, and I have a shorthand note of what took place. A long discussion ensued between us as to what the effect of the verdict was. The coroner said he should construe it as a verdict of manslaughter.

Mr. Justice Grantham: I do not think it is material now or that it is worth while discussing it further.

Mr. Gill: I was under the impression that it was before your lordship.

Mr. Justice Grantham: No it is not. I think the verdict ignores altogether the matter of the concrete.

Mr Gill: It is fortunate that there is a reliable report of the finding. Mr. Avory was present at the inquest, and contended that the finding of the coroner's jury should not be construed into a verdict of manslaughter. I am not concerned to discuss how matters are conducted before the coroners' courts; sometimes extraordinary things occur there. The result of the collapsing of the roof was that the floors gave way, and the unfortunate men met their death. At the inquest there was very properly a full and exhaustive inquiry as to what brought about this terrible accident. A great mass of evidence was given in order to deal with what the actual cause was. It turned a good deal upon the opinion of experts as to the weight a pillar might bear. There were considerable differences of opinion among the witnesses who were called, and there was a considerable body of evidence given showing the condition of the concrete in the roof. In the course of that inquiry before the coroner there was no opportunity of counsel addressing the jury or dealing with questions that have arisen in order to point out questions which might arise. The view I take is that there is no kind of evidence here to justify me in asking the jury to find the defendant guilty of manslaughter, and therefore it is unnecessary to embark on a long inquiry of this kind at the end of which I should not be acting rightly in asking them o find a verdict of guilty, and so I propose to offer no evidence.

Mr. Horace Avory: May I say a word on behalf of Mr. Pawley? As my learned friend has properly said, neither counsel nor solicitor representing an accused person before a coroner has any right to address the coroner or the coroner's jury upon the law or upon the facts. And I wish to call your lordship's attention to this fact, that the inquest was started under the impression—an impression created by a letter written by a witness named Collins—that this pier which was the subject of discussion had been constructed in a most negligent, and culpably negligent, manner, with soft bricks and mortar, and everyone was prepared to admit that if this had been its real construction it was most gross carelessness, and he would be guilty of manslaughter. Then Mr. Collins wrote a letter to a member of the London County Council—that was really before the inquest was opened—and it was referred by the London County Council to the coroner. This letter was read or stated to the jury before the inquest commenced, and they started upon this inquiry with the preconceived opinion that the pier had been constructed in this manner, and when I arrived on the scene it was clear to me that there was a notion prevalent in the court that this was the actual nature of the pier, the construction of which had been conducted in the most negligent way. When Collins gave evidence he repeated some of these statements, and swore that the pier was constructed with soft bricks and mortar, and that the joints of the iron girders were not bolted but merely tied with string. That was the evidence that this man gave on oath. I very soon after that had an opportunity of extracting from other witnesses who actually constructed the pier and others who saw it after it had fallen what the material was, and there was not a word of truth in his statement that it was constructed with soft bricks, but of good hard bricks and cement as every expert admitted. When I started on this inquiry the jury and the coroner looked with horror when I said that Collins had committed perjury and it was clear that he had committed perjury. That shows the way the inquiry was started, and there was a preconceived idea as to the way in which the pier was constructed. It was quite obvious that the jury were acting under the impression that because Mr. Pawley had not disposed of it——

Mr. Justice Grantham: Having an opportunity of giving evidence, and not giving evidence, he must be guilty.

Mr. Avory: Yes. That appeared to me to be the view which prevailed at the inquest. As you see by the depositions, it very soon became evident that the only issue in the case which the jury had to decide was whether the collapse was due to the centring of the concrete roof being struck too soon or whether it was due to the inherent weakness of the pier which supported the girders. That was the real issue upon which the case had to be fought. It was admitted by those who were responsible for striking the centring that some of the roof had only been laid about six days and a small part of it only four days, and the major portion of it not more than thirteen or fourteen days. It was admitted by those who were responsible for the laying of the roof, and it was admitted by the expert who was called and upon whose evidence this verdict was found, that seven days was the minimum safe time to strike a concrete roof of this description, and therefore some of it had been found to be struck within the safe time of doing it. Some of the witnesses on the other side said that twenty-one days was the only safe time in which the centring for a roof of such a thickness should be struck. Further, in their opinion none of the roof was sufficiently set to justify the centring being removed. It was also admitted by those responsible for removing it that Mr. Pawley himself had given instructions on the very morning of the accident that the centring was not to be removed because it was in his opinion not sufficiently set.

Mr. Justice Grantham: Have you got a copy of the plan showing the way in which the roof was constructed? I have no notion of how it was made up.

Mr. Avory: I can describe it in one minute; it was a flat roof, the girders go across.

Mr. Justice Grantham: Whether it was arched or not?

Mr. Avory: No, it was absolutely flat. The boards are bolted through and the concrete is simply poured in. The moment you remove the support underneath the thing may fall. Mr. Pawley himself had given directions that it should not be struck, but either by some accident, some misunderstanding, or something worse, the persons who were responsible for having laid this roof, in fact in the middle of that day, proceeded to remove the whole of the centring. There were independent contractors for the construction of the roof. While the men were actually engaged in the operation of removing the centring of the roof it fell, and the very first thing that would have been heard was the cracking of the roof, and actually on hearing the cracking they escaped with their lives in their hands to the parapet of the wall, and it could not be disputed that this collapse took place at the very time that the men were removing the centring from the roof. Therefore, if I had had an opportunity of addressing the jury or the coroner I

should have pointed out that the very way in which the men were removing the centring was the obvious cause of the collapse. My lord, on the other hand, in order to support this theory that it was the fault of the pier and that the pier gave way and so let down the roof, one witness was called as an expert for the purpose of establishing that. The district surveyor admitted that it never occurred to him that there was any danger or that there was anything improper about it. He said that his first view was that it was undoubtedly the concrete which fell from the roof that so caused the collapse, though he subsequently altered that opinion. He came to the conclusion that it was the concrete at the outset. There were three independent gentlemen all well known, including the Vice-President of the Institute of British Architects, and they all said that in their judgment they were quite satisfied there was nothing faulty in the construction of the pier and that the collapse was entirely caused by the centring being removed from the roof. On the other hand, the superintending architect to the London County Council, Mr. Blashill, was called, and he said he had formed an opinion that it was the pier which gave way. If his conclusion is right, then the very worst that can be said against Mr. Pawley is that he differs in opinion. The witnesses called on behalf of Mr. Pawley say that 7 tons per foot super were the safe load for such a pier. Mr. Blashill says that 5 tons per foot super are the safe load. In fact this pier had 6·9 tons per foot super on it. He went on to say that some architects went beyond 5 tons, some had gone as far as 7 tons, and he (Mr. Blashill) was not prepared to say that 7 tons per foot super was not a safe load. Mr. Gruning, the vice-president of the Institute of British Architects, said that 7 tons per foot super was perfectly safe for a pier of this construction, so, as the evidence stood before the jury, Mr. Pawley was not in fault, and there was even no evidence before the jury that there had been an error of judgment on his part. If that was so with regard to professional men, most of us here might be guilty of misdemeanour on account of errors of judgment. I make these observations only for the purpose of showing your lordship that in my view the very worst that could be put against Mr. Pawley was an error of judgment. Upon these depositions I say that no jury should have come to this conclusion. Other architects are prepared to say that 7 tons is a safe load for this pier. There were only 6 tons and a little over in this case at the time, and the district surveyor, in fact, has admitted since that his report saying that the accident had been caused by the faulty construction was possibly influenced by the opinion of his chief, the Superintendent Architect of the London County Council. He did say he had modified his view and that perhaps it might be the concrete that fell. For these reasons, if I had not anticipated that this course of offering no evidence would be taken by the Treasury, I should undoubtedly have moved in the High Court to quash the inquisition by *certiorari*, because there were many grounds open upon which I could have moved for it to be quashed.

Mr. Justice Grantham: How far up did the pier go—right to the top?

Mr. Avory: Yes, my lord.

Mr. Justice Grantham: Gentlemen, this is a very important question which has been discussed by the learned counsel, because a course has been taken which perhaps will disappoint some people very much. It is quite right that this course should have been taken openly, so that everyone may understand what has happened. It was a very lamentable accident, a large building suddenly falling and sending seven men into eternity at once and injuring others. Naturally people said somebody must be to blame, and undoubtedly, unless it was a pure accident, somebody ought to be punished, and naturally they searched about to see who was to blame, and the first thing that was suggested was who was the architect? That is the view taken by the majority of the public generally at any rate. Unfortunately it does seem to have been initiated by a letter written by one of the witnesses, who for some reason or other was apparently so interested in some way, at any rate he seems to have made a statement in his letter which was not justified by his facts, and undoubtedly that letter seems to have influenced the minds of the jury and also the mind of the coroner. It was a very difficult matter to investigate, and I have no fault to find with the way in which the inquest was held. After a very long inquiry and a mass of evidence which took me five hours to read, the coroner came to the conclusion on the finding of the jury that the defendant was solely responsible for this accident, and that the negligence was culpable, and that therefore a verdict of manslaughter had been found by his jury. It was certainly unfortunate that the whole verdict was not put upon the coroner's depositions. I am not blaming any of the officers that I had not before me the exact finding of the jury. The Treasury very properly were desirous of knowing what view I took of this case, and I was requested specially to go through the evidence to tell them and advise them whether in my opinion they would be justified in occupying your time for at least a week, when at the end of that time it would have been impossible to say that he was guilty. I must say, therefore, from what I read, for the jury to have found a verdict of manslaughter against the defendant I think was a very extraordinary finding and quite wrong. I had no hesitation in advising the Treasury that they would not be justified in asking the jury to find the defendant guilty of manslaughter. In my judgment the primary cause of the accident was clearly the removing of the centring from the concrete. Not being an architect, and not knowing at first what that centring meant, in going through the evidence I endeavoured to find whether the exact construction of the roof was described, but failed to find any such description, and that was why I asked whether the roof was arched or not. The conclusion I came to was—if I had to come to any conclusion as to what was the cause of the accident—that it was certainly the removal of this centring; and the accident happened immediately upon its removal. It is a very remarkable thing that the accident happened simultaneously with the removing of the centring. While the centring, unfortunately, is being so removed a crash or a rumble or something is heard and down it goes on to the girder below. That fell on to the girder on the next floor below, and as that fell the weight of the falling mass would be increased, and as it fell to the next floor below the weight would be greater by the weight of that floor and so it goes right the way down with increasing weight, but it must all have happened so simultaneously that it was difficult to know which had fallen first. You cannot imagine how short a time the whole thing falling on the iron girder would occupy; it would only be a few seconds. Therefore I am not at all surprised that the jury found it difficult to say which fell first. You must look at the case as well as the evidence on which it is based. The allegation against Mr. Pawley was that there was a faulty construction of the pier in two ways, that soft bricks instead of hard bricks were used and mortar instead of cement. It appeared that someone had sold 100,000 bad bricks for this work, and the statement was that they were found to be bad and were ground up for mortar, but no doubt some of them had been used for building, and the suggestion was that they had been used in this pier. If they had been, of course, and the pier had to take the weight of something like five or seven tons per foot super, it would have made the man guilty of culpable negligence. It is also said that mortar had been used instead of cement. That, of course, would influence the jury. It is rather difficult for me to know the course the evidence took. The evidence of each witness is all put together, and a great many other witnesses were called in the interval before a particular witness was recalled, and so the matter went on, and it is almost impossible for me to follow the various statements. I come to the conclusion, after having gone through the whole of the evidence, that there was no evidence to justify the statement that in the construction of the pier soft bricks and mortar had been used. I find there was nothing to justify the statement except Collins's statement. In my opinion that is a false statement, but whether intentional or not I do not say. I come to the conclusion that it was a false statement of fact and that the pier was not made of soft bricks, but of proper hard bricks and cement, and that when it was examined it was found to be of good solid construction. That being so, and there being no evidence whatsoever that the cause of the accident was the collapse of the pier, and the accident being through no fault of the accused, and the fact being that this concrete does require a considerable time to set, and that you ought to take the extreme view with regard to the period of setting instead of the shortest time; and, again, there being a doubt as to the composition of the concrete, and whether a certain class of material had been used and required a lengthy period to dry, on these questions I came to the view that the real cause of the accident was the removing of the centring from the concrete, and at any rate so far as this trial was concerned it would be most unfair to ask any one to find the prisoner guilty where some one else, if any one, was guilty, and consequently the whole time would have been wasted by holding the inquiry over again, and therefore I advised the Treasury, perhaps I should not say that, but I did suggest this course should be adopted. The whole matter has been thoroughly investigated, and you will say therefore that the prisoner is not guilty.

The Clerk of the Court: You say, gentlemen, the prisoner is not guilty?

The Foreman: Not guilty.

Sir Arthur Arnold has given notice of the following motion to be proposed at a meeting of the London County Council:—"That it be an instruction to the general purposes committee to make inquiry in Paris, Berlin and Brussels as to the connection which obtains in those cities between the operatic and dramatic stage and the State and the municipal governments respectively, and to report to the Council thereon."

ESHER AND CLAREMONT.*

CLAREMONT has attained to its highest importance among the demesnes of Surrey since the time of Queen Anne. In her reign, Sir John Vanbrugh, the architect, purchased some land at Esher and erected on it a small brick house for his own residence. This dwelling, which stood on low ground, without any advantage of prospect, was subsequently sold to Thomas Pelham Holles, Earl of Clare, afterwards Duke of Newcastle. He added a magnificent room for the entertainment of large companies when he was in administration, and greatly augmented the estate. He likewise caused a castellated prospect-house to be erected on a mount in the park, calling it after his own title, Claremont, which subsequently became the general name of the estate. During his occupancy the grounds were laid out under the direction of Kent, whose talent as a landscape gardener has been proved at Esher Place. On a tablet in Claremont is the following :—

"Sir John Vanbrugh, Knight, owner of the estate, 1708, a dramatist and artist of celebrity. He built the first mansion of which the gardens were laid out under Kent, by orders of Holles, Earl of Clare and Duke of Newcastle, Prime Minister to George II. and III., and bestowed on it the name of Claremont."

On the decease of the Duke of Newcastle in 1768, *sine prole*, the title became extinct, his brother, the Right Hon. Henry Pelham of Esher Place, having died without male issue in 1754. This property was afterwards sold by the Duchess of Newcastle to the gallant Lord Clive, to whose vast talents and indefatigable exertions, both in civil and military capacity, the foundation of British power in India must unquestionably be ascribed. Whilst Claremont remained in his possession the grounds were remodelled, and a new mansion was built under the direction of Lancelot Brown, on whom the sobriquet of "Capability" Brown was bestowed by his contemporaries, in consequence of his frequent use of that word when giving advice in his twofold profession of landscape gardener and architect. Manning states that Brown was employed to execute the work "without any limitation of expense," and that he "performed the task much to the satisfaction of his lordship, who did not regard the cost, which is stated to be more than 100,000*l*."

While in a paroxysm of acute pain, Lord Clive, by reason of the ignominious charges insinuated against him during his government in India, committed suicide at his house in Berkeley Square, 1774.

At that time, Edward, his eldest son, afterwards Earl of Powis, was in his minority, and Claremont was subsequently disposed of to Viscount Galway. The next possessor was the Earl of Tyrconnell, who in 1807 resold the property to Charles Rose Ellis, who in 1816 conveyed the whole to the Commissioners of His Majesty's Woods and Forests, under the Act (26 George III. cap. 25) for providing a suitable residence for H.R.H. Princess Charlotte (the only daughter of the Prince Regent, afterwards George IV.) upon her marriage with Leopold, Prince of Saxe-Coburg.

It was at Claremont that for a short yet blissful period this amiable princess lived in all the happiness of conjugal and domestic union, and here she drew her last breath in childbed on November 6, 1817, having been delivered of a still-born infant a few hours previously. Never before had the ruthless destroyer of men struck a being whose loss was so deeply mourned—so universally lamented. Whilst the bereaved prince continued to reside here, and for a considerable time afterwards, the apartment in which the princess died was kept closed and its furniture undisturbed. From the time, however, of his leaving this country to take the throne of Belgium the house has been occupied, and it was one of the favourite residences of the Queen when Princess Victoria. Louis Philippe and Marie Amelie, king and queen of the French, resided at Claremont from 1846 to 1866, when His Majesty King Leopold died.

Claremont is said to be "the only complete mansion that Brown ever built, though he altered many." It occupies a commanding eminence near the middle of the park, and forms an oblong square; the building is of brick, but the windows and dressings are of stone. On the eastern front is a stately portico of the Corinthian order, within the pediment of which is a large sculpture of the arms of Lord Clive. The saloon, or entrance-hall, approached by a flight of twenty-one steps, is ornamented by marble columns, and the walls are enriched by panels of various devices in low relief. Besides the hall, which is of an oval form, and the great staircase there are eight spacious rooms *en suite* on this floor.

The library opens to the dining-room, in which is an excellent oil-painting of Queen Victoria by Winterhalter. The gallery is a capacious apartment, intended to have been fitted up with damask expressly chosen for it by the late Princess. It contains, however, a Persian carpet, sent by Lord Clive for this room, about 100 years old. Here are full-length portraits, both of the Princess Charlotte and Prince Leopold, by Dawe.

Claremont consists of about 300 acres, comprising park, pleasure-grounds and avenues. These are intersected by many good specimens of ornamental and hardwood trees.

At a short distance from the mansion, on the west, is the mount which gives names to the estate, and which rises with a rapid sweep to a considerable height. It is surmounted by the castellated tower (called the Observatory) built, as already stated, by his Grace of Newcastle, and which commands from its summit most extensive and beautiful prospects over the circumjacent country. It is constructed with brick in three storeys, with stone dressings.

About a quarter of a mile from the house in a north-westerly direction is the mausoleum of the late Princess Charlotte. It is in the Pointed style of architecture. This structure was originally designed by the Princess for an alcove or open seat. Being unfinished at the time of her decease, it was completed by Prince Leopold in a more expensive manner than was at first intended, and converted into a mausoleum to her memory. It stands on a commanding plot of ground artificially heightened; in front there is a garden, whence a bird's-eye view is obtained over the lake below and its surrounding foliage. The interior has a groined ceiling enriched with tracery, over which a chastened mellow light is shed by the stained-glass that ornaments the windows.

In descending from the garden towards the lake a finely varied succession of lawns and shrubberies, interspersed with occasional forest trees of stately growth, delights the eye and leads to a spacious expanse of water surrounded by trees. This lake occupies about five acres. On the north is a luxuriant bank of rhododendrons and other evergreens; in the centre is a finely-wooded islet, and on the south-west side, backed by large trees and underwood, is some artificial rock-work connected with a ruined grotto.

In the farm grounds on the eastern side of the park is an obelisk erected by the Duke of Newcastle during his residence here; it is surmounted by the Pelham crest—a peacock.

At a short distance from the house, on the north-east side, are the flower and kitchen gardens, which with the slips include about ten acres of ground; of these nearly seven acres are enclosed by strongly-built walls of red brick, the erection of which is ascribed to Sir John Vanbrugh, whose own house stood on the low ground between the two cedar trees directly in front of the present mansion.

Claremont Park is about three and a half miles in circumference, the chief entrance being in Esher, on the road to Leatherhead. It is surrounded by a ring fence, and includes about 300 acres; but the whole extent of the Claremont demesne is probably not less than 1,610 acres, its late royal possessor having greatly enlarged the estate by the purchase of adjoining lands.

Claremont became the residence of H.R.H. Prince Leopold, Duke of Albany, who brought here his bride, H.R.H. Helen, Duchess of Albany, Princess of Waldeck and Pyrmont, on April 27, 1882. Her Royal Highness, with her children, the Princess Alice of Albany and the young Duke of Albany, continues to reside here.

Leaving Claremont, a pleasant walk through the pine woods brings us to Waterville, a portion of the ancient Manor of Esher-Waterville. It is mentioned in Domesday Book as 5 hides of land in Esher, pertaining to the Manor of Cobham belonging to the Abbot of Chertsey, and was held of the abbot by William de Waterville. From that time down to the present the Manor has passed through various hands, and been broken up into various parts, the principal portion being owned by the Commissioners of H.M. Woods and Forests. The portion after we leave the bridge belongs to Mrs. Frewen, of Arbrook.

We have now returned to Esher, about which beautiful village much has been said and written. William and Mary Howitt made it their home for many years, and roamed amongst its pleasant woods and lanes, and before their day the poet Edward Moore, who wrote between 1712 and 1757. In a poem entitled "Virtue in Search of an Earthly Abode," he sings :—

Long thro' the sky's wide pathless way
The muse observed the wand'rer stray
And marked her last retreat.
O'er Surrey's barren heaths she flew,
Descending like the silent dew,
On Esher's peaceful seat;
There she beholds the gentle Mole,
His pensive waters calmly roll
Amidst Elysian grounds;
There thro' the wanderings of the Grove
She leads her family of love,
And strews her sweets abroad.

Descending from poetry to the baldest prose I shall now give you some account of Esher, and I find from the local directory that it is a parish on the Portsmouth road, four miles

* A paper read by Mr. Charles Findlay at the visit of the members of the Upper Norwood Athenæum.

south-west from Kingston and fifteen miles from London. There were several manors or parts of manors in Esher (Aissela) at the time of Domesday Survey, the principal one belonging to Leutfields Cross Abbey. In the reign of Henry III. the abbot sold it to the Bishop of Winchester, and it remained in the possession of that See until the reign of Henry VIII., when it formed a part of Hampton Court Chase. Queen Mary reconveyed it to the Bishop of Winchester. Queen Elizabeth bought it and conveyed it to the Earl of Effingham, who sold it to Sir Francis Drake. Lord Clive bought it in 1768 and built Claremont Palace. Esher is described in Cromwell's "Commission of Enquiry" as "distant from Thames Ditton about a mile and a half, the way indifferently good both summer and winter." The incumbent was Mr. John Bunting; his church was called Esher or Sandy Chapel, worth about 50*l.* per annum. That was about the year 1658. As far back as 1284 we find that the rectory was conveyed by the Prior of St. Swithin to the Bishop of Winchester, and the conveyance was confirmed by King Edward I. in that year. Of the old parish church or Sandy Chapel very little history can be found. St. George's Church, the present old church, consists of a nave only with chancel, and the Duke of Newcastle built a chamber pew. The chancel windows are said to have been famous for stained-glass. There are several interesting monuments in the old church. Against the south wall is a marble monument by Flaxman. On the top is a dove and on the tablet the words, "The Lord giveth and the Lord taketh away." Below is carved a bunch of lilies. This was erected in memory of the wife of Charles Rose Ellis, the only daughter of Lord Hervey, and who died at Nice in January 1803. Various other tablets are to be seen, but I shall not weary you by describing them. In the chamber pew built by the Duke of Newcastle the Queen used to attend the services in St. George's Church.

In 1852 the old church was found to be glaringly deficient in accommodation for the needs of the residents, and the then rector says in a circular issued to the parishioners, that "there is no possibility of extending the church inasmuch as it was surrounded to its very walls by graves and family vaults." The new church was accordingly built, and was consecrated by the Bishop of Winchester, under the name of Christ Church, on May 4, 1854. From the Registry of the Commissary Court of Surrey, Doctors' Commons, it is learned that Her Majesty's Commission, in exercise and execution of the power of authority vested in them, with the consent of the Bishop of Winchester, of the patron and the rector, declared that the said new church called Christ Church "shall be and the same is hereby substituted for the old parish church of St. George in the said parish of Esher, and they transfer all the rights, endowments and emoluments belonging to the old parish church of St. George at Esher to the rector or incumbent thereof and his successors for ever." This document was signed and sealed by Her Majesty's Commissioners, the Bishop of Winchester, the patron and the rector, on May 9, 1854. The reredos was erected by Mr. Few, one of the parishioners, in memory of his wife, who was buried in the churchyard on April 17, 1878.

The monument in the church in memory of H.R.H. Leopold, Duke of Albany, was unveiled on December 3, 1884, by the Duchess of Albany.

There are many beautiful and interesting monuments in the new churchyard. Among others, one to the memory of Rev. Charles Clarke, who was the author of several works of fiction and an eminent contributor to "Baily's Magazine, and besides, he carried on the famous school in the "Old House." What the school was famous for I do not know, but some of you may. He was buried on July 27, 1870.

Samuel Warren was buried near. He was, as all of you know, the author of "Ten Thousand a Year," "Now and Then," "The Lily and the Bee," &c.

The monument erected by Lord Esher over the vault which was built on the occasion of the death of Lord Esher's second son, Eugene Leopold Selwyn, of the Scots Guards, is a fine structure, and is remarkable in that it represents the two life-size figures of Lord and Lady Esher, who are still alive.

Leaving the church, we now come to Mr. Williamson's studio, and I am sure one and all of us are highly indebted to Mr. Williamson for affording us the opportunity of witnessing so many beautiful works of art as are displayed here, and of being admitted, as it were, into the very arcanum of the sculptor's art. So many excellent examples of Mr. Williamson's genius were before our eyes, all equally fine, that it is difficult to particularise or set out one before another. But I think you will all agree with me that in nothing does Mr. Williamson so much excel as in his fine depicture of the ideal. His faces are exquisite, and not copies from Greek or Roman gods or heroes, but the outcome of his own genius. Charles Kingsley's "Hypatia" strikes us at once on entering the studio. It is a magnificent figure, and shows out grandly the genius of the sculptor. The statue of Liberty is also a striking one. In both of these the type of female beauty, as conceived by Mr. Williamson, is finely exemplified. Words fail me to describe all we saw, but you have the recollections of it in your own mind. The studio teems with busts and statues of the Royal Family from Her Majesty down to the little York princes, which shows the high esteem in which Mr. Williamson is held by Her Majesty and her illustrious house.

I must apologise for having kept you so long. The difficulty is that one cannot well condense historical dates and facts when these are in sequence, and I had little time at my disposal for getting up this paper. As it is, I have had to leave out much that would have interested you, and other places worthy of a ramble have presented themselves to which I hope I may have the pleasure of conducting you at some future time—Esher Place, the residence of Sir Edgar Vincent, for instance. The grounds there are most extensive and beautiful, and the Place is of much historical interest, having been the residence of Cardinal Wolsey when he was ordered by Henry VIII. from Hampton Court.

ENGLISH ART IN THE EIGHTEENTH CENTURY.

IN the second of his course of lectures upon this subject, Mr. Humphry Ward dealt with the life and works of Sir Joshua Reynolds. He remarked that the great debt which English art and civilisation owed to Sir Joshua was not only due to his qualities as a painter, it was due in an almost equal degree to his personality. Perhaps his greatest achievement of all was to persuade the Court, the aristocracy and the men of letters that art is an essential part of civilisation. In two ways he showed that he was something more than a great painter. He was able to form general views about art and to state them authoritatively and in admirable literary form; and, moreover, his strong personal charm gave him the power of becoming and remaining the friend of the most influential people of his time. Proceeding to sketch the life of Sir Joshua, the lecturer described his early years, his residence in Italy from 1749-52, his immediate and wonderful success in London, and the different stages of his subsequent career, with the gradual modifications of his style. By a series of lantern slides he illustrated the wide scope of the painter's invention, and showed how, though he painted over 2,000 portraits, he seldom repeated himself, verifying Dr. Johnson's remark, "I know no man who has passed through life with more observation than Mr. Reynolds." Then, passing to the Discourses, he spoke of Sir Joshua's views on "the grand style," and of that curious paradox, noted by Mr. Ruskin, that his own immortal successes belonged to a class of art which he himself thought secondary, while his failures belonged to the class which he considered the highest. He told the story of the once famous picture of "The Infant Hercules," which was sold to the Empress Catherine for the then enormous sum of 1,500 guineas, and which a few years ago was found after a long search by an enterprising English lady, without its frame, with its face to the wall, hidden in the midst of a stack of pictures in one of the garrets of the Hermitage Palace at St. Petersburg. The contrast between the fate of these "grand style" pictures of Sir Joshua and his portraits, of which the value is rising every year, was curiously significant. The lecturer announced that the remainder of the course would be deferred till the autumn.

SCIENCE AND ART MUSEUMS.

THE select committee appointed to inquire into the administration and cost of the museums of the Science and Art Department met on Friday last to consider the terms of their report. Two drafts were submitted, says the writer of "Political Notes" in the *Times*, one by the chairman (Sir Francis Powell), the other by Lord Balcarres. After a brief discussion it was agreed that the chairman's report should be taken as a basis for discussion—or, to employ Parliamentary phraseology, should be "read a second time par. by par."—it being understood that certain of the recommendations formulated by Lord Balcarres should be added to Sir Francis Powell's document as amendments. Coming to details, the committee adopted, with some verbal modifications, the introductory paragraphs relating the circumstances in which the South Kensington and Bethnal Green Museums, the Museum of Practical Geology, Jermyn Street, and the Edinburgh and Dublin Science and Art Museums were formed, and the methods of administration which prevail in connection with these institutions; after which the proceedings were adjourned until Friday next, when the discussion of the recommendations which Sir Francis Powell invites the committee to sanction will be entered upon.

Sir Francis Powell's principal suggestions are that there should be an Education Minister of Cabinet rank having a seat in the Legislature, aided by a Parliamentary Secretary; that the Secretary for the Science and Art Department, like the Secretary of the Education Department, should have an office at Whitehall; that there should be advisers or visitors who

would assist the Department by suggestions or information in matters affecting the museums, but would not lessen the responsibility to Parliament of the Parliamentary chiefs; that, with a view to facilitating communications between the Parliamentary heads and the principal officers of the museum, one at least of the former should visit the museum weekly, or more frequently, and confer with such members of the staff as the state of current business renders it desirable that he should consult on the management of the museum; that, while leaving with the Parliamentary heads a wide discretion as to the duties of the staff, larger discretion as to purchases should be vested in the directors of the Science and Art Museums, and officers should be, as far as practicable, assigned to different divisions in the Art Museum in order that they may become experts; that the director of the Science Museum should possess scientific attainments, and that the director of the Art Museum should have like qualifications as regards art; that the staff at the South Kensington Museum should be increased; that, having regard to the annually increasing demand made by local museums and schools of art on the South Kensington collection for circulation, the Parliamentary grant for purchases should be increased; that admission to all the museums should always be free; that provision for science instruction and for loans for scientific objects be placed on the west side of Exhibition Road exclusively, the Art Museum, the Art Library, provision for art teaching and for loans of art objects being placed on the east side exclusively; that the Jermyn Street collection be removed to the west side of Exhibition Road, care being taken to preserve its special characteristics, save that the artistic pottery should be placed in the Art Museum; that provision be made for the residence of the principal officials in the immediate neighbourhood of the museums in which they are employed; and that negotiations be carried forward with a view to transferring to some local authority the site and structure of the Bethnal Green Museum, the Dixon collection of pictures and any other objects specially dedicated by donors under their wills or otherwise.

The alternative report prepared by Lord Balcarres recommends, *inter alia*, that the responsibility of administration should be localised; that the position of high officials should be clearly defined and that officials should not be "shuffled" from branch to branch; that papers in special subjects should be added to examinations and that the system of probationary reports should be immediately re-established; that the military garrison should be removed, the works department reorganised, large economies effected and the estimates thoroughly overhauled; that art referees should be discontinued and the rubbish in the museums suppressed; that loans to the museum should be insured and compensation paid in the event of damage; that the circulation section should be developed, greater care being taken in selecting objects, loans for three or four days being discouraged and cheap catalogues being provided; that a separate staff not liable to shuffling should be maintained for the Art Library, a special subject being added to the entrance examination, and the keeper being made in some way responsible for the library; that a board of visitors with clearly-defined status and functions should be established; that the elimination and selection of exhibits in the Science Museum should be carefully considered, circulation developed and the museum of fish culture abolished; and that Edinburgh Museum should have better exhibits and more free days, Dublin Museum should have a larger staff, and Bethnal Green Museum should have special treatment, a library, lecture-rooms and possibly a school being attached to it and good objects being sent there. In regard to the provision of offices in Whitehall, the removal of the Geological Museum from Jermyn Street to South Kensington, the total separation of the Science and Art Departments, and so on, Lord Balcarres is generally in accord with the chairman.

LORD LEIGHTON'S DRAWINGS.

THE collection of the late Lord Leighton's drawings and sketches now hanging on the walls of No. 2 Holland Park Road, which was for so long his residence, has lately been enlarged by the addition of more than 500 drawings, presented by Mrs. Sutherland Orr and Mrs. Matthews, Lord Leighton's sisters. It is chiefly owing to the generosity of these ladies that the collection has been secured for the public. Not only have they given by far the larger number of drawings, but they have also given help, without which the undertaking could not have been started. There are also on these walls a good many examples of Lord Leighton's painting. Mr. G. F. Watts, R.A., for instance, has given to the collection a painting much prized by him as having been presented to him by his friend many years ago. Among other contributors and among the members of the committee formed to secure the collection are the Prince of Wales, the Archbishop of Canterbury, the Archbishop of York, the Earl of Rosebery, the Bishop of London, the Bishop of Winchester, Lady Lyttelton, Lord Tennyson, Sir John Lubbock, Sir Henry Acland, Sir Alfred Lyall, Sir William Hunter, Sir Robert Hunter, Mr. Alfred de Rothschild, Mr. Leopold Rothschild, Sir W. Richmond, R.A., Mr. G. F. Watts, R.A., Mr. Alfred Waterhouse, R.A., Mr. Brock, R.A., Mr. Briton Riviere, R.A., Mr. MacWhirter, R.A., Mr. Frank Dicksee, R.A., Mr. Hamo Thornycroft, R.A., Mr. F. G. Jackson, R.A., Mr. George Aitchison, R.A., Mr. Holman Hunt, Mr. Walter Crane, Sir C. Hubert Parry, Herr Joachim, Mr. C. Villiers Stanford, Mr. Arthur Somervell, Mr. J. A. Fuller-Maitland, Mr. and Mrs. Russell Barrington, Mr. Lionel Cust and Mrs. Richmond Ritchie. Mr. Brock, R.A., has given a fine reproduction of his bust of Lord Leighton, which is placed in the hall of the house, while Lord Davey, Mr. A. Henderson, the Fine Art Society, Messrs. Agnew, Messrs. Colnaghi, Messrs. Tooth, Messrs. Cassell, the proprietors of the *Graphic* and others give reproductions of Lord Leighton's completed works. The Prince of Wales has presented to the collection the drawing *Summer Slumbers*.

ARCHITECTS' BENEVOLENT SOCIETY.

THE following report of the Council was adopted at the annual general meeting:—

The Council of the Architects' Benevolent Society, in presenting their annual report, have much pleasure in recording the fact that the progress in the Society's affairs during the past few years has been maintained in the year under notice. In view of the many calls upon the means of private individuals during the past year, the Council did not think it advisable that any special appeal on behalf of the Society should be made to the architectural profession; nevertheless, they have the satisfaction to report that many liberal donations have been received by the Society, and that several new names have been added to the list of subscribers.

Although the Society now possesses 300 annual subscribers, the Council feel that this number is not sufficiently representative of the large body of architects practising in the United Kingdom; they are assured that there must be a large number of architects, not subscribers to the Society, who would be desirous of helping their less fortunate brethren, or their widows and children who have been left insufficiently provided for. The usefulness of the Society would be increased in proportion to the augmentation of its list of subscribers; and the Council would remind those who have not contributed to the funds of the Society that an annual subscriber of one guinea has the privilege of recommending two applicants for grants during the year, and that relief is always afforded to worthy and properly accredited applicants when there are funds available for the purpose. It is earnestly wished that the list of annual subscribers should be increased, and members of the Society might materially help in effecting this object by bringing its aims and work under the notice of their brother architects.

The amount received in annual subscriptions during the year was 456*l.* 10*s.*, as against 453*l.* 8*s.* in 1896. Four members have withdrawn, and twelve members were in arrear with their subscriptions when the books were closed for the year, and the following gentlemen have recently become annual subscribers:—Sir Benjamin Baker, Messrs. J. Wallis Chapman, Charles Henman, Delissa Joseph, C. W. Lovett, E. W. Mountford, Alfred Williams, Latham A. Withall and Alfred B. Yeates.

The capital account has been increased by the bequests of 100*l.* each of Mr. David Mocatta and Mrs. Ann Mocatta, and by the following donations:—The Merchant Taylors' Company, 21*l.*; John o' Gaunt Sketching Club, 15*l.* 1*s.* 7*d.*; Mrs. C. E. Barlow, 12*l.*; Mr. Wm. Emerson, 6*l.* 13*s.* (thus bringing the total amount of his donations to 100*l.*); the Nottingham Architectural Society, 5*l.* 5*s.* The following gentlemen have each made a donation of five guineas:—Mr. J. T. Christopher, Mr. G. Elkington, Mr. George Inskipp, Mr. C. Henman, Mr. E. W. Mountford, Mr. W. Hilton Nash, Mr. J. Tavenor Perry; and various smaller sums have also been gratefully received.

At the beginning of the year there was a balance of 64*l.* 10*s.* 2*d.* to the credit of the capital account, and the amount of bequests and donations received during the year came to 300*l.* 17*s.* 7*d.* It was therefore decided to increase the Society's investments by the purchase of 200*l.* Caledonian Railway Four per Cent. Debenture Stock, and the purchase was effected at a cost of 311*l.*, thus leaving a balance to the credit of this account of 54*l.* 7*s.* 9*d.*

A larger number of applications for assistance than usual were made to the Society and considered by the Council. After proper investigation in each case the sum of 607*l.* 1*s.* (as against 569*l.* 10*s.* in 1896) was distributed amongst forty-three applicants, and 70*l.* was paid to the Society's three pensioners.

As the exertions of successive Councils for many years have

succeeded in bringing the amount of the invested capital up to 10,000*l.*, your present Council consider that the Society might now increase its present list of three pensions of not less than 15*l.* a year each to six pensions of not less than 20*l.* a year each. The approval of this step would, the Council think, add to the happiness of deserving applicants by the knowledge that they were to receive annually a certain sum. A motion to alter by-law No. 65 so that the above proposal may be carried into effect will therefore be submitted to you.

Following the example of recent years, the Red Book containing a revised list of subscribers, statement of accounts, &c., was issued last June to contributors to the Society and to the members of the Royal Institute of British Architects.

The Council have to record with deep regret the death during the year of Mr. W. J. Gardiner, Mr. Octavius Hansard, Mr. John Hudson, Mr. M. B. Teulon, Mrs. H. G. Mason, Mr. Stephen Salter, Mr. C. J. Shoppee, Mr. J. Loughborough Pearson, R.A., and Mr. Thomas Wells, all contributors to the Society.

Six meetings of the Council have been held during the year, the average attendance of members present being eight.

The following gentlemen, being the five senior members, retire by rotation from the Council :—Mr. William Kidner, Mr. George Scamell, Mr. Zeph. King, Mr. George Inskipp and Colonel Robert W. Edis. To fill the vacancies caused by these retirements, the Council have the pleasure to nominate Mr. E. W. Mountford, Mr. R. St. A. Roumieu, Mr. Wm. Woodward, Mr. E. B. I'Anson and Mr. E. H. Martineau.

The balance-sheet and income account for the year ended December 31, 1897, duly audited by Mr. Thomas Rickman and Mr. R. St. A. Roumieu, are herewith submitted.

The Council, in closing their report, desire to express the indebtedness of the Society to the Royal Institute of British Architects for the use of rooms in which to hold their meetings and to the officers for their always helpful courtesy.

HAWICK ARCHÆOLOGICAL SOCIETY.

THE members of the Hawick Archæological Society had their annual excursion on the 22nd ult. A company of over sixty, accompanied by the Rev. W. A. P. Johnman, president of the Society, left Hawick in the afternoon in brakes, and driving by way of Denholm and Ancrum Bridge, the company arrived at Monteviot, where, through the kind permission of Lord Lothian, they were allowed to walk through the grounds, and passing over the private bridge which spans the Teviot, the company were reseated and proceeded to Jedburgh. The abbey, Queen Mary's house, &c., were visited, and tea was served in the Spread Eagle Hotel, under the presidency of the Rev. Mr. Johnman. Continuing the drive, Ferniherst Castle, on the banks of the Jed, was reached, and arrangements having been previously made, the excursionists were allowed to inspect the interior of this ancient building, which is at present being renovated by Lord Lothian. The return journey was made by way of Swinnie and Bonchester.

THE NATIONAL GALLERY.

THE following additions have been recently made to the National Gallery :—

Bequeathed by Miss Haines.—"A Landscape," by George Lambert, a painter of the English school of the last century. It is placed temporarily on a screen in Room XVIII.

Bequeathed by Mrs. Charlotte Fisher.—"The Battle off Camperdown, 1797," by Thomas Whitcombe. This will shortly be placed in the entrance hall on the eastern staircase descending to the Turner rooms.

Presented by the Right Hon. Sir Edward Malet, G.C.B.—A portrait of Adrian van der Werff, by himself. Hung in Room XI.

Presented by an anonymous donor.—A "Madonna and Child," by Luigi Vivarini. This picture is of interest as bearing the signature of the artist, but as it is not of sufficient value as a work of art to be placed in the Gallery, it is hung, with the consent of the donor, in the waiting-room to the offices.

Presented by Dr. E. J. Longton.—A water-colour copy by W. West of a portrait of a lady and child by Vandyke, forming part of the series of copies presented by the same donor in 1886.

The following have been purchased :—

The two wings of the altar-piece of which the "Vierge aux Rochers," now in the National Gallery, formed the central portion. They represent angels playing on musical instruments, and were painted by Giovanni Ambrogio de Predis in conjunction with Leonardo da Vinci, who did the central composition. One of these, No. 1,661, was apparently begun by Leonardo himself and carried out by the pupil; the other, No. 1,662, seems to be entirely the work of Ambrogio—they are temporarily framed and placed on a screen in Room No. VI. during the repairs which are going on in No. I.; a portrait by Hogarth of his sister, Mrs. Salter, hung in Room XIX.; and a picture by J. B. S. Chardin, called "La Fontaine," placed in Room XVI.

AN ANCIENT ROMAN HOSPITAL IN SWITZERLAND.

THE Zurich correspondent of the *Times* writes :—An ancient Roman hospital has been brought to light at Baden, near Zurich, the discovery having been made in conection with recent excavations at Windisch, the Roman Vindonissa. At Vindonissa the two great Roman roads met, the one leading from the Great St. Bernard along Lake Leman and then by Aventicum and Vindonissa to the Roman stations ou the Rhine; the other leading from Italy to Lake Constance by the Rhætian Alps, the canton which is now Winterthur, Baden and Windisch. The last point was the station of the seventh and eighth legions, and close by the Roman road the hospital has been discovered. It contains fourteen rooms supplied with many kinds of medical, pharmaceutical and surgical apparatus, the latter including probes, tubes, pincers, cauterising instruments and even a collection of safety pins used in bandaging wounds. There are also medicine spoons in bone, and silver measuring vessels, jars and pots for ointment, some still containing traces of the ointment used. The excavations have also revealed a large number of silver and copper coins, the former belonging to the reign of Vespasian and Hadrian, and the latter bearing the effigies of Claudius, Nero and Domitian.

THE EDINBURGH COCKBURN ASSOCIATION.

AT a meeting of the Council of the Cockburn Association, held on Friday, June 24, the following resolution was arrived at :—"That while in the opinion of the Council it was premature to commit the Association to a decision as to the merits of the various sites for the Usher Town Hall to be considered by the Town Council, the secretary be instructed to intimate to the town clerk that the general feeling of the Council was strongly opposed to the recommendation of the Lord Provost's committee to erect the hall at the west end of the West Meadows, and to suggest that the area proposed to be taken should be clearly staked off before that recommendation should be adopted." The secretary intimated that he had received a letter directing the attention of the Association to the dilapidated condition of the memorial monument to Miss Catherine Sinclair at the corner of North Charlotte Street and St. Colme Street, and he was instructed to endeavour to arrange for its restoration and future maintenance. Upon the letter directing attention to an unsightly brick building overlooking Market Street to the east of the Cockburn Hotel, it was remitted to the convener, with the secretary, to inquire into the matter, and to take such action as might seem desirable.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE subjoined schedule sanctioned by the Royal Institute of British Architects was confirmed at a general conference of architects of the United Kingdom, 1872, and revised by the Royal Institute 1898 :—

1. The usual remuneration for an architect's services, except as hereinafter mentioned, is a commission of 5 per cent. on the total cost of works executed under his directions. Such total cost is to be valued as though executed by a builder with new materials. This commission is for the necessary preliminary conferences and sketches, approximate estimate when required (such, for instance, as may be obtained by cubing out the contents), the necessary general and detailed drawings and specifications, one set of tracings, duplicate specification, general superintendence of works, and examining and passing the accounts, exclusive of measuring and making out extras and omissions.

2. This commission does not include the payment for services rendered in connection with negotiations relating to the site or premises, or in supplying drawings to ground or other landlords, or in surveying the site or premises and taking levels, making surveys and plans of buildings to be altered, making arrangements in respect of party-walls and rights of light, or for drawings for and correspondence with local and other authorities, or for services consequent on the failure of builders to carry out the works, or for services in connection with litigation or arbitration, or in the measurement and valuation of extras and omissions. For such services additional charges proportionate to the trouble involved and time spent are made. The clerk of the works should be appointed by the architect, his salary being paid by the client.

3. In all works of less cost than 1,000*l.*, and in works requiring designs for furniture and fittings of buildings, or for their decoration with painting, mosaics, sculpture, stained-glass

or other like works, and in cases of alterations and additions to buildings, 5 per cent. is not remunerative, and the architect's charge is regulated by special circumstances and conditions.

4. When several distinct buildings, being repetitions of one design, are erected at the same time from a single specification and one set of drawings and under one contract, the usual commission is charged on the cost of one such building, and a modified arrangement made in respect of the others; but this arrangement does not apply to the reduplication of parts in one building undertaking, in which case the full commission is charged on the total cost.

5. If the architect should have drawn out the approved design, with plans, elevations, sections and specification, the charge is 2½ per cent. upon the estimated cost. If he should have procured tenders in accordance with the instruction of his employer, the charge is ½ per cent. in addition. Two and a half per cent is charged upon any works originally included in the contract or tender, but subsequently omitted in execution. These charges are exclusive of the charge for taking out quantities. Preliminary sketches and interviews, where the drawings are not further proceeded with, are charged for according to the trouble involved and time expended.

6. Should the client, having approved the design, and after the contract drawings have been prepared, require material alterations to be made, whether before or after the contract has been entered into, an extra charge is made in proportion to the time occupied in such alterations.

7. The architect is entitled during the progress of the works to payment by instalments on account at the rate of 5 per cent. on the amount of the certificates when granted, or alternatively on the signing of the contract to half the commission on the amount thereof, and the remainder by instalments during their progress.

8. The charge per day depends upon an architect's professional position, the minimum charge being three guineas.

9. The charge for taking a plan of an estate, laying it out, and arranging for building upon it is regulated by the time, skill and trouble involved.

10. For setting out on an estate the position of the proposed road or roads, taking levels, and preparing drawings for roads and sewers, applying for the sanction of local authorities, and supplying all necessary tracings for this purpose, the charge is 2 per cent. on the estimated cost. For subsequently preparing working drawings and specifications of roads and sewers, obtaining tenders, supplying one copy of drawings and specification to the contractor, superintending works, examining and passing accounts (exclusive of measuring and valuing extras and omissions), the charge is 4 per cent. on the cost of the works executed, in addition to the 2 per cent. previously mentioned.

11. For letting the several plots in ordinary cases the charge is a sum not exceeding a whole year's ground-rent, but in respect of plots of great value a special arrangement must be made.

12. For approving plans submitted by the lessee, and for inspecting the buildings during their progress, so far as may be necessary to insure the conditions being fulfilled, and certifying for lease, the charge is a a percentage not exceeding 1¼ per cent. up to 5,000*l.*, and above that by special arrangement.

13. For valuing freehold, copyhold, or leasehold property, the charge is—

On 1,000*l.*	. . .	1 per cent.
Thence to 10,000*l.*	. . .	½ „
Above 10,000*l.*	. . .	¼ „ on residue.

In valuations for mortgage, if an advance is not made, one-third of the above scale. The minimum fee is three guineas.

14. For valuing and negotiating the settlement of claims under the Lands Clauses Consolidation Act or other Acts for the compulsory acquisition of property, the charge is on Ryde's scale, as follows :—

On Amount of Settlement, whether by Verdict, Award or otherwise.

Amount.	Gs.	Amount.	Gs.	Amount.	Gs.	Amount.	Gs.
£		£		£		£	
100	5	2,200	24	5,200	39	8,200	54
200	7	2,400	25	5,400	40	8,400	55
300	9	2,600	26	5,600	41	8,600	56
400	11	2,800	27	5,800	42	8,800	57
500	13	3,000	28	6,000	43	9,000	58
600	14	3,200	29	6,200	44	9,200	59
700	15	3,400	30	6,400	45	9,400	60
800	16	3,600	31	6,600	46	9,600	61
900	17	3,800	32	6,800	47	9,800	62
1,000	18	4,000	33	7,000	48	10,000	63
1,200	19	4,200	34	7,200	49	11,000	68
1,400	20	4,400	35	7,400	50	12,000	73
1,600	21	4,600	36	7,600	51	14,000	83
1,800	22	4,800	37	7,800	52	16,000	93
2,000	23	5,000	38	8,000	53	18,000	103
						20,000	113

Beyond this Half a Guinea per cent.

The above scale is exclusive of attendances on juries or umpires, or at arbitrations, and also of expenses and preparation of plans.

15. For estimating dilapidations and furnishing or checking a schedule of same, the charge is 5 per cent. on the estimate, but in no case less than two guineas. For services in connection with settlement of claim by arbitration or otherwise, extra charges are made under clause 8.

16. For inspecting, reporting and advising on the sanitary condition of premises, the charge must depend on the nature and extent of the services rendered.

17. In all cases travelling and other out-of-pocket expenses are paid by the client in addition to the fees. If the work is at such a distance as to lead to an exceptional expenditure of time in travelling, an additional charge may be made under Clause 8.

18. When an architect takes out and supplies to builders quantities on which to form estimates for executing his designs, he should do so with the concurrence of his client, and it is desirable that the architect should be paid by him rather than by the builder, the cost of such quantities not being included in the commission of 5 per cent.

Among those taking part in the debate on the revised schedule at the meeting of the Institute on Monday were Messrs. E. A. Gruning, J. Douglass Mathews, H. Heathcote Statham, John Slater, C. Forster Hayward, Edmund Woodthorpe, W. Hilton Nash, S. Flint Clarkson, Wm. Woodward, Hampden W. Pratt, A. W. Tanner, H. Hardwicke Langston, C. B. Brodie, W. H. Atkin Berry, Zeph. King, Max Clarke and others.

At the close of the proceedings a vote of thanks was carried by acclamation to the practice standing committee for their labours in carrying out the revision.

TESSERÆ.

Gothic and Classic.

THOSE who censure the Gothic as an incoherent style, full of inconsistencies and caprices, as devoid of all harmony and proportions, and as a gloomy monkish mode of building, may be allowed to pique themselves on their fastidious classical taste, but certainly not on either their poetical sensibility or their philosophical discrimination. That both its proportions and its principles are widely different from those of Grecian architecture is self-evident; that the one is therefore incorrect, and the other deficient in harmony, is exceedingly easy to be asserted, yet exceedingly difficult to be demonstrated. So very far indeed is the Gothic style from being altogether arbitrary and inconsistent, that no one can give it attention with an unprejudiced mind without perceiving what consummate skill and beautiful intention of purpose, what invention, guided by true artistlike feeling, are to be distinctly traced throughout. So far it may lay claim to the greatest consistency. The mixture of different styles in the same edifice is a mere casual circumstance, not in the least detracting from the coherence and consistency of any one style taken by itself. Yet is not Salisbury Cathedral nearly uniform throughout as to style, and King's College Chapel completely so? Another error very frequently entertained is that, however suitable for buildings upon a large scale, the Gothic style is but ill adapted to small ones. Undoubtedly its most astonishing effects and displays of grandeur must be in spacious edifices; yet that it possesses also many delicate beauties and graceful forms, capable of being fully displayed in smaller works, will be disputed by none who have ever entered some of our Gothic chantries and small chapels, or have seen if only in a drawing the beautiful little cloister of St. Stephen's Chapel.

Jones's Design for the Whitehall Palace.

The chief defect in the ideal palace which Jones designed seems to be the absence of some central point, or crowning object of attraction, to connect and combine the whole. There are four fronts, each in itself complete, and squares and towers and domes; but as a whole it looks more like a city for merchants than a palace in which princes are to reside. If there is not too much uniformity in the elevations, there is certainly considerable uniformity in the mode of treating them. Rusticated walls, with rusticated columns and pilasters, abound, giving a heavy look to the whole lower storey, which the wonderful beauty and perfect symmetry of the second cannot lighten. Those rusticated courses of stone, frosted columns and imitations of coral rocks are only fit for gathering filth, and should be reserved for bridges, piers and basins. Nor can a good defence be offered for placing two, nay, three rows of columns over one another as they appear in the banqueting-house and in the whole of the original design of the palace. To place the heavy bases of one order upon the slender capitals of another seems questionable architectural heraldry. In an ancient temple the columns stand on the

ground, and supporting the roof of the structure all about, afford shelter by their distance from the wall to those who seek protection from a scorching sun. The Greeks and Goths always had a meaning in their works; the close cloisters of the one correspond with the open columns of the other; the Grecian shades from the heat, the Gothic from the cold, and both suit their climates; but of what use are the columns of Whitehall? Rank stands above rank, but they support no roof; they relieve not by the depth of their shadow the weight of the impending walls, nor do they stand far enough from the body of the building to give shelter from either sunshine or rain. The statues and reliefs which Inigo introduced to give effect to his elevations are beyond all examples numerous, but except those in the Persian court they are not defined enough to show the meaning of the artist. On the Westminster front alone there appear 176 statues, erect or recumbent, nor are they less plentiful on the other fronts. On the towers can be seen none of those winged cherubim of which Walpole complains, but figures which, from look and posture, are doubtless intended for gods, others which may pass for kings and statesmen, priests not a few, and many warriors. They serve to interrupt and diversify the uniform line of the summit, and with their plinths and pedestals to conceal the roofs, which in an extent of 4,000 feet in circuit too frequently intruded their ridges upon the sight. Such an extent of plain-ridged roof must have been offensive to an eye so tasteful as that of Jones, who could not but feel that though the balustrades concealed it from the spectator in the immediate neighbourhood, its barren uniformity must needs be visible in the distance. He might have studied the ancients on this particular matter to better advantage. "Few roofs," says Payne Knight, "of ancient buildings remain; in them, however, a peculiar attention seems to have been paid both to regularity of construction and to light and shadow. The Tower of the Winds at Athens is covered with slabs of marble, in each of which the horizontal edge projects so much as to give a strong shade, while the vertical joints are so elevated as to form high ribs which break the uniform surface in a very beautiful manner. The Lantern of Demosthenes is roofed in the form of laurel leaves, which in a different way have the same effect. The ancients seem to have had it in view to give both lightness and richness to their roofs by a sort of lacing on the edges of them; the ridges, as well as the eaves, were decorated with a sort of open work of small knobs and projections; and the same kind of ornament still remains with peculiarly elegant effect in many of our old churches and houses." It must not, however, be disguised that unless the roofs are very steep, these ornamental lacings in a humid climate like ours would lodge the sleet and the rain, and render the substructure damp: here they are always employed on roofs which rise considerably above the square. With many blemishes, but for every blemish a dozen beauties, the Whitehall Palace, for grandeur of conception and elegance of interior arrangement, was more than worthy of the age it was designed in, and exhibited altogether a solid magnificence which might be compared with any royal palace on earth.

Artist's Self-praise.

The artist should talk as little as possible of his own works, much less to praise them, and this not so much for the sake of avoiding the character of vanity as for keeping clear of a real detriment, of a real productive cause which prevents his progress in his art and dulls the edge of enterprise. He who has the habit of insinuating his own excellence to the little circle of his friends with whom he comes into contact will grow languid in his exertions to fill a larger sphere of reputation. He will fall into the habit of acquiescing in the partial opinions of a few; he will grow restive in his own; by admiring himself he will come to repeat himself, and then there is an end of improvement. In a painter it is particularly dangerous to be too good a speaker; it lessens the necessary endeavours to make himself master of the language which properly belongs to his art, that of his pencil. The circle of self-applause and reflected admiration is to him the world which he vainly imagines he has engaged in his party, and therefore supposes that further enterprise becomes less necessary. Neither is it prudent, for the same reason, to talk much of a work before he undertakes it, which will probably thus be prevented from being ever begun. Even showing a picture in an unfinished state makes the finishing afterwards irksome; the artist has already had the gratification which he ought to have kept back and made to serve as a spur to hasten its completion.

Adam's Architecture.

The style of architecture introduced by Adam Brothers was peculiar to themselves and very faulty; but there is nevertheless an air of prettiness and some good taste in it, and the credit may certainly be claimed for its authors of having done much to improve the street architecture of London, for which species of composition their style was better adapted than fo detached and insulated structures. Their taste seems to hav been slightly affected, and in that slight degree beneficially, b the Greek style of composition which Stuart and Revett were then making known, but they certainly were far from entering into the spirit of it; they departed, moreover, almost entirely from the laws and usages of the Italo-Vitruvian school, which was then called Classical, and introduced many deviations alike inconsistent with the styles of Greece and Rome, with the laws of the schools, and with sound sense and good taste. The entire omission or contraction of an architrave in their entablatures, the extravagant breadth of their friezes, the shallowness and almost universal meanness of their cornices, and the still meaner and more tasteless style of the decorative ornament with which they beplastered their friezes and ceilings, are among the most glaring faults of their peculiar manner. In their insulated compositions especially the worst of these faults are aggravated by varieties of them being introduced, not only into different but also into the same elevations of the same structures, which should at least harmonise even in their defects. Both Kenwood and Luton Houses were examples of this; they both had mean entablatures, which were differently composed and proportioned, on the same and on different fronts of the respective edifices. In mere street fronts the style of the Brothers Adam is not only less offensive, but it is at times made even pleasing.

GENERAL.

MM. Legros have obtained the Prix Bailly from the Académie des Beaux-Arts for the hospital designed by them, which was founded by the late Madame Boucicaut.

The Slade Professorship of Fine Art will shortly be vacant. Candidates are requested to send in their names to the Registrar of the University on or before Thursday, July 7.

The National Swiss Museum, established in Zürich for the archæological collections of the Confederation, was inaugurated on Saturday last in presence of the Federal Council and others.

Commander Wells, R.N., has prepared a handy "Manual of Fire Drill," which will be of use to establishments where there is an organisation for overcoming outbreaks of fire.

An Engraving after Reynolds's "Mrs. Pelham feeding Chickens," by W. Dickinson, was sold on Monday for 425 guineas. For "Lady Hamilton as a Bacchante" the price given was 51 guineas.

The Municipal Council of Paris have purchased works of the value of 63,750 francs from the two exhibitions in the Champ de Mars.

The Middlesex County Council have decided to appoint Mr. Henry T. Wakeman, of Hereford, as county surveyor, on the following conditions:—(1) The salary to be at the rate of 700*l.* a year, rising to 850*l.* a year by annual increments of 25*l.* (2) Travelling expenses, when necessary in connection with the duties of the office, to be allowed on a scale to be fixed by the County Council. (3) To his being an associate member of the Institution of Civil Engineers. (4) To his devoting the whole of his time to the duties connected with the appointment.

An Exhibition of students' work in the various crafts taught in the Central School of Arts and Crafts, at 316 Regent Street, will be opened on Monday next and remain open throughout the week.

Mr. M. Garton, a brewer, has offered to complete the new wing of the Royal South Hants Infirmary at a cost of considerably over 5,000*l.* This wing was to have been Southampton's Jubilee Memorial, but the funds raised to carry out the project were altogether insufficient. Mr. Garton had previously contributed 2,000*l.* towards the same object.

The Primitive Methodists have during the past year erected fifty new places of worship for members of the connexion, affording accommodation for 12,235 persons. Towards the cost of 55,805*l.*, the sum of 25,603*l.* was contributed. The debt on connexional trust property now stands at 1,094,753*l.*, or more than 1*l.* per sitting, the total accommodation being for 1,020,924 persons.

The Governors of Christ's Hospital obtained an order on Saturday for the paying out of 34,000*l.* received from the Postmaster-General as purchase money for No. 10 King Edward Street, which is to be applied towards payment of the cost of the new buildings now in course of erection at Horsham, which, exclusive of site, was stated to be 294,243*l.*

The First Prize of 25*l.* in the public competition for the best plan for laying out the new Victoria Park at Tipton has been unanimously awarded to Messrs. William Barron & Son, Borrowash. Their plan shows a lake about 3 acres in extent, cricket and recreation grounds, lawn-tennis grounds, bowling green, band stand, shelters, &c. They also furnish plans for lodge, entrance gates, ornamental fencing, &c. The park is 33 acres in extent. The second prize was awarded to Mr. John Perry, architect, Tipton. There were ten competitors.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

COMPETITIONS OPEN.

GLASGOW.—Aug. 15.—Designs are invited for the exhibition buildings to be erected on sites in the Kelvingrove Park and Bunhouse Ground. A premium of 200*l.* will be awarded to the author of the design considered first in merit, second and third premiums of 150*l.* and 100*l.* respectively. Mr. H. A. Hedley, general manager and secretary, 141 Buchanan Street, Glasgow.

SALFORD.—Aug. 16.—Designs for three chapels, offices, lodge, entrance gates and boundary walls at proposed cemetery in Langley Road and Agecroft Road, Pendlebury. Premiums of 50*l.*, 30*l.* and 20*l.* respectively. Borough Engineer, Town Hall, Salford.

STOCKHOLM.—Aug. 31.—Designs for railway station Particulars from the Offices of the Consulate, 27 Great Winchester Street, London.

CONTRACTS OPEN.

ABERCYNON.—July 14.—For erection of twenty four houses. Mr. A. O. Evans, Post Office Chambers, Pontypridd.

ABERTILLERY.—July 9.—For erection of twenty-eight cottages in Glandwr Road. Mr. W. Thomas, Brynawel, Aberdare.

ABINGDON.—July 18.—For erection of a block of three houses in the Albert Park. Mr. J. G. T. West, architect, The Knowl, Abingdon.

ANGLESEY.—July 7.—For erection of a school and house at Garreglefn. Mr. H. Roberts, Peibron.

ANTRIM.—For erection of three houses at Whitehead. Messrs. Russell & Lockwood, architects, 16 Waring Street, Belfast.

ARMAGH.—July 10.—For erection of a dispensary. Mr. W. Calvert, clerk, Workhouse, Armagh.

ASTON MANOR.—July 4.—For alterations and additions to the administrative building at the infectious diseases hospital, Upper Witton. Mr. H. Richardson, engineer, Aston Manor.

BELFAST.—July 4.—For additions and alterations to Belmont Church. Mr. Vincent Craig, architect, 5 Lombard Street, Belfast.

BELFAST.—July 8.—For additions to the manse of the Parkgate Presbyterian church. Messrs. Young & Mackenzie, Donegall Square E., Belfast.

BELFAST.—July 18.—For erection of a Presbyterian church at Cushendall. Mr. William J. Fennell, architect, 11 Chichester Street, Belfast.

BERMONDSEY.—July 4.—For supply of 30,000 bricks. Mr. Fredk. Ryall, vestry clerk, Bermondsey Town Hall, Spa Road.

BIRKENHEAD.—July 11.—For erection of the Jubilee extension to the borough hospital. Mr. Edmund Kirby, architect, 5 Cook Street, Liverpool.

BRADFORD.—For alterations to warehouse, &c., Clifford Street. Mr. Fred Holland, architect, 11 Parkinson's Chambers, Hustlergate, Bradford.

BRENTFORD.—For additions to the Sunday school. Mr. Charles Pertwee, architect, Bank Chambers, Chelmsford.

BURN OF KILRY.—July 8.—For erection of new farmhouse and part of steading on Coalside Estate. Mr. Robert Reid, architect, Blairgowrie.

BURY ST. EDMUNDS.—July 9.—For erection of a chapel at the Thingoe Union Workhouse. Mr. T. D. Atkinson, architect, St. Mary's Passage, Cambridge.

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CANTERBURY.—July 9.—For alterations and additions to the purifying-house at the gasworks. Plans and specifications may be inspected at the Gas Company's Offices, 39 Castle Street, Canterbury.

CARLISLE.—July 7.—For erection of warehouses, Victoria Viaduct. Mr. J. H. Martindale, architect, Viaduct Chambers, Carlisle.

CHELTENHAM.—July 6.—For repairs to union workhouse, Swindon Road. Mr. G. W. Sadler, architect.

CULLINGWORTH.—For alterations and additions to Coldspring House. Messrs. John Judson & Moore, architects, Keighley.

DARLINGTON.—For erection of brick kiln at the Brunswick Street brickyards. Mr. J. W. Watson, Central Buildings, Darlington.

DARTFORD.—July 14.—For erection of a destructor-house, with pair of destructors, at the Gore Farm Hospital, Kent. Messrs. A. & C. Harston, architects, 15 Leadenhall Street, E.C.

DROMORE.—July 11.—For enlargement of the cathedral, Dromore, co. Down. Mr. Henry Hobart, architect, Dromore.

EDINBURGH.—July 4.—For construction of new offices, stores and station engineer's house, &c., at the central electric-lighting station, Dewar Place. Mr. T. Hunter, W.S., town clerk, City Chambers, Edinburgh.

EDMONTON.—July 6.—For erection of infirmary at the Union Workhouse, Union Road. Mr. T. E. Knightley, architect, 106 Cannon Street, E.C.

EPSOM.—July 4.—For erection of superstructure of a lunatic asylum for 2,000 patients and staff at Horton, near Epsom, Surrey, for the asylums committee of the London County Council. Mr. R. W. Partridge, clerk of the committee, London Asylums committee office, 21 Whitehall Place, S.W.

GLOUCESTER.—July 4.—For erection of a public library and other buildings in connection with the technical schools in Brunswick Road. Messrs. Waller & Son, architects, 17 College Green, Gloucester.

GRANGEMOUTH.—July 11.—For erection of three double cottages in Wallace Street. Mr. G. Deas Page, architect, Old Glebe Chambers, Falkirk.

HALIFAX.—July 4.—For erection of boundary wall and railings to the extended playground at Parkinson Lane school. Mr. W. H. Ostler, clerk, 22 Union Street, Halifax.

HALIFAX.—July 5.—For erection of offices and shops in Southgate. Messrs. C. H. Marriott & Son, architects, West Park Street, Dewsbury.

HALIFAX.—July 12.—For erection of workshops, sheds, offices, engine and boiler-houses, and chimneys for the premises to be erected near North Dean railway station, for Messrs. Lumby, Son & Wood, Limited. Messrs. R. Horsfall & Son, architects, 22A Commercial Street, Halifax.

HANLEY.—July 7.—For additions to Trent Pottery. Messrs. R. Scrivener & Sons, architects, Hanley.

HARRINGTON.—July 6.—For alterations and additions to Church Road Board schools. Messrs. W. G. Scott & Co, architects, Victoria Buildings, Workington.

HAVERFORDWEST.—July 5.—For erection of vagrant wards at the workhouse, alterations in wards of workhouse, and for furnishing the children's wards. Mr. D. E. Thomas, architect, Victoria Place, Haverfordwest.

HENDREFORGAN.—July 19.—For erection of cottage at Gellyrhaidd crossing, near Hendreforgan station, for the Directors of the Great Western Railway. Mr. G. K. Mills, secretary, Paddington Station, London.

HINCHELSEA.—July 11.—For erection of small bridge near Hinchelsea in parish of Brockenhurst. Mr. T. J. Fripp, surveyor, Gosport Street, Lymington.

HUDDERSFIELD.—July 12.—For erection of isolation block at sanatorium, Mill Hill. Messrs. Edward Thomas & Sons, architects, 7 Queen Anne's Gate, Westminster, London.

IRELAND.—July 5.—For erection of six pairs of cottages at different parts of the line, for the Directors of the Cork, Bandon and South Coast Railway. Mr. R. H. Leslie, secretary, Albert Quay Terminus, Cork.

IRELAND.—For construction of tidal swimming-bath and dressing-houses at the Pickie Rock. Messrs. Russell & Lockwood, architects, 16 Waring Street, Belfast.

KEIGHLEY.—For demolition of two dwelling-houses and erection on site thereof of two blocks of trough-closets, ash-places, &c., and for conversion of block of pail-closets to trough-closets. Mr. William C. Haller, sanitary inspector, Municipal Offices, Low Bridge, Keighley.

KINGSTON-ON-THAMES.—July 4.—For erection of offices adjoining the workhouse premises. Mr. William H. Hope, architect, Union Offices, Portsmouth Road, Kingston-on-Thames.

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KINGSTON-ON-THAMES.—July 7.—For construction of an underground concrete chamber for an electricity sub-station under the footway in Coombe Road. Mr. Harold A. Winser, town clerk, Clattern House, Kingston-on-Thames.

LONDON.—July 19.—For construction of underground conveniences in Fenchurch Street. Town Clerk, Public Health Department, Guildhall.

MIDDLESBROUGH.—July 4.—For erection of a detached residence and premises in Tees Bank Avenue, Eaglescliffe Junction. Mr. G. Robson, 23 Linthorpe Road, Middlesbrough.

MOSS SIDE.—July 16.—For alterations to and extension of two schools in Princess Road and Upper Lloyd Street. Messrs. Potts, Sons & Pickup, architects, Victoria Buildings, Manchester.

MUSWELL HILL.—July 11.—For erection of fire-engine station. Mr. E. J. Lovegrove, Southwood Lane, Highgate, N.

NEWPORT.—For additions to the National schools at Newport, Salop, for 160 infants. Messrs. J. R. Veall & Son, architects, Wolverhampton.

NORTHUMBERLAND.—July 6.—For erection of a Primitive Methodist chapel and schools at Birtley. Mr. Eugene E. Clephan, architect, St. Nicholas Chambers, Newcastle-on-Tyne.

OTLEY.—July 4.—For extensive internal alterations and renovations to the Black Horse hotel. Mr. Harold Chippindale, architect, Guiseley.

PERTHSHIRE.—July 5.—For additions to Burrelton School. Messrs. L. & J. Falconer, architects, Blairgowrie.

PONTYPOOL.—July 6.—For erection of a cloakroom at the infant Board school, and general repairs, painting, &c., to the mixed and infant Board schools, Griffiths Town. Messrs. Lansdowne & Griggs, architects, Newport, Mon.

RAMSEY.—July 6.—For erection of a villa on Bury Road. Mr. James Ruddle, architect, Boroughbury, Peterborough.

RHOSGADFAN.—July 5.—For erection of an infant school. Mr. Rowland Lloyd Jones, architect, 14 Market Street, Carnarvon.

ROCHESTER.—July 14.—For erection of schools (for 760 children) in Gordon Road, Strood. Mr. G. E. Bond, architect, High Street, Rochester.

ROWLEY REGIS.—July 11.—For conversion of the closet buildings into water-closets at the following Board schools:—Cradley Heath School, Congreaves School, Macefields Schools (boys and girls), Old Hill School (girls and infants). Mr. J. T. Meredith, architect, Kidderminster.

SALISBURY.—July 16.—For erection of a building to accommodate the nursing staff in the grounds adjoining the Infirmary. Messrs. John Harding & Son, architects, 58 High Street, Salisbury.

SALTBURN-BY-THE-SEA.—July 4.—For construction of boundary walls, drainage, railings, gates and walks in connection with the proposed cemetery. Mr. R. A. Jackson, surveyor, Milton Street.

SCUNTHORPE.—For erection of a Wesleyan chapel at Scunthorpe, Lincolnshire. Mr. John M. Dossor, architect, 2 Manor Street, Hull.

SHEFFIELD.—July 7.—For erection of lodge, conveniences and shelter at High Hazels Park. Mr. Charles F. Wike, city surveyor, Town Hall, Sheffield.

SHEPTON MALLET.—July 18.—For erection of school and residence. Mr. William John Willcox, architect, 1 Belmont, Bath.

SHOTLEY BRIDGE.—July 12.—For erection of cottage homes at Shotley Bridge, Durham. Mr. W. Lister Newcombe, architect, 89 Pilgrim Street, Newcastle.

SLAITHWAITE.—July 6.—For erection of four dwelling-houses in Wood Street. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

SOMERSHAM.—July 4.—For alteration and addition to the school buildings. Mr. Henry J. Wright, architect, 4 Museum Street, Ipswich.

SOUTHAMPTON.—July 5.—For laying new cement floor at the washhouse in the workhouse. Mr. David P. Gwillim, clerk, Southampton.

SOUTHAMPTON.—July 5.—For erection of a cart-shed at the wharf at Chapel. Mr. W. B. G. Bennett, borough engineer, Municipal Offices, Southampton.

STOKESLEY.—July 14.—For taking-down and re-erecting Raisdale bridge in township of Bilsdale. Mr. W. H. Dixon, surveyor, Kirby-in-Cleveland.

SUTTON-IN-ASHFIELD.—July 4.—For erection of free library. Mr. J. P. Adlington, architect, High Pavement, Sutton-in-Ashfield.

SWINDON.—July 19.—For enlargement of post office sorting-room at Swindon station, for Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

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TORQUAY.—July 7.—For erection of model steam laundry at Old Woods estate, Newton Road. Mr. Edward Richards, architect, 3 Park Crescent, Torquay.

WALES.—July 5.—For erection of infant school at Rhosgadfan. Mr. Rowland Lloyd Jones, architect, 14 Market Street, Carnarvon.

WARMINSTER.—July 4.—For additions and alterations to Warminster Common British school. Mr. W. H. Hardick, architect, High Street.

WEST HAM.—July 5.—For cleansing, repairing and painting seven schools. Mr. W. Jacques, architect, 2 Fen Court, E.C.

WEXFORD.—July 4.—For erection of a coastguard station at Arthurstown, co. Wexford. Office of Public Works, Dublin.

WHITBY.—July 15.—For erection of a small villa residence at Goathland. Mr. Edward H. Smales, architect, 5 Flowergate, Whitby.

WHITEHAVEN.—July 17.—For alterations and additions to the Board schools at Arlecdon. Mr. J. S. Moffat, architect, 53 Church Street, Whitehaven.

WOOLSTON.—July 9.—For erection of church house and institute. Messrs. Colson, Farrow & Nesbitt, architects, 45 Jewry Street, Winchester.

WORCESTER PARK.—July 5.—For erection of an engineer's cottage at the Cheam and Cuddington sewage works, Green Lane, Worcester Park. Mr. H. D. Searles Wood, architect, 157 Wool Exchange, Coleman Street.

THE foundation-stone of a new Baptist chapel at Ferme Park, Hornsey, was laid on Monday. The present building, which seats some 600 persons, was erected about ten years ago. But the neighbourhood has so greatly increased that it has been determined to erect a new chapel to seat 1,150 persons; the present building, which is contiguous, will be then used as a school and lecture-hall. The site for the new building has cost 860*l.* The cost of the chapel, exclusive of this sum, but including the new organ, will be 9,700*l.* The general plan will be a Greek cross, with wood vaulted ceiling, and the style a late period of Gothic architecture. It will be faced with red brick, with warm buff terra-cotta dressings, and at one corner there will be a tower with curving roof. The architect is Mr. George Baines.

TENDERS.

ARMAGH.

For repairs of Mall Presbyterian church.

A. GILLESPIE, Dobbin Street (*accepted*)	£56 18 0

BARROW-IN-FURNESS.

For painting external wood and iron-work and a portion of internal work at the infectious diseases hospital, Devonshire Road.

D. Scott	£27 0 0
Ward	26 0 0
J. Bryan	25 10 0
T. Lloyd	25 0 0
J. Gell	24 19 0
D. Cassells & Sons	20 10 0
W. RAMSAY, Duke Street (*accepted*)	18 9 1

BEESTON.

For drainage works at West End, Beeston, Notts. Mr. CHARLES MASON, engineer, Beeston.

W. TURNER, Beeston (*accepted*)	£73 0 0

BELFAST.

For erection of two portable bridges on the supports to be provided for them in the tideway, opposite Alexandra Wharf, co. Down. Mr. G. F. L. GILES, engineer.

ARROL'S BRIDGE AND ROOF COMPANY, LIMITED, Germiston Works, Glasgow (*accepted*).

For erection of a timber jetty and collateral works in the tideway, on the co. Down side of the harbour. Mr. G. F. L. GILES, engineer.

HENRY & SONS, Crumlin Road (*accepted*).

BRIDLINGTON.

For erection of a fence wall enclosing a plot of ground situate at Portland Place.

C. Lemon	£425 10 0
E. Corner	425 0 0
T. Blackburne	310 0 0
G. SAWDON (*accepted*)	255 0 0
J. Walker (*withdrawn*)	182 0 0
Surveyor's estimate	268 10 0

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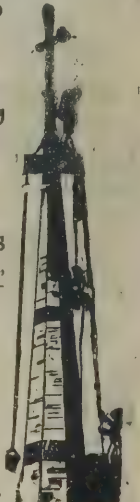
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BROXBOURNE.

For alterations and additions to the Wormley National schools. Messrs. NEWMAN & NEWMAN, architects, 31 Tooley Street, London Bridge, S.E.

A. Rowdon	£960	0	0
R. Archer	701	0	0
W. Woollard	690	0	0
J. Stewart	678	8	0
W. Lawrance	673	0	0
Mann & Sons	670	0	0
J. Pavey	664	10	0
Scales & Robins	630	0	0
W. Hampton	617	0	0
MERREDEW & WORT, South Hornsey (*accepted*)	571	0	0

For alterations, &c., to the Crown Hotel. Messrs. EEDLE & MEYERS, architects.

Archer	£2,785	0	0
Hunt	2,549	0	0
Shurmur	2,442	0	0
Voller	2,350	0	0

BURNLEY.

For construction of a steel girder bridge over the river Don at Cockden, Briercliffe. Mr. S. EDMONDSON, surveyor, 18 Nicholas Street, Burnley.

Armstrong & Miles	£409	0	0
J. & G. Duxbury	397	0	0
E. Heap	351	0	0
A. & R. Parker	345	0	0
J. Wadge	288	0	0
W. SUTCLIFFE, Burnley (*accepted*)	245	0	0

CHEPPING WYCOMBE.

For construction of precipitation tanks. Mr. T. J. RUSHBROOKE, borough surveyor.

Meridith	£5,369	0	0
C. Ford	5,134	9	10
Bently & Lock	4,602	11	6
G. H. Gibson	4,217	0	0
G. Bell	4,139	0	0
LEE & SON, Wycombe (*accepted*)	3,699	0	0

DARTFORD.

For construction of a length of sewer in Fulwich Lane. Mr. W. HARSTON, surveyor, High Street, Dartford.

T. Adams	£379	0	0
J. Mowlem & Co.	287	0	0
Kent Road Maintenance and Stone Supply Company, Limited	244	14	0
J. C. TRUEMAN, Swanley (*accepted*)	200	0	0

DURHAM.

For erection of four cottages at Wolsingham.

J. Hopper & W. Wharton, whole of work	£899	4	0
G. Westgarth, whole of work	829	6	10
J. Brown, mason, slater and plasterer	588	2	0
J. HOPPER, mason, slater and plasterer (*accepted*)	580	9	0
R. DOBINSON, joiner (*accepted*)	234	17	9
Morgan, glazier and painter	28	17	6

EAST HAM.

For erection of three houses and shops at High Street. Messrs. EEDLE & MEYERS, architects.

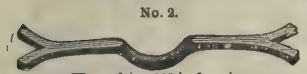
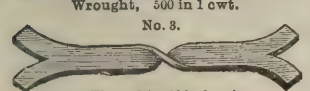
Sheffield Bros.	£6,790	0	0
Snewin Bros. & Co.	6,786	0	0
J. Anley	6,747	0	0
Dearing & Son	6,520	0	0
J. Maddison	6,510	0	0
W. Shurmur	6,440	0	0
J. Hood & Son	5,739	0	0
Goodall & Son	5,709	0	0

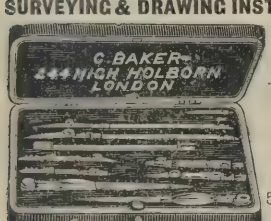
EYEMOUTH.

For construction of a concrete sea-wall about 375 yards long. Messrs. MEIK & SONS, engineers, 21 York Place, Edinburgh.

J. L. Miller	£2,947	10	0
W. Fortune	2,923	6	6
A. Fraser	2,809	12	4
R. C. Brebner & Co.	2,705	8	2
J. Morris & Sons	2,672	0	0
A. BRUNTON & SONS, Edinburgh (*accepted*)	2,600	1	6

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ELLAND (YORKS).

For erection of two shops and dwelling-house in Southgate. Mr. GEORGE HEPWORTH, architect, Brighouse.

Accepted tenders.

P. Gledhill & Sons, mason.
J. E. Crowther, carpenter and joiner.
F. Horsfall, plumber and glazier.
C. Hutchinson, plasterer and slater.

HATFIELD.

For erection of two pairs of semi-detached villas. W. RHIND & SON, 111 Fulham Road, S.W.

(*accepted*)	£1,579 0 0

For erection of a mortuary.

J. NADEN, Hatfield, Herts (*accepted*)	£335 0 0

ILFORD.

For alterations, additions and fittings at the Black Horse public-house, Broadway, for Mr. S. Leheup. Mr. FRED. A. ASHTON, architect, 177 Romford Road, Stratford, E.

	Alterations, &c.	Fittings.	Total.
A. E. Symes	£840	£528	£1,368
Welsh & Son	848	506	1,354
W. J. Maddison	786	492	1,278
J. & H. COCKS (*accepted*)	778	468	1,246
C. Simmons	690	536	1,226

IPSWICH

For erection of a warehouse in the butter market. Mr. FRANK BROWN, architect, 1 Princes Street, Ipswich.

G. Kendry	£1,114 0 0
M. Death	1,100 0 0
A. Sadler	1,075 0 0
F. Bennett	1,045 0 0
G. Grimwood & Son	997 0 0
E. Catchpole	994 0 0
E. Marriott	971 0 0
W. Grayston	944 0 0
T. PARKINGTON & SON, Crown Street (*accepted*)	900 0 0

KIPPAX.

For erection of United Methodist Free church. Mr. ARTHUR HARTLEY, architect, Carlton Chambers, Castleford.

Accepted tenders.

W. Green, Kippax, mason and bricklayer.
W. Holland, Castleford, joiner.
S. Evison, Castleford, slater.

LONDON.

For erection of Victoria Mansions, West End Lane, N.W. Messrs. PALGRAVE & Co., architects, 28 Victoria Street, S.W.

SPENCER & Co., Lambeth (*accepted*)	£10,000 0 0

For erection of the following additional plant, for the Vestry of Hammersmith.

Section A.

LEDWARD & Co. (*accepted*)	£1,345 0 0

Section B.

Cole & Co.	670 0 0
Blake & Knowles	426 0 0

Sections B and C.

ALLEN & Co. (*accepted*)	785 0 0

Sections B and D.

Spence & Co.	3,893 10 0
Penn & Co.	2,070 0 0

For stables, &c., at Westcott Street, S.E., for Messrs. Pink & Co. Messrs. G. ELKINGTON & SON, architects.

H. L. Holloway	£5,120 0 0
W. Shurmur	5,045 0 0
Perry & Co.	5,043 0 0
F. & H. F. Higgs	4,991 0 0
J. Carmichael	4,940 0 0
J. Smith & Son	4,887 0 0

For rebuilding house and shop in Whitechapel Road. Mr. J. HAMILTON, architect.

B. E. Nightingale	£2,596 0 0
W. Shurmur	2,358 0 0
Jarvis & Son	2,340 0 0
J. Beale	2,257 0 0

For factory, &c., at St. John's Street, Clerkenwell. Mr. G. HAROLD ELPHICK, architect.

Roberts	£5,525 0 0
Turnbull	5,459 0 0
J. Greenwood	5,443 0 0
W. Downs	5,339 0 0
Wall & Co.	5,310 0 0
Chubb & Son	5,302 0 0
J. Grover & Son	5,023 0 0
W. Shurmur	4,999 0 0
Kilby & Gayford	4,867 0 0
Kirk & Randall	4,652 0 0

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LONDON—*continued.*

For pulling-down and rebuilding the Queen's Head public-house, Green Lanes, N. Mr. J. STILES, architect.

Burman & Son	£8,600 0 0
Antill	8,569 0 0
W. Shurmur	8,464 0 0
Goodall	8,401 0 0
Edie	8,367 0 0
Edwards & Medway	8,228 0 0

For alterations, &c., at the Horns public-house, Hackney Road. Mr. H. M. WAKELEY, architect.

Tyerman	£5,784 0 0
Goodall & Son	5,560 0 0
J. Anley	5,319 0 0
Worsley & Co.	5,110 0 0
Dearing & Son	5,070 0 0
Snewin Bros.	4,997 0 0
W. Shurmur	4,910 0 0
Lascelles & Sons	4,890 0 0
Edwards & Medway	4,797 0 0

For rebuilding the Running Horse public-house, Harrow Road. Mr. H. M. WAKELEY, architect.

Scrivener & Co.	£7,735 0 0
Beer & Gash	7,525 0 0
Patman & Fotheringham	7,538 0 0
W. Shurmur	7,515 0 0
Burman & Sons	7,482 0 0
Antill	7,452 0 0
Higgs	7,355 0 0

For alterations, &c., at the City Orthopædic Hospital, Hatton Garden. Mr. E. HERBERT, architect.

T. Rider & Son	£3,554 0 0
Colls & Son	3,487 0 0
J. S. Shaw	3,365 0 0
Wagstaff & Son	3,089 0 0
W. Shurmur	3,010 0 0
Lidstone & Son	2,935 0 0

For pulling-down and rebuilding the King's Arms public-house, Water Lane, E.C. Mr. H. M. WAKELEY, architect.

Patman & Fotheringham	£4,820 0 0
W. Shurmur	4,797 0 0
Lascelles & Co.	4,767 0 0
Beer & Gash	4,523 0 0

LONDON—*continued.*

For underground convenience at Smithfield, E.C., for the Corporation of London. Mr. D. J. ROSS, engineer.

Mowlem & Co.	£3,937 0 0
B. E. Nightingale	3,445 0 0
J. Barker	3,440 0 0
McCormick & Sons	3,338 0 0
W. Shurmur	3,333 0 0
Patman & Fotheringham	3,257 0 0
A. Dolman	2,925 0 0

For erection of boundary wall, &c, at Gainsborough Road, Hackney Wick, for Guardians of Hackney Union. Mr. W. A. FINCH, architect, 76 Finsbury Pavement, E.C.

Barrett & Power	£4,645 0 0
S. R. LAMBLE (*accepted*)	4,174 0 0

For repairing and redecorating the Relief Offices, Mayfield Road, Dalston, for Guardians of Hackney Union. Mr. W. A. FINCH, architect, 76 Finsbury Pavement, E.C.

Denman	£671 0 0
Barrett & Power	429 0 0
Bull	351 0 0
Silk	335 0 0
Folley	297 0 0
Harris	290 0 0
INNES (*accepted*)	230 0 0

LOUGHTON.

For eight pairs villas and thirteen houses, for Mr. A. F. Hills. Messrs. F. & H. FRANCIS, architects.

Warren	£22,300 0 0
F. Foster	22,150 0 0
W. Shurmur	22,075 0 0
Foster & Co.	21,781 0 0
Coxhead	19,761 0 0

MOULSFORD.

For excavating and foundation works for proposed buildings at the Berks County Asylum. Mr. GEORGE T. HINE, architect, 35 Parliament Street, Westminster.

F. Talbot	£4,754 0 0
C. Ford	4,494 0 0
W. Hawkins	4,400 0 0
A. W. Spencer	4,321 0 0
BENFIELD & TOXLEY, Oxford (*accepted*)	3,962 0 0

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MANSFIELD.

For erection of Wesleyan school-chapel at Shirebrook. Mr. J. E. GOODACRE, architect, 4 Stockwell Gate, Mansfield.

W. Thomason	£1,195 0 0
J. Greenwood	1,038 0 0
Fisher Bros.	1,020 0 0
Gilbert & Gabbitas	1,017 0 0
Rigley	977 0 0
HANFORD & HOYES, Nottingham (*accepted*)	875 0 0

NEWARK.

For additions to vagrant wards and infirmary. Messrs. SHEPPARD & HARRISON, architects.

J. Shelbourn & Son	£1,018 0 0
G. E. Dobney	918 0 0
W. Smith	886 18 0
Chamberlain & Son	858 10 0
Mackenzie & Son	807 11 0
G. BROWN & SON (*accepted*)	806 0 0

NEW BARNET.

For house and shop at New Barnet, for the Dairy Supply Co. Mr. H. O. LANE, architect.

Porter & Son	£1,794 0 0
Grover & Son	1,786 0 0
W. Shurmur	1,771 0 0
McCormick & Sons	1,699 0 0
W. Waller	1,620 0 0
Dixon & Co.	1,553 0 0
C. Butcher	1,510 0 0
Kiddle & Son	1,494 0 0
Ellwood	1,484 0 0
Daniels	1,469 0 0

NEWBURY.

For redraining Sandleford Farm, near Newbury, for Mr. Alpin MacGregor. Mr. WALTER J. EBBETTS, architect and surveyor, Savoy House, 115 Strand, W.C.

J. M. Macey & Son	£610 0 0
J. Bolding & Sons	598 0 0
G. H. & A. Bywaters & Son	575 0 0
Winser & Co.	512 0 0
G. Jennings & Co.	440 0 0
Campbell, Smith & Co.	385 0 0

NORTHALLERTON.

For additions and alterations to the registry office. Mr. WALKER STEAD, surveyor.

Accepted tenders.

A. Atkinson & Co., Stockton, brickwork, &c., woodwork and plastering	£338 14 3
E. H. Smith, Northallerton, plumbing, &c.	22 10 0
T. Horsfield, Northallerton, slating	8 15 0
T. Alderson, Northallerton, painting	7 2 6

NOTTINGHAM.

For erection of a pavilion on the new football ground at Trent Bridge. Mr. HARRY GILL, architect, Cobden Chambers, Pelham Street, Nottingham.

Brickwork and timber.

J. Mitson & Co.	£1,300 0 0
Hanford & Hoyes	1,021 0 0
J. R. Hall	989 16 9
Cooper & Crane	958 0 0
J. Oscroft	950 0 0
J. Boyfield	878 0 0
T. Long	851 5 0
G. T. Lovett	850 0 0
MARSHALL BROS., Old Lenton (*accepted*)	836 0 0

Iron roofing, &c.

LEWIS & GRUNDY (*accepted*)	425 0 0

PETERBOROUGH.

For reslating roofs and other alterations at the workhouse. Mr. J. G. STALLEBRASS, architect, North Street, Peterborough.

Sibley Bros.	£218 0 0
Hicks Bros.	209 18 8
Watson & Lucas	189 0 0
Nichols	185 0 0
Walker	165 0 0
GUTTRIDGE (*accepted*)	165 0 0
Bailey (*withdrawn*)	150 0 0
Architect's estimate	180 0 0

For erection of two houses in Parliament Street. Mr. J. G STALLEBRASS, architect, North Street, Peterborough.

Hicks Bros.	£470 8 8
Watson & Lucas	440 0 0
Sibley	435 0 0
G. NICHOLS (*accepted*)	384 10 0

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Holland & Co.	£23,396 0 0
Lascelles & Co.	22,397 0 0
F. & H. F. Higgs	21,148 0 0
W. Shurmur	20,744 0 0
Patman & Fotheringham	19,751 0 0
Dearing & Son	19,391 0 0

PORTSMOUTH.

For erection of St. Stephen's Church, Portsea. Mr. REGINALD A. CROWLEY, architect, 22 High Street, Croydon. Quantities by Messrs. E. M. WHITAKER & CHAS. G. MAYLARD, London, E.C.

		A
W. Learmouth	£9,130 0 0	£1,323 0 0
W. Potter, Croydon	8,706 0 0	1,490 0 0
Clark & Sons	8,267 0 0	1,330 0 0
Stephens, Bastow & Co., Limited	7,998 0 0	1,000 0 0
J. M. Perkins	7,577 0 0	1,250 0 0
J. Crockerell	7,527 0 0	1,200 0 0
Light & Co.	7,425 0 0	1,264 0 0
T. P. Hall	6,866 10 0	1,092 0 0

A. Amount included for north aisle.

PRESTON.

For painting, papering, &c., at the Cattle Market hotel, Brook Street North.

S. TURNER & SONS, Ormskirk Road (*accepted*) . £70 0 0

For erection of a hydraulic engine-house at the Albert Edward Dock.

CARTMELL & SONS, Park Road (*accepted*) . £390 0 0

ROCHDALE.

For 330 lineal yards of 2 feet by 3 feet brick sewer, 483 lineal yards of earthenware pipe sewers, varying from 21 inches to 9 inches diameter, and the necessary manholes, gullies, drain connections, &c. Mr. S. S. PLATT, borough surveyor.

F. KERSHAW, Royds Street (*accepted*).

ROMFORD.

For erection of male vagrant wards adjoining workhouse. Mr. E. G. BODEN, architect.

F. Bull	£3,080 0 0
Hammond & Son	2,779 0 0
F. & E. Davey	2,669 0 0
DOWSING & DAVIS, Romford (*accepted*)	2,757 0 0

SEAFORD.

For pulling down and re-erecting No. 16, High Street, for Mr. H. A. Gearing. Mr. H. CURTIS CARD, surveyor, Lewes.

Berry	£596 0 0
Wilkinson	484 0 0
MORLING, Seaford (*accepted*)	478 10 0

SCOTLAND.

For a new outfall sewer for part of the borough of Stonehaven. Mr. MURDOCK, burgh surveyor.

McDonald & Co.	£485 0 0
P. Tawse	475 0 0
J. Murray	415 18 0
A. Masson	365 5 0
W. SMITH, jun., Stonehaven (*accepted*)	347 10 0

STEPNEY.

For stables, warehouse, &c., for Messrs. Poulter & Co. Mr. H. O. ELLIS, architect.

W. Johnson	£11,470 0 0
J. & H. Cock	10,290 0 0
Harris & Wardrop	10,219 0 0
J. H. Johnson	9,921 0 0
Lawrance & Son	9,892 0 0
Ashby & Horner	9,789 0 0
Patman & Fotheringham	9,621 0 0
W. Shurmur	9,472 0 0
Perry & Co.	9,414 0 0
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Kilby & Gayford	9,236 0 0
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SUTTON.

For additions and alterations to Cumberland Lodge, Carshalton Road, Sutton. Mr. H. A. EMMETT, architect, Tufnell Park, N.

G. Newton	£1,127 0 0
D. Waller	1,012 0 0
Houghton & Son	884 0 0
H. Clark, Carshalton	878 0 0

SURBITON.

For erection of detached residence in Lovelace Gardens, for Mr. S. Macdonald. Mr. R. LANO PEARCE, architect, 100C Queen Victoria Street, E.C.

GEO. BURRAGE, Sutton (*accepted*)	£1,275 0 0

For erection of detached residence. Mr. R. LANO PEARCE, architect.

GEO. BURRAGE, Sutton (*accepted*)	£897 0 0

For erection of, alterations and additions to Crescent Lodge, Claremont Road, for Mr. P. G. C. Shaw. Mr. R. LANO PEARCE, architect.

GEO. BURRAGE, Sutton (*accepted*)	£800 0 0
Adkins Bros.	798 15 0

For erection of detached residence in Claremont Road. Mr. R. LANO PEARCE, architect.

GEO. BURRAGE, Sutton (*accepted*)	£2,233 15 0

For alterations and additions to Brendon, Lovelace Road, for Miss G. A. Dewdney. Mr. R. LANO PEARCE, architect.

G. A. Alderton	£152 0 0
E. Tomkinson	150 0 0
GEO. BURRAGE, Sutton (*accepted*)	144 18 6

THAMES DITTON.

For erection of two shops and premises with residences over in Thorkhill Road, for Mrs. T. Everidge. Mr. R. LANO PEARCE, architect.

J. Wheatley & Sons	£1,225 0 0
E. Tomkinson	1,215 0 0
F. Hawkey*	1,175 0 0
Geo. Burrage	1,170 0 0

* Will probably retender with work reduced.

THEYDON BOIS.

For additions and alterations to Purhen, Theydon Bois, Essex, for Mr. E. A. King. Mr. W. A. FINCH, architect, 76 Finsbury Pavement, E.C.

Davey	£1,150 0 0
Forster	1,008 0 0
Silk	971 0 0
Barrett & Power	944 0 0
S. R. LAMBLE (*accepted*)	940 0 0
Keen	842 0 0

TORQUAY.

For reroofing and additions to buildings, repairs to house and erection of two cottages at Ilsham, Manor Farm.

W. B. Crocker	£637 0 0
S. Blatchford	637 0 0
J. K. Smale	610 0 0
W. A. Goss	595 0 0
E. Pike	588 10 0
J. H. Foaden	586 5 9
E. P. Bovey	580 0 0
H. J. Almond	579 10 0
J. Chubb	559 17 0
C. P. Terry	545 0 0
J. C. & W. Watson	516 0 0
Parker Bros.	500 0 0
S. Pack	497 7 0
S. ELLIS & SONS, North Tawton (*accepted*)	455 12 0

TWERTON-ON-AVON.

For supply of furniture in the West Twerton schools. Messrs. SILCOCK & REAY, architects, Octagon Chambers, Bath.

Accepted tenders.

J. Long & Sons, Bath, cupboards, &c.	£267 6 0
Bennet Furnishing Co, Limited, Glasgow, desks, &c.	183 3 6

WAKEFIELD.

For furniture required for newly erected infirmary in the rear of workhouse premises in Park Lane.

Accepted tenders.

Hall & Armitage, Newells, general furniture.
G. Blakey, Westgate, special fittings.
Beaumont & Saville, 25 Cross Square, ironmongery.

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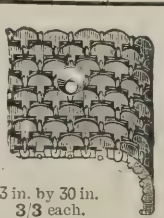
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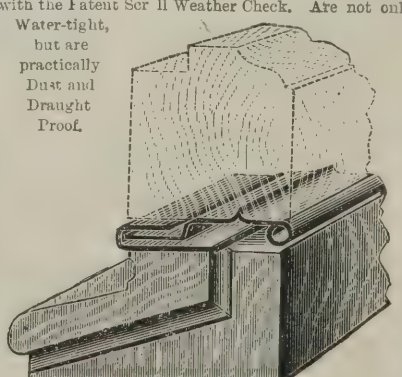
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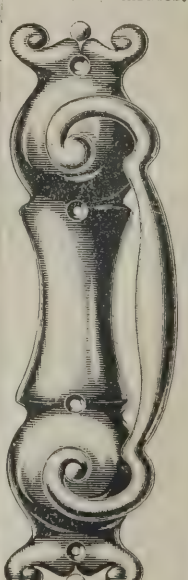
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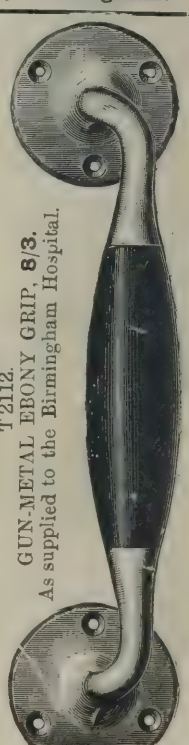


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WALES.

For erection of chapel.

W. Hopkins & Son	£1,800 0 0
E. Morgan	1,800 0 0
Walters & Johns	1,750 0 0
R. Francis	1,750 0 0
Rees & Squire	1,700 0 0
J. Hughes	1,561 0 0
R. Thomas	1,520 5 6
Brown, Thomas & Brown	1,480 0 0
B. HOWELL, Llanelly (*accepted*)	1,475 0 0
J. Evans	1,322 10 0

For enlargement of Aberavon parish church, Glamorgan. Mr. GEORGE E. HALLIDAY, architect, 14 High Street, Cardiff. Quantities by Mr. JOHN W. RODGER, surveyor, Cardiff.

E. Thomas	£2,941 0 0
M. Cox	1,976 0 0
T. Watkins & Co.	1,871 0 0
J. Davies	1,825 0 0
D. JENKINS, Swansea (*accepted*)	1,730 0 0

For erection of a pair of dwellings at Aberfan. Mr. WILLIAM DOWDESWELL, architect, Treharris.

G. Hancock	£362 0 0
J. Howells	355 0 0
J. BLATCHFORD, Treharris (*accepted*)	347 0 0

WATFORD.

For various sanitary works at the London Orphan Asylum, Watford. Mr. WALTER J. EBBETTS, architect and surveyor, Savoy House, 115 Strand, W.C.

J. Bolding & Sons	£677 0 0
G. Jennings & Co.	499 10 0
J. Darvill	482 10 0

WALTHAMSTOW.

For houses at Helena Road. Messrs. PURVIS & PURVIS, architects.

S. Scott	£2,270 0 0
Barton	2,220 0 0
J. Reed	2,218 0 0
W. Shurmur	2,211 0 0
German	2,100 0 0

WALWORTH ROAD.

For alterations, &c., to the King's Head public-house. Mr. INGRAM, architect.

Beer & Gash	£1,597 0 0
Maxwell	1,589 0 0
Courtney & Fairburn	1,561 0 0
W. Shurmur	1,532 0 0
Whitehead	1,525 0 0
J. Hood & Son	1,498 0 0
Tyerman	1,490 0 0

WESTON-SUPER-MARE.

For erection of residence at corner of Eastcombe and Bristol Roads, for Mr. Chas. Cornish. Mr. H. DARE BRYAN, architect, Bristol.

HY. ROGERS (*accepted*)	£865 15 0

WICKHAM.

For erection of a timber wharf. Messrs. J. W. NASH & SON, engineers, Rochester.

PEDRETTE & CO. (*accepted*)	£7,755 0 0

WICKLOW.

For repairs and protection to the breakwater pier in the harbour. Sir A. RENDELL, engineer.

H. & J. MARTIN, Leinster Building Works, Grand Canal Street, Dublin, and Ormeau Road, Belfast (*accepted*)	£15,957 17 6

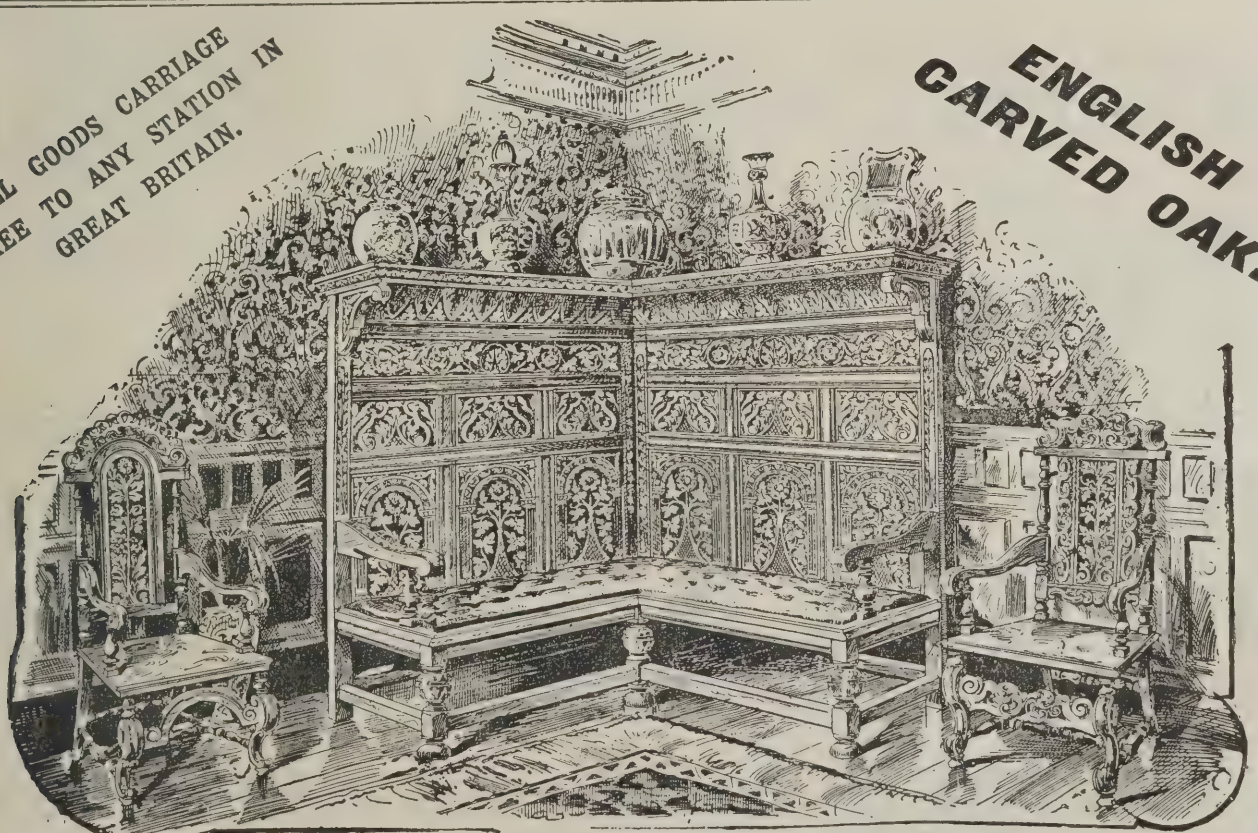
WIGAN.

For construction of a brick culvert and piers to carry a water-main across the L. & Y. railway at Adlington.

W. Winnard	£1,155 1 9
HOLME & KING (*accepted*)	849 2 6

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Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations.

WILLENHALL.

For erection of infant school and alterations to the present Little London school buildings. Mr. JOSEPH P. BAKER, architect, 33 Market Place, Willenhall.

J. Dallow	£3,560 0 0
J. M. Tildesley	3,534 0 0
H. Gough	3,300 0 0
H. Willcock & Co.	3,300 0 0
J. Guest & Sons	3,260 0 0
H. Dorse & Co.	3,250 0 0
G. Brown	3,200 0 0
T. TILDESLEY, New Road, Willenhall (*accepted*)	3,199 0 0

For levelling and asphalting the playgrounds at the Little London schools. Mr. JOSEPH P. BAKER, architect, 33 Market Place, Willenhall.

H. Holloway	£317 0 0
W. Shepherd	313 11 5
Asphaltic Limestone Concrete Co.	277 0 5
North of England Asphalte Co.	275 19 11
J. Owens	269 17 0
J. DAVIS, Dudley (*accepted*)	265 6 0
H. Taylor	245 12 7

WOOLWICH.

For cleaning and painting the west wing and pavilions of the Union Infirmary, Plumstead.

S. Watts	£296 0 0
J. Mitchell	250 0 0
W. Mills	218 0 0
A. Inns	156 0 0
W. Hawes	150 0 0
E. MILLS, Westcombe Park (*accepted*)	137 0 0

A PERMANENT exhibition of manufactures and machinery is now open in Lima, in the machinery hall of the Exhibition Palace, under the auspices of the Government of Peru, and under the management of the National Society of Industry. No charge is made for space, no duties on exhibits, and many privileges are accorded to exhibitors, and, as is well known, Peru offers a splendid field for the extension of British trade. Full particulars can be obtained from Mr. E. Lembeke, consul-general, 237 Winchester House, E.C.

ELECTRIC NOTES.

THE Great Western and London and North-Western Railway Companies have petitioned the House of Commons to be allowed to withdraw their opposition to the Shrewsbury Electric Lighting Bill.

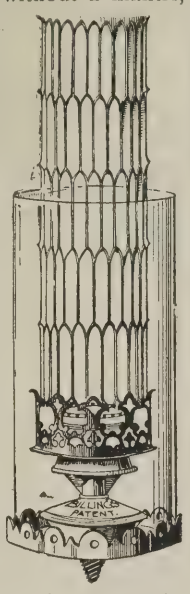
A FIRE broke out in the early morning of the 28th ult. on the premises of the electric-light works in South Street, Manchester Square. Four steamers were soon on the spot, and with an excellent supply of water available the flames were eventually got under, not, however, before serious damage had been done.

AT last Friday's meeting of the Court of Common Council at the Guildhall, the Lord Mayor, M.P., presiding, Mr. Brooke Hitching moved that it be referred to the streets committee to consider and report as to the desirability of approaching the City of London Electric Light Company, Limited, with a view to the acquisition by purchase of so much of that company's undertaking and plant as is situated within the City, together with the company's electric light generating station in Southwark. He said the Corporation was not the only municipality in the kingdom which had committed the initial mistake of entrusting the electric lighting of their area to private enterprise, but Liverpool and other places had repaired the mischief and the loss to the ratepayers by purchasing the undertakings of the companies supplying their cities. His motion was one simply of inquiry, whether the company were disposed to sell their rights, and if so, at what price. Mr. Turner seconded the resolution. Mr. A. A. Wood was convinced that the City Commission of Sewers, to the extent of their knowledge at the time, did the best they could, in the interests of the citizens, in their negotiations with the company. Mr. A. C. Morton said the City Commission of Sewers were "bamboozled" and led astray by unholy influences in their own body. If the matters could be revealed, it would be interesting to see the large sums made by City people—including a former Lord Mayor—out of the matter. He deprecated rushing into the arms of the company. The City Solicitor, replying to a question, said the company's exclusive rights as to private lighting would expire in 1911 and 1912. Mr. Brooke Hitching's motion was withdrawn in favour of a resolution by Mr. Deputy Johnson, sending the whole question of the electric lighting of the City to the streets committee for consideration and report.

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A MANTLELESS INCANDESCENT GAS-BURNER.

THE latest method of obtaining the maximum amount of illumination with the minimum consumption of gas is that provided by Billing's Non-Mantle Burner Syndicate, of 180 Wardour Street, W., in their new gas-burner, which, without a mantle, gives an incandescent flame of great brilliancy and soft, pleasant colour, practically smokeless, and with very little heat, and that little is utilised to warm the gas before ignition, by which process perfect incandescence is insured. To secure this result two chimneys are used, as shown in sketch. The air, instead of being supplied to the flame at its normal temperature, is drawn down between the outer and the inner chimneys by the action of the flame, which it reaches in a heated condition, when it combines readily with the gas and produces the acknowledged desideratum—perfect combustion. It may be thought that the use of two chimneys may occasion considerable expense in replacement, but this is not so, as the fact that the air is drawn between the two chimneys, and thus heated as above described, prevents the breaking of the glass, which is so great a drawback in burners of the ordinary circular type. In short, the advantages of the new burner may be summarised as follows:—Brilliancy and agreeableness of light purity; of the atmosphere, as there is no smoke or odour; the burner is made on scientific principles, and whether the gas be rich or poor in carbon, the whole of such carbon is by it made incandescent; economy in the consumption of gas, as a burner giving a 32 candle-power flame consumes only 5 feet of gas per hour; ornamental appearance, a wide range of variety in shades and glasses having been especially designed for decorative effect; and finally, although not of least moment, the initial cost is small.



THERE was a large attendance on Wednesday at the laying of memorial-stones for a new school-chapel in Corporation Road, Darlington. The district is a new one, and hence the need of more accommodation. The building is to accommodate bout 500, and will cost 1,200*l.*

VARIETIES.

AN excursion meeting of the Northern Architectural Association will be held to-morrow, July 2.

THE annual congress of the British Archæological Association will this year be held at Peterborough, where the proceedings will open on the 14th inst.

A NEW Board school was opened at Ketley on Monday last. It was built at a cost of 2,800*l.* to accommodate 220 children, and the infants' school 140.

THE official ceremony of the opening of the Guildhall School of Music extension by the Lord Mayor will take place on Monday week.

A FACTORY chimney was being demolished at Rochdale when it fell amongst a crowd of 2,000 people, several of whom were seriously injured.

NEW Jerusalem Church, Accrington, having been closed for nearly twelve months for renovation, has again been opened for service.

THE restoration of Salisbury Cathedral spire is now completed, and the event will be celebrated by a thanksgiving service on the 11th inst. The cost of the work is 15,000*l.*

THE Bradford Association of Architects visited Pateley Bridge on Tuesday, and saw the extensive works in the valley in connection with the Bradford water supply.

MR. A. SAXON SNELL has been instructed by the West Ham Corporation to prepare plans for the erection of public swimming and private baths and other buildings in Romford Road, Stratford, E. (opposite the new technical institute).

THE new laboratories at University College, Liverpool, which have been erected and equipped by the Rev. S. A. Thompson Yates for study and research in physiology and pathology at a cost of over 25,000*l.*, will be formally opened on October 8 by Lord Lister.

IN the parish church at Windsor, on Sunday, a carved oak chancel screen, subscribed for by the parishioners and erected from the designs of Sir Arthur Blomfield, A.R.A., as a Diamond Jubilee memorial, was dedicated by the Bishop of Oxford in the presence of Prince and Princess Christian.

THE residents of Dean Street, Ashton, near Manchester, were recently startled by the complete collapse of a large brick building, formerly owned by Mr. R. Atkinson. The furniture inside was shattered, and *débris* was scattered in all directions.

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No Parting Beads.
Centre Hung.
Reversed Instantaneously.
Sashes Entirely Removed in One Minute.
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Manufacturers:—HUGHES & LANCASTER, 16 Great George Street, Westminster, London, S.W.

The structure has not been in use for some years. It is supposed the woodwork had become rotten. Fortunately there were no people in the vicinity.

A NEW free library and reading-room were opened for public use at Denton on Monday. The new premises, along with the technical school—which is not quite finished—form part of a fine, centrally situated block of buildings in Peel Street, and have cost about 4,500*l.* The new buildings are electrically lighted throughout. There are over 3,000 volumes in the library. The premises in Market Place, which have been used for technical instruction, free library and reading-room purposes since they were erected in commemoration of the 1887 Jubilee of Her Majesty, are to be converted into a town hall, and will shortly be opened.

THE Japanese twin-screw steamer, *Sadu Maru*, went on a trial trip on the Clyde on the 6th inst. She was built by Messrs. Workman, Clark & Co., Limited, of Belfast, to the order of Capt. A. R. Brown, for the Nippon Yasen Kaisha of Tokio, Japan. This vessel will be used for trading between Great Britain and Japan, and is classed 100 A1, three decks rule, deadweight capacity 7,600 tons. She is fitted up throughout by mechanical ventilation by compressed air on improved principles, the same being applied to the holds, between decks, stokeholds, engine-rooms and saloons. The contractors were the well-known ship-ventilating firm, Messrs. Grahtryx Ventilating and Engineering Company, Limited, 23 Sutterton Street, Caledonian Road, London, N., and 20 Union Street, Glasgow, and is the twelfth ship fitted for the same company. The system of ventilation was a special feature at the trial, which was favourably commented on and highly satisfactory to the owners.

THE chimney-stack upon the premises of Messrs. Buckton & Co., linen manufacturers, Goodman Street, Hunslet, was struck by lightning on Sunday last. The bricks were thrown a distance of 80 yards to the other side of Goodman Street and smashed a number of windows in adjoining factories. The roof of a bleaching house at the foot of the chimney was completely wrecked. Fortunately, no one was in the street at the time, or a fatality would certainly have resulted. Immediately after the lightning had struck it the chimney presented an extraordinary spectacle. There were three extensive rents in it, one at the left corner facing Goodman Street and the other two on the right side. A telephone wire communicating with the office was attached to the chimney, and it is supposed that the insulator had attracted the lightning. The wire has been smashed into innumerable pieces. The chimney, which is 95 feet high, is a square one, built as many as thirty years ago, and was not supplied with a lightning conductor. It will now have to be pulled down.

BUILDING AND BUILDERS.

THE memorial-stones of a new Wesleyan chapel at Monton, near Eccles, have been laid. The estimated cost of the building is 1,350*l.*, and seating accommodation will be provided for about 250 persons.

THREE corner-stones of the chancel to be added to St. Bartholomew's Church, Marsden, erected four years ago, have been laid. It is estimated that the chancel and the tower will cost 9,000*l.*

PLANS have been accepted for the erection of a mission hall on the vacant site adjoining the church in Dalrymple Street, Stranraer. The plans show a suitable structure, which will be erected at a cost of upwards of 300*l.*, with seating accommodation for 250.

THE foundation-stone of a new English church has just been laid at Düsseldorf. It will be a pretty Gothic structure, seating about 200 people, and is an offering from a resident family, who for many years have taken a keen interest in the English community of the place.

THE sites are now being cleared for two more additions to London's outlying places of amusement. One is in Holloway Road, nearly opposite Holloway Hall, on which is to be erected the local Empire Theatre of Varieties, and the other in a more central position in the Euston Road, opposite the Midland Grand Hotel. This is to be known as the Euston Theatre of Varieties.

THE foundation-stone of the new theatre in the Birmingham Road, Dudley, was laid on the 27th ult. The site is close to the railway station and the termini of four tramway systems, and adjoining the boundary of the castle. The theatre is being built by Mr. J. Maurice Clement, the proprietor of the existing Colosseum theatre, and the cost is estimated at over 16,000*l.*, including nearly 3,000*l.* for the land and 11,000*l.* contract for the building. Mr. A. Ramsell is the architect, and Messrs. J. H. Whittaker & Co. are the contractors.

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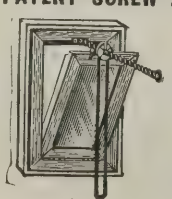
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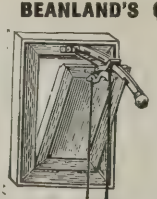
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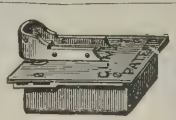
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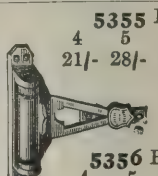


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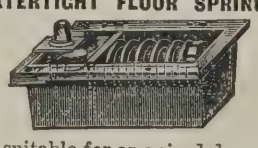


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Architects and Buyers are respectfully invited to inspect same.

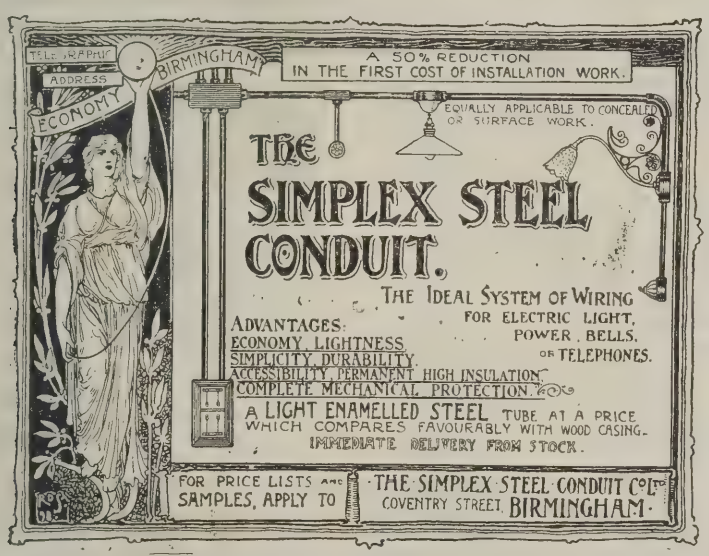
A LARGE building, with a frontage of 250 feet, is to be erected at Mazenod Avenue, Hampstead, to be called Priory Court, and arranged as residential flats. The site is elevated about 4 feet above the road in front, and the building will be set back with returning wings right and left. The elevation will be Georgian in style, with gauged brick arches and aprons, surmounted with a heavy stone cornice, while green Venetian shutters, ornamental garden court and fountain will have a quiet and retiring effect. The architects are Messrs. Palgrave & Co., Westminster, S.W.

COLDBATH FIELDS prison, which is now being pulled down, was on Tuesday the scene of an accident by which several men were severely injured. They were working on the top floor breaking down the structure, when the concrete flooring gave way and carried the lower floors with it. Two of the men fell with it, a distance of over 50 feet. They were conveyed to the hospital, where it was found that Edward Morgan, aged thirty, had a compound fracture of the left ankle, and that his right leg was badly crushed and his head and face severely cut. John Ford, aged 58, had injuries to his ribs and shoulder. After Ford's injuries had been dressed at the hospital he was allowed to go home, but Morgan was so seriously injured that it was found necessary to detain him as an in-patient.

AN important building situated in Moor Street, Birmingham, and erected for Messrs. Coleman & Oldland, wholesale clothiers, is now completed. This structure has a good frontage and is five storeys in height. A large basement forms the cutting-room, the ground floor the shop, which is elaborately fitted up, the remaining floors being the general workrooms. The walls and ceilings of basement and ground floor are covered with stained and varnished matchboarding. There is ample light to each floor both at front and back of building, and adequate ventilation has been provided. The building is of substantial construction, steel girders, cast-iron columns, &c., having been used. The heating apparatus is of the most efficient and modern kind; a spacious lift, running from basement to top floor, is provided, and the building is illuminated by the electric light. The front elevation is chiefly of best red brickwork, with ornamental cornice and strings, large cast-iron windows, two entrance doors and wide gates, stone heads, sills, columns, &c. The architect is Mr. John Statham Davis, of Cobden Buildings, Corporation Street, and the contractor Mr. William Hopkins, of Thorpe Street, both of Birmingham.

THE memorial-stone has been laid of Wellfield United Presbyterian church, Glasgow. The church in question is situated at the corner of Balgray Hill and Murdoch Street, and extends back to Sutherland Street. The very rapid fall of the ground on the hill-side has added considerably to the difficulties of planning, there being a difference of over 27 feet between the levels of the back street and the lower point on Balgray Hill. To meet this the hall has been placed facing Sutherland Street, on the higher level, and entering from Murdoch Street, the rooms, vestry, sessions house, &c., on an intermediate level, while the church occupies the corner of Murdoch Street and Balgary Hill. Internally the church is planned with nave and side aisles, which are separated by moulded stone arches carried on splayed stone piers. There are galleries at sides and end, but the galleries are kept back behind the line of the stone piers, allowing these to be carried up in an unbroken line. Above the piers attached stone shafts are carried up, terminating in carved caps, from which spring the principal roof couples. The pulpit will be placed under a wide stone arch at the eastern end, and on each side, under smaller arches, an organ chamber is arranged. The hall is 54 feet long and 28 feet broad, and there are two large classrooms, which can be opened into one, forming a lesser hall for 100 persons. The style of architecture is Gothic of the Late Decorated period, and the principal feature externally will be the tower and spire, which will be over 100 feet high. The lower stage is carried up square to the belfry chamber, where the plan becomes octagonal, with projected buttresses at the angles of the tower. The principal front to Balgray Hill has the main gable in the centre, flanked by the tower on one side and a projecting staircase on the other. The mason-work is in red sandstone, and is already well advanced, the memorial-stone being placed in the western face of the tower at the gallery floor level. The number of sittings provided is 808, and the expected cost of the whole scheme is about 7,200*l.* The architect is Mr. John B. Wilson, Glasgow.

THE enormous new London coal depôt of the Midland Railway Company in Somers Town covers six acres of ground—a huge slice out of the once densely populated working-class neighbourhood in which it is situated—and whole streets of houses have been swept away at an expenditure of many thousands, especially for compensation, to make room for it. It lies immediately behind the great goods depôt of the Midland in the Euston Road. It has been built at a cost of 180,000*l.*, the contract for the foundations and brickwork being 80,000*l.*, and for the iron and steel-work 100,000*l.* The depôt consists of a vast roofed-in space of great length and breadth, without



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any subdivisions. At certain intervals are placed 132 iron pillars, each 18 feet high and of proportionate diameter. These support 139 main girders, each weighing close upon 14 tons, and a number of cross girders, all of steel, the ceiling being formed of thick steel plates. Above all is an engine and truck roadway, which is on a level with the main line, and connected with it by a new iron bridge over the Pancras Road, one of seven, all within a very short distance of each other.

TRADE NOTE.

THE Grammar School, Abergavenny, is being warmed and ventilated by means of Shorland's patent Manchester grates and patent Manchester stoves.

A SUCCESSFUL FIRM AND INTERESTING BARGE MATCH.

THE well-known firm of Messrs. Eastwood & Co. invited a large number of their friends to witness a race for prizes between twelve of their sailing-barges on Tuesday last (June 28). A special train from London took down to Gravesend about 200 guests, who embarked at 10.15 on the General Steam Navigation Company's s.s. *Oriole*. The start was made immediately on the arrival of the steamer on the course, and it was most interesting to watch the promptitude with which the whole of the barges got immediately under way. The smallest of them, the *Dipper*, Captain Beadle, took the lead, and held it for more than half the course of about 25 miles, when she was gradually overhauled and passed by the *Iota* (Captain Howard), who finally won after a very close race, the *Lapwing* (Captain Wheatley) coming in third. Refreshments were plentifully provided on board the *Oriole* from 10.20 to 11 A.M., luncheon 1.30 to 3.30, and afternoon tea from 4.30 till 6, when the company returned by special train to London. The luncheon was presided over by Mr. Wragge, chairman of the company, who was indefatigable in his exertions to promote the pleasure of the party throughout the day. It may interest our readers to learn that Messrs. Eastwood are the owners of not less than forty large sailing barges, mostly built by themselves, and have upwards of fifty others constantly in their employ. When the business was formed into a private limited company 1872 it owned only two barges. It had at that time only two wharves, it has now seventeen. It had no brickfields, it has now eight, from which the output in 1897 was upwards of 100,000,000 bricks. During the same period the firm supplied 30,000 tons of cement and 17,000 tons of lime. For the purposes of their London trade alone they employ 120 horses per day. At the last Whit Monday parade of cart horses at Regent's Park, the company sent twenty-two horses (nineteen entries) and took ten first prizes and six second prizes, and also in addition two special prizes for Suffolk horses.

We believe that a great deal of the success of this firm arises from the strong feeling of *esprit de corps* exhibited by all their employés.

The firm are at present occupying temporary offices at 61 Temple Chambers, E.C. They have been compelled to rebuild and greatly enlarge their premises at Belvedere Road, Lambeth. The work is now being carried out by Messrs. Perry & Co., of Bow, from the designs of Mr. E. T. Hall, F.R.I.B.A., architect, of 56 Moorgate Street, E.C.

THE SANITARY INSTITUTE.

THE preliminary programme of the sixteenth congress of the Sanitary Institute, to be held in Birmingham from September 27 to October 1, has now been issued. The president of the congress is Sir Joseph Fayrer, Bart., K.C.S.I., &c.

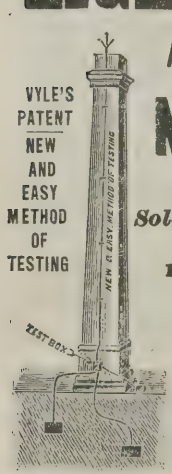
Dr. Christopher Child will deliver the lecture to the congress, and Dr. Alex. Hill, master of Downing College, and vice-chancellor of Cambridge University, will deliver the popular lecture.

Excursions to places of interest in connection with sanitation will be arranged for those attending the congress. A conversazione will be given by the Right Hon. the Lord Mayor (Councillor C. G. Beale), and a garden party, at the Botanical Gardens, Edgbaston, will be given by members of the sanitary committee.

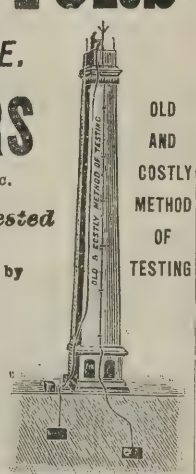
It appears from the programme that over 300 authorities, including several county councils, have already appointed delegates to the congress, and as there are also over 2,000 members and associates in the Institute, there will probably be a large attendance in addition to the local members of the congress.

In connection with the congress, a health exhibition of apparatus and appliances relating to health and domestic use

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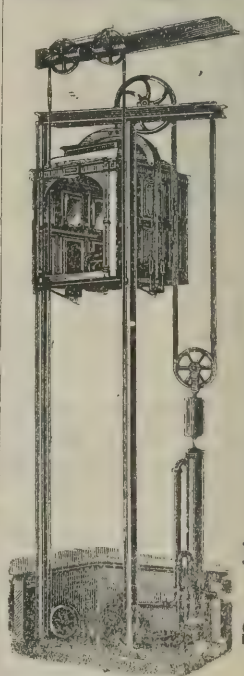
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will be held as a practical illustration of the application and carrying out of the principles and methods discussed at the meetings, which not only serves this purpose, but also an important one in diffusing sanitary knowledge among a large class who do not attend the other meetings of the congress.

The congress will include three general addresses and lectures. Three sections, meeting for two days each, dealing with (1) Sanitary Science and Preventive Medicine, presided over by Alfred Hill, M.D., F.R.S. (Edin.), F.I.C., M.O.H., Birmingham; (2) Engineering and Architecture, presided over by W. Henman, F.R.I.B.A.; (3) Physics, Chemistry and Biology, presided over by G. Sims Woodhead, M.D., F.R.C.P., F.R.S. (Edin.). Five special conferences—Municipal Representatives, presided over by Ald. W. Cook, chairman of the health committee, Birmingham City Council; Medical Officers of Health, presided over by John C. McVail, M.D., D.P.H., F.R.S. (Edin.); Municipal and County Engineers, presided over by T. de Courcy Meade, M.Inst.C.E.; Sanitary Inspectors, presided over by W. W. West, chief sanitary inspector, Walthamstow; Domestic Hygiene, presided over by Mrs. C. G. Beale (the Lady Mayoress).

The local arrangements are in the hands of an influential local committee, presided over by the Right Hon. the Lord Mayor of Birmingham, with Prof. A. Bostock Hill, M.D., D.P.H., W. Bayley Marshall, M.Inst.C.E., J. E. Willcox, Assoc.M.Inst.C.E., as honorary secretaries.

THE VALUE OF CITY LAND.

AT the London Sheriff's Court, before Mr. Deputy Under-Sheriff Burchell and a special jury, an important claim for compensation under the Tower Bridge approach scheme came on for hearing last week. The parties to the action were Mr. West, a private gentleman, and the London County Council, and the sum involved was about 13,000*l.* According to counsel's opening statement it appeared that the Council were anxious to complete the scheme of improvement for opening up the approaches to the Tower Bridge. On the corner of Queen Street and Royal Mint Street stood a plot of land, and it was sought to acquire this. Counsel pointed out that the value of land in this part had enormously increased of late years, and, although the Council sought to depreciate the value of the land, he would prove by expert evidence that the value was much greater than appeared at first sight, and that it ranged from 2*l.* to 3*l.* per foot. Sir J. Whittaker Ellis and Mr. Edward Tewson gave expert evidence, and valued the land at 13,666*l.*, or 2*l.* per foot, with the usual compensation. For the Council expert evidence was called, placing the value at a much lower figure, and in the end the jury awarded 11,026*l.* as compensation for the compulsory purchase.

BRIGHTON AND HOVE SEWERS.

ON Monday last a select committee of the House of Commons considered the Bill for confirming a number of provisional orders made by the Local Government Board. One order, which was allowed to pass without opposition, was for altering the local Acts under which the Brighton Intercepting and Outfall Sewers Board, consisting of members elected by the Corporation of Brighton and the Urban District Council of Hove respectively, were empowered to make and maintain sewers and works, and to borrow for those purposes such sums as they might think fit, not exceeding in the whole 127,500*l.* In consideration of the fact that it is necessary that groynes and other sea-defence works should be constructed for the protection of the sewers in question, the order of the Local Government Board sets forth that the Sewers Board may construct and maintain such groynes and other sea-defence works as may be necessary, subject to the previous consent of the Board of Trade. One of the conditions is that "if any such work be commenced or completed contrary to the provisions of this order, the Board of Trade may abate and remove the same and restore the site thereof to its former condition at the cost and charge of the Sewers Board, and the amount of such costs and charges shall be a debt due from the Sewers Board to the Crown, and shall be recoverable as a Crown debt or summarily. Provided also that nothing contained in the order shall authorise the Sewers Board to take, use, or in any manner interfere with any portion of the shore or bed of the sea, or any river, channel, creek, bay or estuary, or any right in respect thereof belonging to the Queen's most excellent Majesty in right of her Crown and under the management of the Board of Trade without the previous consent in writing of the Board of Trade." Article II. empowers the Sewers Board to exercise, subject to the sanction of the Local Government Board, any unexhausted borrowing

HIGHEST AWARDS: EXHIBITIONS 1891-93-94-95-97.—Awarded the Royal Photographic Society's Medal for Architectural Photography.

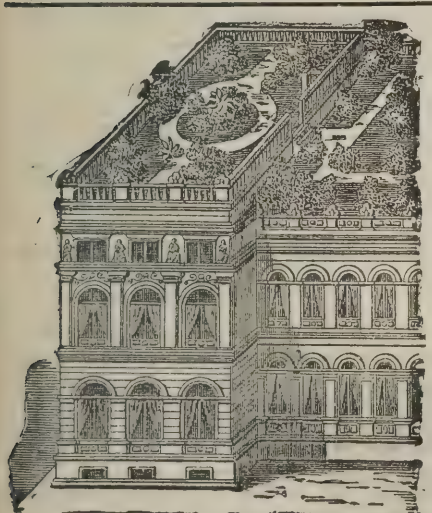
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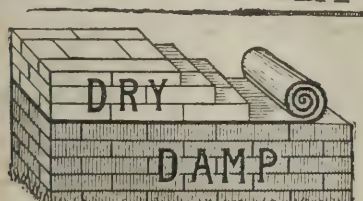
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power, and Article III. authorises the raising of a sum not exceeding 7,000*l.* in addition to the 127,500*l.* authorised by the original local Acts to be borrowed. The money so raised is to be repaid within a period not exceeding fifty years, either by equal annual instalments of principal and interest combined, or by means of a sinking fund, "or partly by one of these methods, and partly by another or the others of them." If the Sewers Board desire to accelerate the repayment of any loan they may increase the amounts payable to the sinking fund, or, if the latter should assume proportions more than sufficient, may reduce the said payments. There are many subsidiary and qualifying clauses, but those quoted embody the general outlines of the scheme. The Bill will next go before the House of Lords.

ART WALL-PAPERS.

MURAL decoration—by which not too exact term is meant the decoration of the walls of a room—has not of course escaped the influences of modern art teaching. Not only have new materials for mural application been manufactured, but the paper-stainer's art and mystery has advanced in a most astonishingly rapid manner till now, if a room—whether it be one of the perfumed chambers of the great or the modest living room of the artisan—be not decorated artistically and appropriately the fault most certainly does not lie with the paper-stainer.

A visit to the showrooms of Messrs. Charles Knowles & Co., at 164 King's Road, S.W., would promptly dissipate any doubt on this point, for at these showrooms are to be seen some of the most beautiful wall-papers which it would be possible to produce. We paid a visit to Messrs. Knowles the other day, and of some of the most striking designs in wall-papers which we then saw we now propose to briefly speak.

First our attention was caught by a large pattern in which poppies are very effectively introduced, the colours being natural and therefore brilliant. This paper would be specially suitable for a staircase or corridor. Its reference number is 78,025. Then there is a beautiful scarlet satin paper, No. 8,264. The colouring is very rich and deep, and the pattern full and effective. In a large room furnished in dark oak or ebonised wood this paper would have a fine effect. There is also a handsome flock paper in crimson, No. 79,425, to which attention may be directed.

An embossed paper in dark yellow and gold, No. 8,196, is also noteworthy. The design is of a floral and foliaceous character, and the treatment free and effective. There is a design in which baskets, flowers and ribbons are intertwined in a very artistic manner. It is in several colours, but we saw it in a delicate blue and applied to a panel, for which purpose in a drawing-room it would seem to be very appropriate.

Messrs. Knowles have some very fine papers in silk flock. One in orange and gold, No. 78,430, is especially so, while another in a light blue, No. 79,433, with a very delicate striped pattern in white would, in a high and well-lighted drawing-room, be peculiarly effective. There is also a flock paper, No. 79,430, which would lend itself admirably to a dining-room in dark walnut.

Ceiling papers in high relief are now a good deal employed, and in these Messrs. Knowles have some effective designs. One of a rectilinear character, No. 79,077, drab on green, and another, No. 79,071, of a more florid nature, in which circles and wreaths play an important part, would be specially worth attention, as, being heavily flocked, the relief is very high. Dado papers are not greatly in demand at the moment, yet Messrs. Knowles produce some effective designs therein, while their friezes are especially good, the designers having evidently borne in mind—it it only too frequently forgotten—that as a frieze is farther from the eye than any other part of the room's ornamentation, so the design should be bold and freely treated.

In concluding this brief notice of a very interesting visit, we must not omit to mention a pattern in which birds of paradise are introduced with good effect; an old-fashioned chintz pattern, very striking and clear; and a paper, No. 9,381, in which the imitation of the finest tapestry work is extraordinarily good. It is indeed not so much an imitation as an illusion.

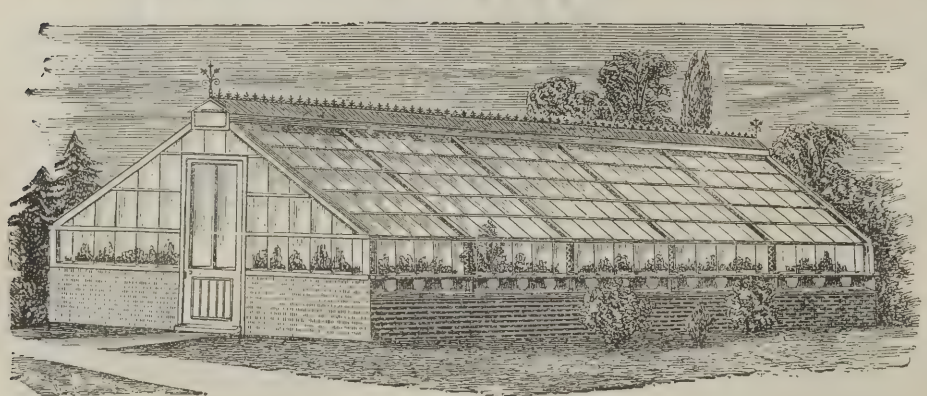
THE NEW UNIVERSITY COLLEGE HOSPITAL.

THE Prince of Wales, who was accompanied by the Princess, visited the University College Hospital for the purpose of laying the foundation-stone of the new building which is being erected at the cost of Sir John Blundell Maple. The ceremony, which was excellently arranged, was witnessed by a numerous and fashionable company, and was in every respect eminently successful.

The site of the hospital is the quadrilateral area bounded by Gower Street, Grafton Street, Huntley Street and University

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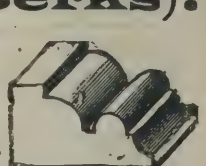
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Street, and measures about 232 feet by 225 feet. The plan of the building is a diagonal cross, that form—which was a development by the architect, Mr. Waterhouse, R.A., of a suggestion made to him by Mr. Newton H. Nixon, the secretary of the hospital—being the best formation by which to obtain on this site the maximum of light, air and accommodation. The style of architecture adopted is a free treatment of Renaissance, and the material is red brick with terra-cotta dressings.

The half-basement, which rises 6 feet above the ground, occupies the whole of the site, and the cross-form of plan is only assumed in its entirety above the level of the first-floor. The administrative rooms and out-patient departments, together with a complete system of medicinal baths, are placed in the half-basement, which is 15 feet high, built throughout of glazed bricks and well lighted by skylights as well as windows. Access to these rooms is obtained by an inclined way, in addition to several staircases and a special lift for the use of out-patients. The wards are placed in three of the arms of the cross, while the fourth arm, that to the south, provides accommodation for the resident officers, nurses and domestic staff. At the convergence of the limbs is a central block, which contains the main staircase, two lifts, the board-room with offices and three operating theatres. The latter have large windows looking into the open space between the south and west wings, as well as a sloping top light, and at the sides of the theatres are rooms where all preparations for operations are carried out. Special attention is given in this respect to the requirements of modern surgery.

The walls of the building generally are 70 feet above the ground, and the tower in the central block rises to a height of 140 feet.

Each ward wing contains four large wards in as many storeys. These wards are 86 feet long, 25 feet wide and 12 feet 3 inches high, and have a transept projecting about 21 feet on each side, thus being cruciform in plan. The fireplaces are in the centre, with flues and ventilating shafts running up the whole height of the wing. Each ward will contain twenty-four beds, and the total number of beds accommodated in the hospital will be nearly 300.

The entire top floor of the west wing is devoted to a special department for the necessary clinical and microscopical investigations, including a large theatre and smaller rooms for clinical instruction.

A special feature in the hospital, introduced for the first time by Dr. Poore in his original plans for the reconstruction, and carried out in the present scheme, is the complete isolation of each ward. Thus, the arms are separate from the central block, and the only communication of the wards with the main staircase is by means of bridges with windows. The spaces between the floor of each bridge and the roof of the bridge below admit, it will be seen, of a free passage of air between the four angular spaces enclosed by the wings, thus preventing any possibility of a stagnation of air from whichever quarter the wind may be blowing. At the end of each wing there is a sanitary tower, also cut off from the wards by an open emergency staircase, giving free air-passage. The plan adopted, therefore, practically abolishes corridors and staircases in the hospital proper, as each ward is in communication on the one hand with the rest of the structure, and on the other with the sanitary offices only by bridges that can be freely ventilated.

AMALGAMATED SOCIETY OF ENGINEERS.

THE forty-seventh annual report of this Society, which has just been issued to the members, shows the effects of the recent engineers' dispute upon the principal trade union concerned therein. In his introductory remarks the general secretary (Mr. G. N. Barnes) observes that the period under review was one of great stress and trial. The lock-out of last year would yet have far-reaching consequences, and he ventured to think that many illusions on both sides had been dispelled in consequence of it. The lessons derivable from it were clear and unmistakable, and an immense impetus would be found to have been given to the widening out of industrial organisation and supervision. Already, and partly as a result of the lock-out, the federation of unions had been brought within the sphere of practical discussion, and stimulus had been given to co-operation enterprise on its productive side, whereby the forces of trade unionism and co-operation were being brought together. In the larger sphere of collective supervision there could be no doubt but that the impression made upon the public mind by the suffering, loss and dislocation consequent upon the lock-out would yet find due expression. True, the intervention of the Board of Trade last year was denounced by Sir Henry Howorth as an impertinence, and by the *Times* as an unnecessary interference, but reforms generally came in this way. They were denounced by reactionary newspapers and by politicians,

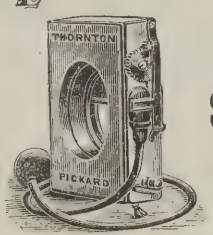
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the latter often enough said to be men of science, until the public mind was familiarised therewith, and by others enlightened thereon. For his part, he believed that the rights and duties of the community in this matter involved the sifting and adjudicating upon the facts, and he believed this principle was bound to be accepted here as soon as it was as well understood as in New Zealand. The general secretary next deals with labour legislation during the year, his chief reference being to the Workmen's Compensation Act. "It must be admitted," he remarks, "that the new Act is satisfactory as marking a growing sense of responsibility on the part of the community. We hope it may be followed by the adoption of a more complete system of safeguards, so as to minimise risk in unhealthy trades." Turning to the figures appertaining directly to the operations of the Society, they had 87,455 members at the commencement and 91,444 at the close of the year, an increase of 4,589. The income was 559,368*l.*, which, added to balance from 1896, amounted to 865,251*l.* The expenditure was 690,399*l.*, leaving a balance of 174,852*l.* at the close of 1897. From this must be deducted 20,000*l.* excess of moneys borrowed over those lent, so that the real total assets in December last amounted to about 154,000*l.* This would come as somewhat of a revelation to many who at the time in question were indulging in pessimistic twaddle about the effacement of the Society, and especially so to the journalistic Jeremiahs who argued from the capitulation of January last the utter rout and demoralisation of trade unionism as a force in industrial progress. With regard to the income, contributions from members amounted to 448,936*l.*, or about 25 per cent. above the highest previous total, and voluntary contributions to 77,765*l.* On the expenditure side donation and contingent disbursements amounted to 281,177*l.* and 129,077*l.* respectively. Under the heading of emergency fund and local levy grants was the amount of 113,677*l.*, or a total under the four headings of 523,932*l.*, and deducting 100,000*l.* as representing normal expenditure, the remainder was cost consequent on the lock-out. Sick benefit had been reduced from 44,667*l.* to 42,407*l.*; superannuation benefit had increased from 63,747*l.* to 68,760*l.* Funerals had cost 12,735*l.* as against 12,799*l.*, and benevolent grants 2,134*l.* as against 2,663*l.* in the previous year. Cost of management amounted to 35,670*l.*, equal to 7*s.* 9*d.* per member, or 1¾*d.* per week.

In conclusion, Mr. Barnes remarks that the past year had been the most momentous in the Society's history. It had been a year in which the fidelity of the members had been put to a severe test, and they had not been found wanting. They had suffered a severe reverse, it was true, and spent a great deal of money, but such reverse came in a justifiable and well-sustained effort to make the conditions of London life more tolerable for labour. They believed the abridgment of the working day for which the Society struggled was not lost, but only deferred for a time. Finally, they were convinced the cause of labour would be advanced by what had taken place.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

APPLICATIONS FOR PATENTS.

13291. W. T. Thompson, for "Manufacture of grilled work and so-called Venetian ironwork."

13293. R. D. Workman, for "Spacing mechanism applicable for use with brick-cutting machinery."

13377. J. A. Olsson and D. N. Burns, for "Tool for excavating clay."

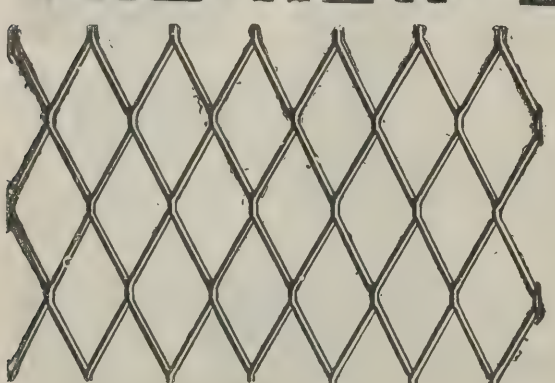
18531. Schnitzlein, for "Water-level indicators."

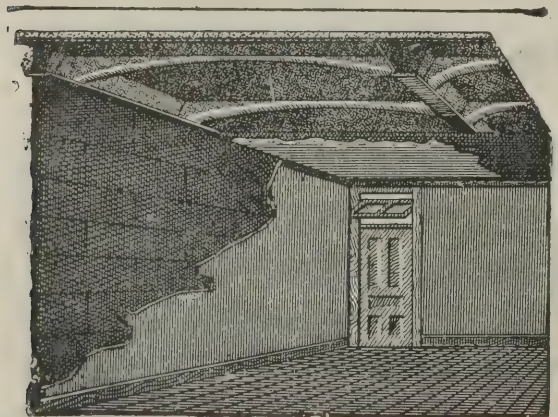
22614. Lowe, for "Furnaces."

TO INVENTORS.—Patents for Inventions, Trade-marks and Designs secured; every assistance given to inventors. Specialists in Building matters. Information free.—Messrs. RAYNER & CO., Patent Agents, 37 Chancery Lane, London, W.C.

AT the monthly meeting of the Campbelltown (N.B.) Town Council on the 22nd ult. it was agreed to proceed with the enlarging of the council chambers at a cost not exceeding 150*l.* Mr. M'Murchy called attention to the inadequacy of the town hall for public entertainments and meetings, and suggested some improvements, including the erection of a back gallery.

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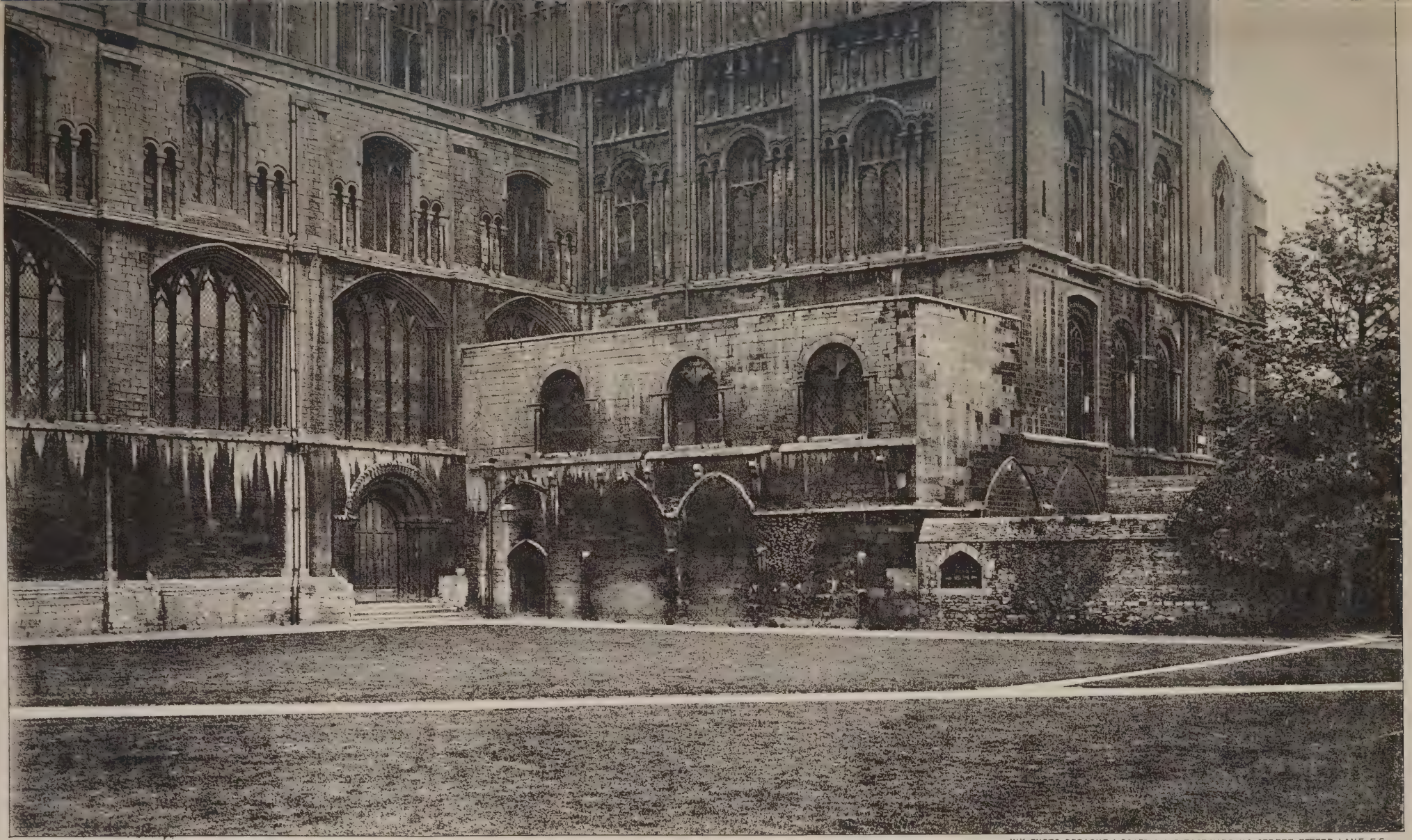
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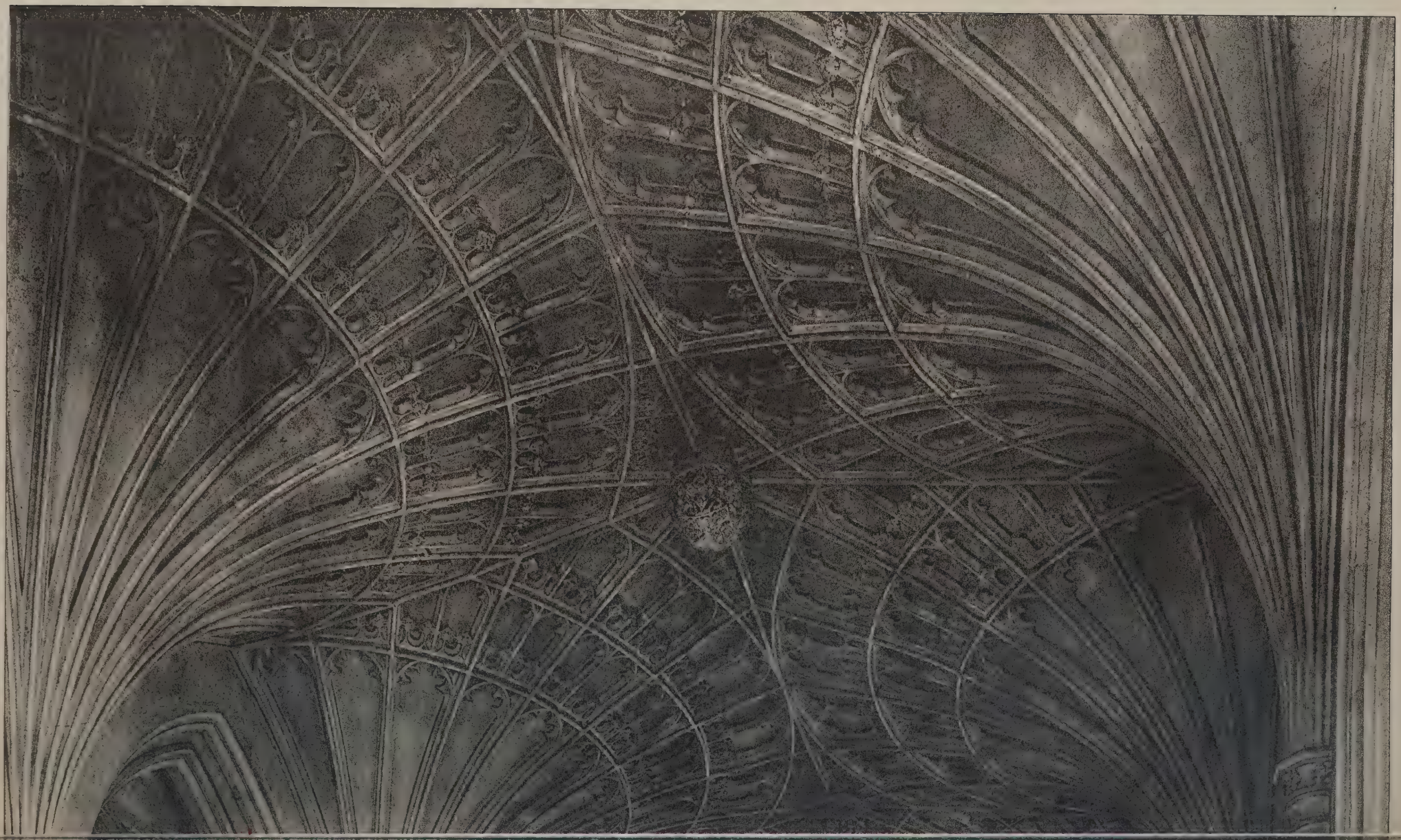


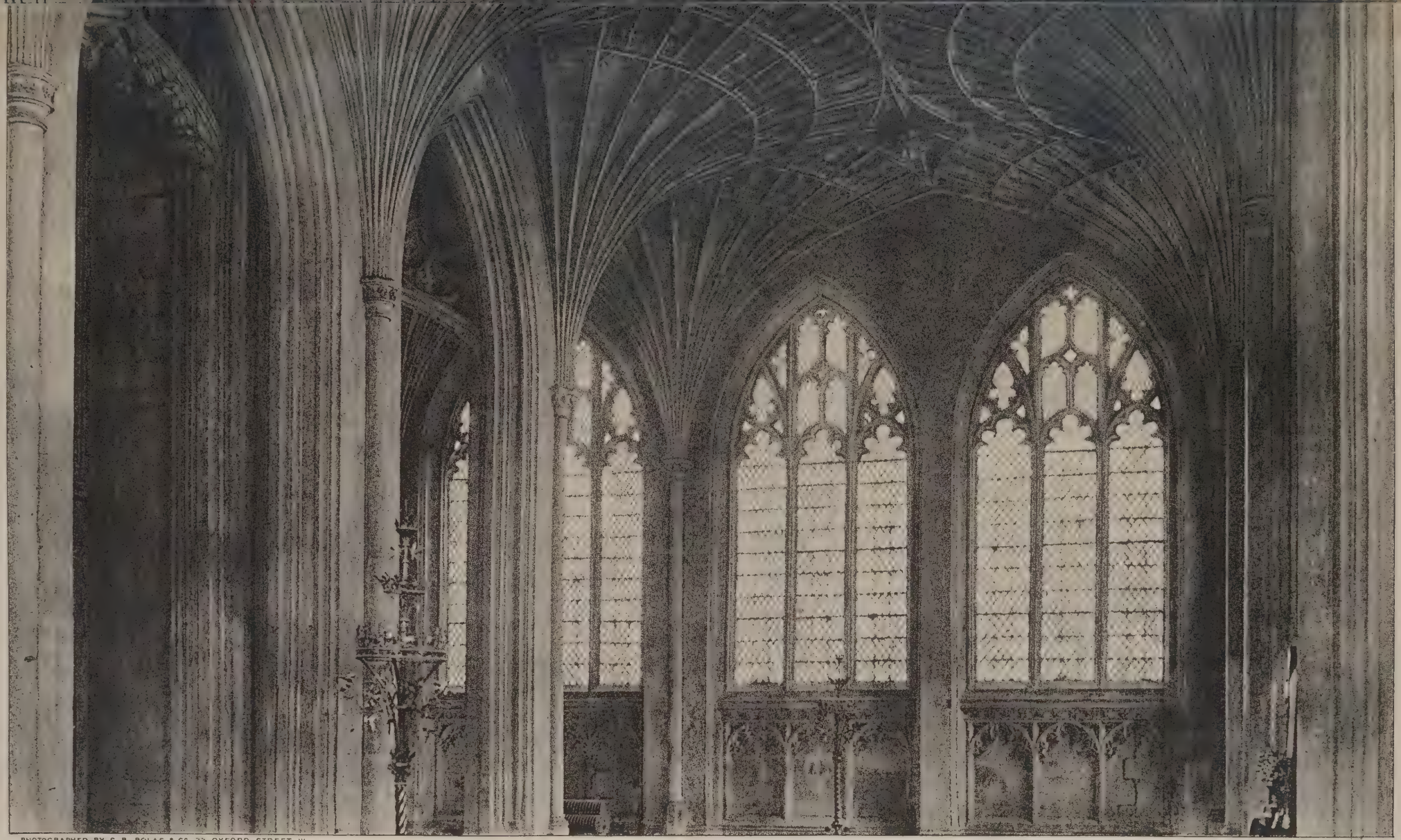


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CATHEDRAL SERIES, No. 144.—PETERBOROUGH: SOUTH TRANSEPT FROM CLOISTERS.

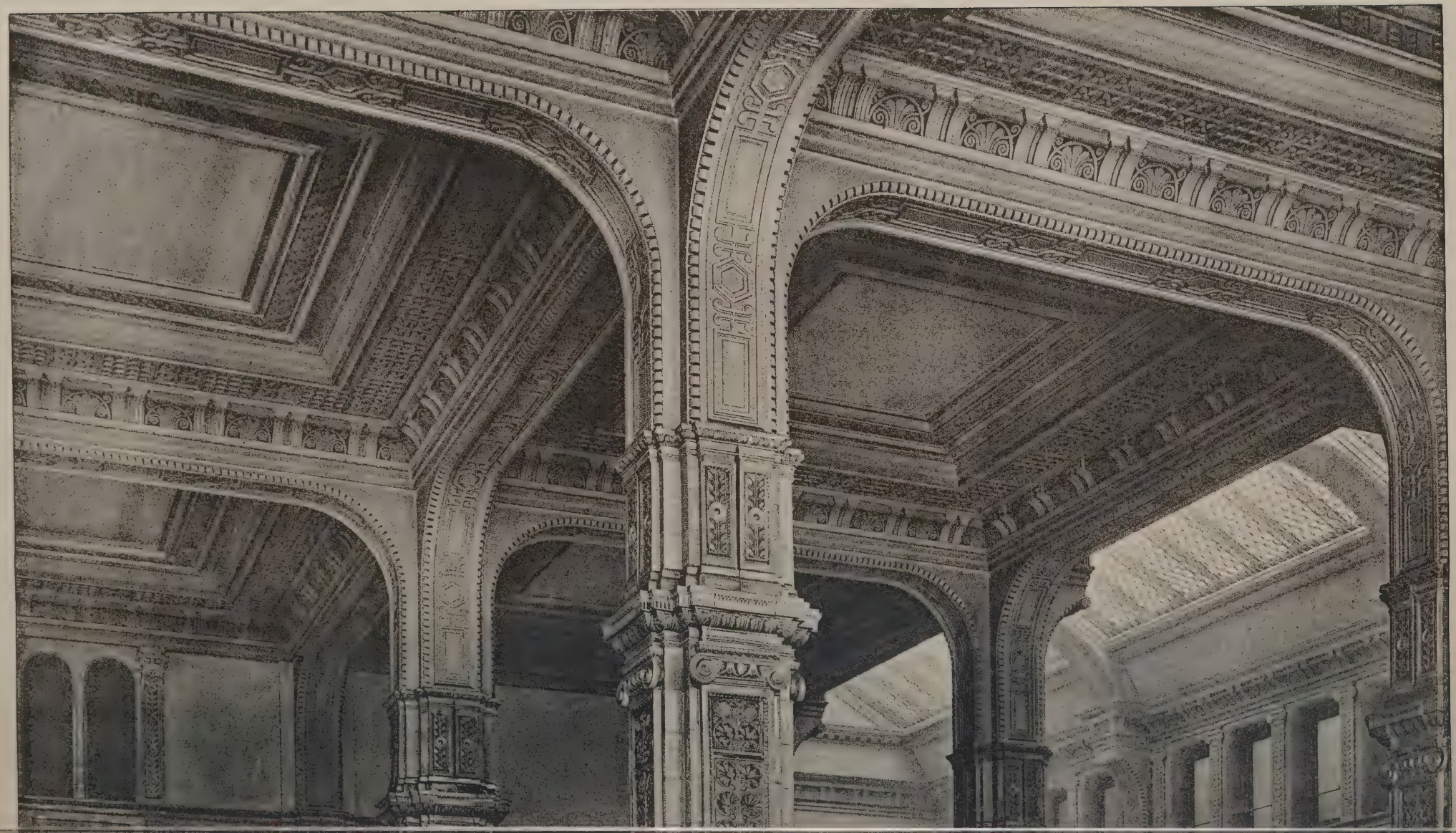


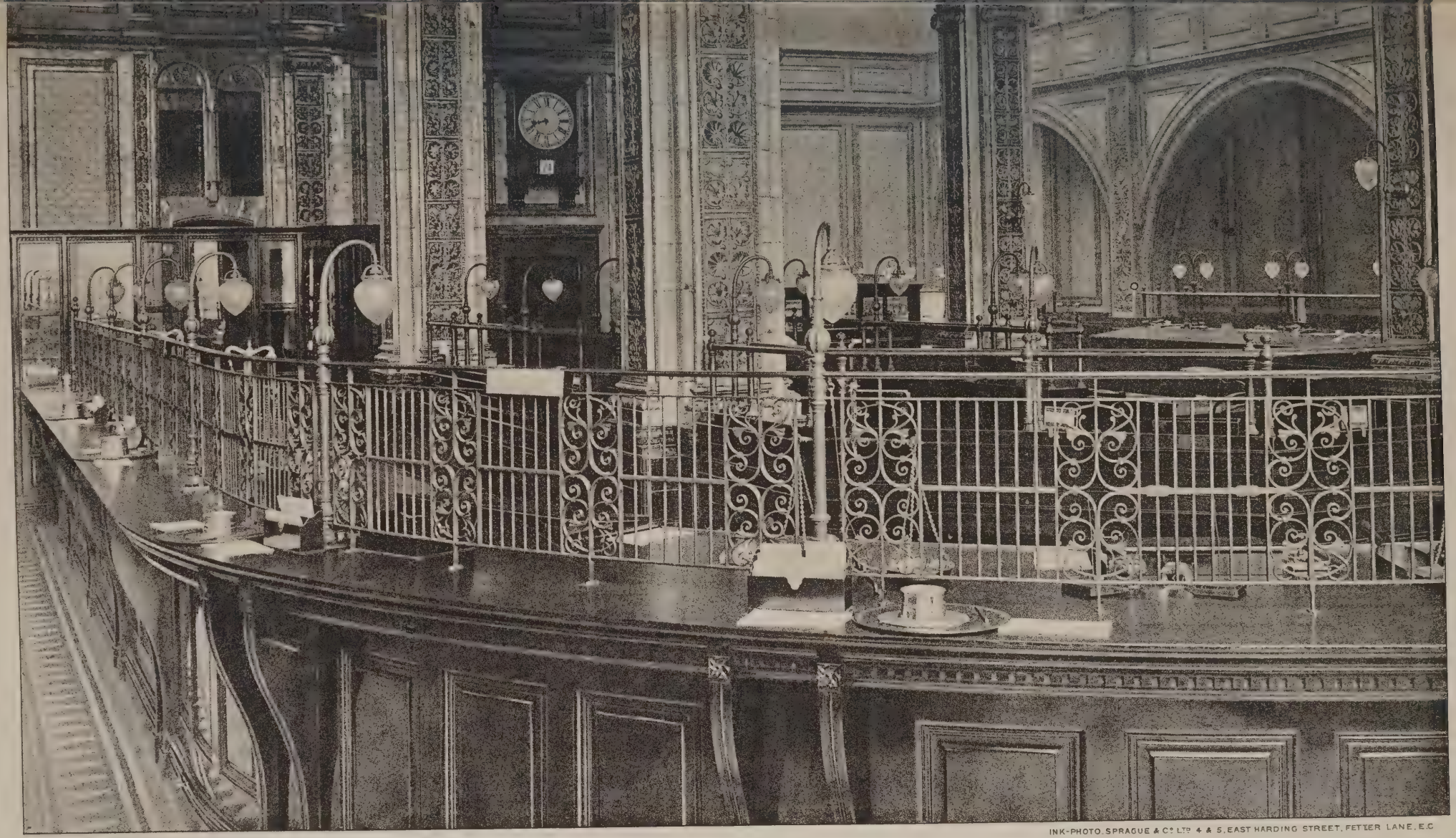


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CATHEDRAL SERIES, No. 145.—PETERBOROUGH: ROOF IN RETRO-CHOIR.





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The Architect.

THE WEEK.

The building known as Abbey Mansions, in Orchard Street, Westminster, seems destined to exhibit all the shortcomings of building law as well as of one variety of building practice. On Tuesday the supposed owners were summoned under the dangerous structure clauses of the Building Act and also for the following breaches of the Act:—(1) Erection to a greater height than 80 feet without the consent of the London County Council; (2) that the roof storey (more than 60 feet above the street) was not constructed throughout of fire-resisting materials. Mr. Avory, for the defendants, maintained that the building did not come under the general enactments, as it was a Government building. According to Clause 202 of the Act of 1894, "Any building, structure or work vested in and in the occupation of any department of Her Majesty's Government for public purposes or for the public service" is exempted from so much of the provisions of the Act as relates to structures and buildings. The coroner, at the inquest, considered the exemption did not apply, because the Office of Works, although lessees, had not entered into occupation; and apparently on his suggestion proceedings were taken by the County Council. Counsel said he could not understand how a building could be occupied when it was not completed. The magistrate considered that, by the agreement, the premises were vested in the Government, and must therefore be considered as exempted. But he adjourned some of the summonses in order to see whether a case would be applied for. The litigation has hardly commenced, but we are afraid many other legal fiascos will have to be recorded in connection with the case. That would be unfortunate, but the consequences will be more deplorable if people become persuaded about the possibility of defeating justice by an excess of carelessness in building operations.

The prospective value of an architect's plans may be indefinite and therefore difficult to calculate; but as they often have their use as legal documents and can enable the possessor to save time and labour in preparing plans for other buildings, they become contingents which deserve appreciation. There is, however, no actuary or valuer for probate who would be able to afford data for determining how much in standard coin the plans of an ordinary building are worth to the designer or his successor if he sold his practice. That a case in which the problem has to be raised can come before the Courts is plain from a report in the *American Architect*:—A certain architect went off on a fishing trip, leaving his rent unpaid. His landlord, in his absence, seized his office furniture and his plans, the accumulation of twelve years of practice. Before the account was settled the plans had been lost, or, as was supposed, destroyed, and the architect sued his landlord for their value, which he set at 25,000 dols. Several architects were called as expert witnesses to testify to the value of the plans, but their evidence was so unsatisfactory that the plaintiff is said to have abandoned his case. The counsel for the defendant insisted that the witnesses should estimate in dollars and cents the value of the lost property, and, as in the case of so many other conscientious witnesses, they were hopelessly confused by this ancient legal trick. If the case were tried in London instead of Chicago, would the issue be different?

The County Council have decided to apply to Parliament for powers to construct a new street from the Strand to Holborn, a scheme which we have already described. It is proposed, also, to form a subway beneath it and to plant trees. The principle of betterment will be applied on similar conditions to those adopted for the Tower Bridge approach (south side), but a longer period than three years will be sought for judging of the effect of the improvement on the surrounding property. Provision is to be made as far as possible for rehousing the people displaced previously to giving up their rooms, and no one is to be transferred beyond a mile. The improvement could not be delayed much longer. But probably the cost of so important a work will not fall more heavily than is anticipated on the inhabitants, although, as we have already pointed out, the expenses of construction are estimated on an economical scale. The rehousing is no light task, and it is hardly to be realised from the amount to be expended, viz. 300,000*l.*—the largest sum expended on work of the kind.

Visitors to the exhibition of French pictures at the Guildhall cannot forget the sinister figure of the Capuchin monk in M. Gérôme's *L'Eminence Grise*. The Père Joseph le Clerc de Tremblay was a more important associate of Cardinal Richelieu than he appears in Lord Lytton's drama. It is strange there is no portrait of so mysterious a personage in any of the public collections of France. M. Rossigneux, who was formerly Prince Napoleon's architect, possesses one which was apparently painted by a brother of Simon Vouet. It is therefore valuable from its interest as an example of the portraiture of the early part of the seventeenth century. It was offered to the authorities, but they have declined to accept the gift of M. Rossigneux. Can the rejection be due to political causes?

The proposed establishment of a university in Birmingham must excite the attention of all educationalists. Universities are not founded every day, and in Birmingham it is intended to depart from precedents. Strictly speaking, a university is intended to teach the humanities, and the question which will have to be considered will turn to a great extent on whether Greek and Latin are to give way to modern languages, and whether literature is to be supplanted by science. The old universities were adapted to the circumstances of the time when they came forth, and why should not Birmingham also have a twentieth-century system of education? Competition in industrialism has become so intensified that Birmingham has to fight for existence against many rivals. The promoters of the project should be pardoned if they conclude that metallurgy is of more importance than speculations about Vulcan's shield or the decorations of the palace of King Alcinous. But we hope science will not alone be taught. In everything formed of metal which Birmingham is likely to produce art is required. For industrial art the classes in the municipal school of art, excellent as they are, are not sufficient. An academy of art should form a part of the university in which architecture will be recognised as it deserves, for the failure of the Slade professorships suggests that amateurish discourses are not adapted to the needs of Birmingham.

The Royal baths in Stafford were erected six years ago, and in the annual abstract of accounts just issued the sum of 313*l.* is entered for alterations and repairs. The amount is not exceptional. It seems incredible that so large an annual outlay should be needed, and it is no wonder that, while the income was 782*l.*, the expenditure should be 1,376*l.* A company could not long exist that conducted business in a similar way, and the subject should be inquired into by a specialist who does not live in Stafford. Fortunately compensation is to be found in other departments under the supervision of the Town Council. The gasworks have brought a profit of 785*l.* The electric lighting, with an outlay of 739*l.*, yielded a profit of 553*l.*, and from the waterworks the profit derived was 2,441*l.*

A new volume of the Amateur Photographer Library, entitled "Architectural Photography," has appeared from the practised hand of Mr. G. A. T. Middleton. It is written with his usual conscientiousness and knowledge of his subject. Although it costs only one shilling, it contains a great many illustrations. There is no attempt to write the history of architecture. What Mr. Middleton does mainly is to suggest how the most expressive photographs of buildings are obtainable. That has an advantage for photographers, whether professional or amateurs, but a great many of the suggestions can also be utilised by architectural students when on sketching tours.

THE SWISS MUSEUM, ZURICH.

BY A CORRESPONDENT.

THE world in general considers Switzerland as a small but picturesque State inhabited by people who are very prudent and industrious, and who have contrived to play an important part from time to time in European history. MACAULAY'S schoolboy if tested would be likely to remember more of the historical incidents of the Swiss than of his own countrymen. So much is made of the old records that modern sceptics appear to take delight in proving that much of what is told has no more real foundation than the "Kinder- und Hausmärchen" which also excite interest everywhere. But the Swiss themselves take an altogether different view of their rights and their history. Switzerland is to them only a geographical and political expression, which brings with it the inconvenience of performing certain services and paying certain sums which are demanded in order to keep up that federation which is to the majority no more than a necessary evil. The interest of a Swiss rarely extends beyond his own canton; in most cases it is confined to his own district. He considers, too, that the esteem in which the Swiss as a race are held is only a diffusion of the admiration which belongs to his canton or race, and what should be his is shared in by others under false pretences. Three forest cantons claim all the interest which is attached to the insurrection of WILLIAM TELL. Berne and Zurich unaided defeated ALBERT OF HAPSBURG. It was Lucerne gained the victory of Sempach. Zurich was the first to adopt the Reformation. The cantons were as disposed to fight against their neighbours as against the Austrians. Zurich at one time was besieged by a Swiss confederation. In the sixteenth century Catholics and Reformers engaged in a war over the appointment of an abbot for the Monastery of St. Gall, and there was great slaughter on both sides at the battle of Cappel. The love of liberty or the assertion of individuality among the Swiss is not without its drawbacks, and one is the existence of something which has a resemblance to what is known in England as parochialism. It seems the more strange when found in a region where so much is seen to suggest the immeasurable universe of which the mind is the reflection.

All this may appear an odd introduction to a notice of a museum which abounds in "auld nick-nackets" that would have won the heart of Captain GROSE. But the museum is more than a refuge for remains of antiquity. It is a memorial of a victory of Switzerland as a nation over the petty interests of the cantons. For years the project was advocated by a few enthusiasts who were looked on as bores of the first magnitude. It was asked what could be the advantage of an institution of the kind? The people were not indifferent to the past, and in the principal cantons museums are to be found containing local relics which, it was maintained, became more interesting the nearer they were to the places where they were produced or set up. As far as one looked back, Helvetia was made up of several distinct districts each claiming independence, and opponents inquired why should not archæology express a historical fact? The national idea, however, slowly gained in favour. When it became strong it was met by the parliamentary strategy which is as fatal to ideas of reform in Berne, Lucerne, or Zurich as in Washington. For a time it seemed as if the National Museum was to be included among the "Heimathlosen."

One difficulty arose in fixing a site. Every large town asserted a right to selection on account of its historic importance. As there appeared no possibility of a settlement, it was decided to leave the choice to foreign judges. Sir A. W. FRANKS of the British Museum, M. DARCEL of the Cluny Museum in Paris and Dr. ESSENWEIN of the Germanic Museum in Nuremberg were requested to consider the subject. They came to the conclusion that Berne was the most eligible place. Then followed a renewal of lobbying. The Bund was compelled to set aside the judges' award, and bestowed the distinction on Zurich. But distinctions are costly in Switzerland. The inhabitants of the "Swiss Athens" found that if they were to have charge of prehistoric weapons, Gothic woodwork and specimens of the halbards, axes and two-handed swords which left many a foe on the field, they must pay for the building which was to contain the treasures. The Zurich people have had to buy more than once their privileges, so they accepted the inevitable and commissioned M. GULL, the architect of the town, to prepare plans for the building. M. HENRI ANGST, the British Consul-General, was appointed director.

The museum, which is found near the railway terminus and trade school, is in style somewhat suggestive of its purpose. It would be impossible to obtain from archæologists a decision about what period is most deserving of representation in the galleries. Prehistoric, Roman, Romanesque, Mediæval, Renaissance would each have supporters who were prepared to go all lengths in support of what they specially admired. In the exterior of the building M. GULL also suggests variety, and leaves the discovery of unity, if there be any, to the spectator. The National Museum is like many a Swiss building where stone or brick is made to assume appearances which must originally have been derived from construction in wood. It is always easy to condemn a modern building by thinking of qualities which the architect never cared to express. If the building is considered fantastic by a foreigner, to the people of Zurich it is a picturesque object, and with the tower and trees a group is formed which will long delight the eyes of young and old.

Although the project of the museum was met with so much opposition, the interior suggests that the State has endeavoured to make compensation for former indifference. A great many of the objects seen are lent from private collections, but there is evidence that, in spite of its rigorous economy, the Government have expended money liberally in order to make the museum worthy of the country. As far as practicable, the casket corresponds with the contents. The rooms cannot be as varied in character as would be necessary if the possessions of the cave dwellers or those who resided in houses over lakes, the monastic furniture, the faïence, the manuscripts, and so on, were placed in environments like those in which they were originally seen. Neither the Cluny nor the Brussels museum, although both are veritable examples of ancient building, is in keeping with more than a part of the collections in each. There are in both objects which are older and others more modern. But in Zurich, wherever something was acquired of sufficient size and importance to impart character it has been employed as a sort of *motif* in designing the room which was to contain it. As a consequence, the chilling effect caused by the character of the building, which in Bloomsbury deters so many young students from taking an interest in archæology, as if it signified reflections among tombs, will be absent from the Zurich museum. It will be impressed on the visitor from what he sees that in former days architecture was not an isolated art which could be exemplified only in buildings on a great scale, but that there was a relation between the style of a house and the majority of objects which were to be found there. As an educational institute for young archæologists, especially for those of Switzerland, we do not know of another which will have so many advantages as the Zurich museum.

Many of the objects must necessarily resemble those deposited in other museums, for in all times forms as well as ideas appeared to be common throughout Europe. But there is an abundance of local peculiarities which can give rise to speculation. The objects which belonged to the earliest inhabitants of the Schaffhausen district, or those who have left records of their existence, are proofs that those cave-dwellers were of smaller size than similar folk in our own island. The pieces from the lake dwellings are interesting; but as the lake at Zurich was selected as one of the refuges of the primitive inhabitants, and, moreover, from its importance in the history of the discovery of the pile-houses, imagination led us to expect more than we saw. But that is a common experience with visitors to new museums. The Roman period can never be fully illustrated. The disturbances must have been on an extraordinary scale. CÆSAR, who speaks of the Verbigenus, may have stood on the site of Zurich. But the civilisation of the Roman was not to the taste of the Helvetii. The invaders suffered defeat, and there was a migration into the more fertile Gaul. Then Roman discipline prevailed, and only a remnant of the Helvetii returned to their wilds.

Alternate victories and defeats followed both sides for four or five centuries, and when the northern tribes came in it would be hard to say who were the possessors they had to attack to gain the upper hand. Christianity was without power until the seventh century. We must therefore expect that the objects which belong to the pre-Mediæval period are not as numerous as would be expected in a country which the Romans coveted, and which was not remote from Italy. The most interesting are some statuettes, but, as usual, they appear to have suffered from their contact with the earth. Some examples of jewellery and household utensils are also to be seen.

The earliest Mediæval work is a room from a house in Zurich, which has been skilfully reconstructed. Terra-cotta manufacturers will be surprised with specimens of bricks, probably produced in the thirteenth century, on which patterns are impressed. Another room, which dates from 1476, shows the excellent work which was produced in Mellingen at that time. The rooms from a nunnery in Zurich are a little later, and are likely to excite much curiosity. Painted ornament was much employed at the time. Ecclesiastical work is well represented, and there are some good specimens of the stained-glass for which the Swiss were in repute.

A part of the exhibition which is sure to be attractive is the hall devoted to the display of arms. It exemplifies the history of the Swiss, who in every country were compelled to fight for existence. We hope that photographs will be published of the collection, for they would be invaluable to all who have to represent arms and armour on canvas. The Swiss armourers supplied weapons for the rank and file of the armies of other countries, although there were finer varieties to be obtained elsewhere, which captains could employ. Some, like Scottish weapons, retain names which suggest their origin—as the Lucerne hammer, the Swiss pike, the Sempach halbard. Most interesting also are the early specimens of firearms. In all such collections the weapons which have a history are more sought after by sightseers than those which are only remarkable for form or ornamentation. For the people of Zurich nothing is likely to surpass in fascination the sword and helmet of Zuingli, the reformer, who was preacher in the cathedral, and by whose influence ecclesiastical property was secularised for the public benefit. He was killed at the battle of Cappel, already mentioned.

The museum likewise contains rooms which are no less suggestive of the domesticities in the Renaissance period. One recalling the Casa Pestalozzi of Chiavenna exhibits Italian treatment, and excites reflections about the respective influence of Germany, France and Italy upon Swiss art. As a whole the last was weakest. Very different is another room derived from Wiggen. Zurich has still many fine old houses, and they have been utilised to suggest the costliness of decoration in the seventeenth century. In course of time, as additions are made to the collections, the appropriateness of the setting will be more apparent. Not only is Domestic architecture exemplified, but it becomes a sort of basis for the system of arrangement which is adopted, and which should be retained hereafter. In classification of all kinds there must be a leading idea, and what strikes the visitor is that in the Zurich museum that idea was architectural.

According to some experts, there is a decline in England of the fascination which "blue and white" exercised a few years ago for the decoration of walls. But a sight of the room devoted to the Winterthur faïence is almost enough to revive an interest in "crockery" as an aid to domestic adornment. The examples testify to the skill attained in the canton of Zurich in the seventeenth century. The Winterthur variety is not much known in England, but it proves that the men, women and children who were occupied in it showed much aptness as ornamentists and potters. The difficulty of exportation was no doubt one reason why the faïence was not in request in other parts of Europe. In Zurich porcelain was preferred, and there are many pieces which are skilfully painted, although the landscapes and figure groups may appear to be old-fashioned and inappropriate. The Swiss artist, although not unwilling to accept foreign money for his productions, did not trouble himself about foreign notions of taste. He worked to please himself, and preferred subjects to which he was bound by many ties. The Zurich museum shows how stubbornly certain principles of art were held from generation to generation, although with all the perseverance the nearest approach to a Swiss style is to be discerned in the woodwork alone.

Many English people will visit Switzerland this year, and we recommend them to arrange their tours so as to include Zurich. The town itself may be familiar to them, but in the new museum they will see many things which are novel, and, if rightly considered, will enable them to derive more interest from the cantonal museums.

PANAENUS THE PAINTER.

ONE of the obstacles to the study of ancient art, and it might be said of ancient life in general, is that we persist in assuming that modern practice must be taken as the standard. Accordingly, whatever is supposed to correspond with things that are familiar to us is considered supreme. This is especially the case in the history of the arts. Among the Greek painters, for example, Apelles and Polygnotus are the first names which arise in our thoughts whenever we think of the art followed by them. The reason is that from all the legends concerning them we imagine they were not unlike some of our academicians. Lord Beaconsfield, when referring to his own portrait, spoke of Millais as Apelles. That might be considered an exaggerated compliment by those who identify the Greek artist with such works as the *Venus Anadyomene* and other figures of the goddess. But it should be remembered that Apelles was also renowned for his paintings of historic characters, and his *Alexander the Great*, who was represented as Zeus, the lightning-holder, was in his day almost as famous as his numerous nude figures of women. The name of Polygnotus is also remembered because he was supposed to be a wall-painter who brought that variety of art to perfection. Many people have believed that Lord Leighton was its latest representative. Both the Greek painters would have acknowledged the supremacy of architecture, and endeavoured to prove their loyalty to the art by making their work subservient to the details of the buildings they adorned. But there were many other famous painters in Greece who appear to have been still more closely associated with architecture, and on that account are too generally ignored. One of the most remarkable was Panaenus, or, as the name has been also written, Panaios, Panainos, Pantainos.

He is sometimes described as the brother of Pheidias. But by other accounts he was the cousin of the sculptor. Whatever was the exact relationship between them it would appear as if Panaenus was generally associated with Pheidias. The sculptor was willing to follow precedent and to employ wood as well as marble for figures. In such cases the aid of Panaenus was invoked to impart more animation to the carving in wood. The sculpture would therefore correspond with the work which was long afterwards found in Gothic churches, and the circumstance is important as an indication of the antiquity of polychromy in connection with the sculptor's art. Pheidias was more renowned for figures in which ivory was the principal material. Gold was also used for accessories. To what extent the ivory was painted can only be conjectured. The descriptions which have come to us will bear a variety of interpretations. It would be easy from some accounts to suppose that the *Zeus* of Pheidias in Olympia gained effect because the ivory mass stood against a coloured background in which the richest embroideries were employed, and the figure became sublime from the appearance it presented of being simply idealised human flesh. The ornaments, although of gold, would then appear to be of very inferior value. From the description of Pausanias it is evident, however, that figures were introduced on the throne which were imitations of a painter's work. They might, of course, be only monochromes, and in them a sculptor's reliefs could be imitated. But in the age of Pheidias the Greeks had advanced beyond the monochrome stage, and it is more probable the imitations of painters' work would display the primary colours at least. If that were the case we cannot suppose the ivory body of Zeus would be left in its natural

colour. It would be stained or painted wholly or partially to be in keeping with other parts of the work.

We have the authority of STRABO for the existence of numerous paintings by PANAENUS in the Temple of Zeus at Olympia which excited the traveller's wonder. We learn also from PAUSANIAS that on the wall near the enthroned deity there was a series of mythological paintings which came from the hand of PANAENUS. The pictures were considered so interesting that provision was made by means of wooden of gallery to enable visitors to study those which were on a higher level. The titles were painted near the scenes in order to make the subjects more clear. Putting all the evidence together, it appears to be conclusive that the steps, sides, or back of the throne of ZEUS were painted in some way which increased the effect of the delicate work of PHEIDIAS, and that the background was painted with representations of victories over the Persians in which all the Greeks were supposed to co-operate, and which demonstrated the favour of the monarch of Olympus. We must also conclude that PANAENUS was accepted as a painter who was able to add interest to the exquisite sculpture of PHEIDIAS. This position becomes more honourable if we bear in mind that PHEIDIAS was, according to tradition, a painter as well as a sculptor. It may be said that he directed the painting at Olympia, and that PANAENUS resembled one of the subordinate sculptors who worked on the Parthenon. On such subjects conjecture must be left to have its way. The division of labour in ancient art did not trouble the philosophers, and, as they bestowed little attention on the production of statues, pictures and buildings, it would be vain to seek after information. If we possessed accurate information about the sanctuary at Olympia, we might learn that the two artists were able to enter into emulation without any sacrifice of either art. Both sculpture and painting became testimonies to the greatness of the god and the indebtedness of the Greeks to his protection.

It is evident that PANAENUS could be more than an auxiliary, although such a relation to PHEIDIAS would be most honourable and sought after by the ablest artists of the time. His painting of the *Battle of Marathon* in the Poecile of Athens was one of the works of which the city was most proud. Whether he set the example of painting in the gallery cannot be determined, for some inquirers believe the honour belongs to POLYGNOTUS. The painting, or series of paintings, by PANAENUS could have borne no resemblance to modern battle-pieces. The latter are supposed to be most successful when they suggest the collision of indistinguishable masses of men and horses, amidst which a few figures have sufficient definiteness to suggest passion as well as scale. But any tumultuous effect was not in keeping with the spirit of Greek art, and, moreover, the painters were unable to treat figures on several planes. In the *Battle of Marathon* there was apparently as much regularity as would be found in a sculptor's frieze. There was no need for the painter to exercise his imagination. Many of the Athenians who took part in the battle were still living, for it was not more remote from PANAENUS than the Charge of Balaclava is from painters of our time. Some of the heroes served as models to the painter, for those who were dead portraits of various sorts were used. We know that PHEIDIAS committed an offence by allowing a portrait of himself to appear among the groups of the Parthenon; but in a work like the *Battle of Marathon*, for which it was possible to be veracious, portraiture was rightly employed. The painting was a memorial of warriors who were known, and to keep up its character the name was inscribed under or near each figure. Warriors who were introduced would naturally demand to be represented as performing the deeds of which they were most proud, and when all the restrictions are taken into account we cannot suppose that the Greek battle-piece consisted of more than a series of conflicts of an Athenian versus an invader, in the style of the contests between the Lapiths and the Centaurs which filled the metopes of the Parthenon. There was some analogy between the two scenes, for as the Persians were represented as far bigger men than the Athenians, the contest became one of brute force against courage inspired by intelligence. The groups were not necessarily separated by blank spaces. By arranging them in bands or friezes the chronological order of the incidents, and the beginning, middle and termination of the struggle against the invaders would be suggested. An important part of the picture represented the panic of the Persians, who became their own enemies. But as the Greeks could always make a part serve for the whole, there was no need to depict the scene as it would be done by one of the modern war correspondents who use the pencil.

There could not fail to be marked limitations in the pictures of PANAENUS. Arms and men were his subjects. The Greeks for whom he painted did not appreciate women in paintings unless they appeared as Amazons, and the value of costume as an adjunct was not demonstrated. Domestic scenes would be considered ridiculous, landscapes evidence of lunacy. Painting corresponded with the architecture, and the sculpture. It attempted to be heroic, and, as we have seen in the case of PANAENUS, the glory of a man who followed that branch of art was to enable architects and sculptors to realise effects which otherwise would be impossible.

A BIRMINGHAM UNIVERSITY.

A MEETING was held in the Council Chamber, Birmingham, on the 1st inst., for the purpose of making arrangements for the establishment of a university in the city. The Lord Mayor presided.

Mr. C. H. Kenrick moved the first resolution which was as follows :—"That in the opinion of this meeting it is essential that in the interests of the city, and the Midland district generally, a university shall forthwith be established in Birmingham." In the course of his speech Mr. Kenrick said he found some of his friends saying they knew quite well that their industries were dependent on science, but they did not want to have people around them knowing too much about it. When the time came, they said, that they required the scientific man, they would send for him, and no doubt he would give them all the information that was necessary. He ventured to think that was a sad delusion. A man of science called in on those occasions, although he might be able to prescribe for every other defect and ailment, was, he thought, always unable to prescribe the exact remedy for the particular disease respecting which he was called in. It was not to be wondered at. Industries had done nothing to enlighten those interested in science, and they could not be surprised if scientific men did not quite understand all the industries. There had been too much thought for the individual, too little thought for the industry. They required to learn something of the co-operation of trades for the purpose of their advancement, and for the purpose of reaping the full benefit of the scientific discoveries of the last twenty or thirty years.

Professor Tilden, in seconding the motion, said that though he had the misfortune to be a professor he was disposed to go even farther than Mr. Kenrick did in regard to the functions of a university. It might be asked what was the use of a university in a great manufacturing district like that? The public idea of a university was based chiefly on the notion that it was a place at which people got degrees, and few who had not had university experience had an accurate conception of the nature of the process by which those degrees were obtained. There had been a prejudice to a certain extent in the minds of commercial men against a university training, because they had been rather disposed to think it a sort of thing that was all very well for schoolmasters and clergymen—it had not any practical bearing. But a university rightly organised and rightly conducted might be the most practical thing in the world. They heard almost daily statements concerning the wonderful advances that had been made in industrial progress by Germany during the last few years. They were all agreed that Germany had made great progress, and that the Germans were an eminently practical people. In the German Empire there were twenty-one universities with an annual income of about 1,250,000*l.*, of which about three-fourths was contributed by the State. The Americans, too, had the character of being a very practical nation, with a strong inclination to take advantage of inventions which led to convenience in life, to saving of labour, to saving of time, to saving of money. Now, in the United States there were several hundred institutions which claimed to be universities. Of course he would not refer to those very numerous thriving institutions which merely assumed the name without any right, but he could point to some seven or eight very eminent universities in the United States, universities which, though perhaps half a century ago they were comparatively poor and possessed of comparatively feeble resources, had now become institutions of the utmost national importance. The annual income of Harvard was now 260,000*l.* per annum, that of Cornell 105,000*l.*, and that of Baltimore, the celebrated John Hopkins University, 35,000*l.*

France since the war had been stirred into great scientific activity. There were distributed through many of the French towns faculties of the University of France, with incomes varying from about 12,000*l.* to 40,000*l.* a year, and the magnificent building of the Sorbonne in Paris, in which the Faculty of Science was housed, showed how much scientific activity of an educational kind had now been aroused among the French people, no doubt partly by the example of their neighbours across the Rhine. He scarcely need speak of Switzerland. They had heard of the university and the great technical school at Zurich—an example of the most wonderful foresight and the most wonderful liberality of spirit displayed by a comparatively small and poor country. Now, these universities were not places that had been founded in order to satisfy the sentimentalist or the mere visionary. They were places which had a practical share in the life and had a very important influence on the industrial position of the several nations he had referred to. Dr. Ehrhardt, whose letter had been read, and whom he (Dr. Tilden) had the advantage of instructing in science in his early years, was one of the leaders in a big factory in Germany, the Badische Soda und Anilin Fabrik, which manufactured not only dyes, but sulphuric acid and soda, which were the two fundamental things in chemical industry. The factory employed 5,000 men; its capital was 18,000,000 marks, and its working capital about double; the market price of the shares was 454 per 100; it had paid recently dividends of 24 and 26 per cent., and had not paid less than 20 per cent. since 1890. That great industrial concern was conducted by a board of directors and a staff of managers and foremen, 110 in number, nearly all of whom were graduates holding their doctorates from the universities of Germany. Chemistry, of course, was not the only department of science immediately beneficial to industry. In iron and steel works not only metallurgy, but engineering came in, the successful manufacturer depending not merely upon chemical processes, but to a very considerable degree upon engineering skill. Then there were the very rapidly increasing applications of electricity, not only for lighting and for driving machinery, but as displacing some of the other chemical and metallurgical industries. All these things demanded the highest kind of scientific knowledge. The polytechnics of London and the municipal technical schools in the provinces had done good service, but these institutions were inferior to the polytechnics of the Continent in that they only gave partial instruction to persons who were occupied at business, and in that the scientific standard of the staff in most of these institutions was not to be mentioned in comparison with the staffs associated with the great polytechnics of Germany, in which many of the teachers of chemistry, or electricity, or engineering were people of world-wide reputation in science. The German manufacturer believed in science and in training the intelligence, and made use, if at all, only to a small extent of what was called rule of thumb. Then the German universities gave degrees under conditions wholly different from those which prevailed in nearly all British universities. A man who had graduated in a German university was not merely a cultivated man, but he had learnt a branch of science so thoroughly and in such a practical way that he was able on leaving the university to turn his scientific knowledge to practical account for some industrial purpose, his case being in some degree analogous to the case of a doctor of medicine in this country. If we wanted our university degrees to inspire confidence on the part of the manufacturers, as did the degrees granted abroad, we should have to alter the conditions under which degrees were now granted. The ancient universities were no doubt alive to a part of this question, but they were hampered in various ways, partly by want of funds—for both Oxford and Cambridge were in a very impecunious condition. At Cambridge a very interesting experiment—the engineering laboratory and the mechanics' tripos—had been tried, and it was possible there for a man to take a degree in practical mechanical engineering. At Glasgow and at Edinburgh the universities had engineering schools, and in connection with the Victoria University there was some engineering teaching. But in Birmingham they were their own masters, and they had a great opportunity of creating a university of an entirely new type, a place for study and also eminently a place for research, and a place where he hoped they would get rid of that predominance of examinations which unfortunately prevailed in most of the other British universities. They must have examinations to prove that the students had availed themselves of the system of training and instruction, but for practical purposes examinations, in the ordinary sense, could never be a true test, simply because they could not be carried on long enough. In a properly constituted university the student would be under examination by his professors from the moment he entered until the time he received his diploma. Then Birmingham might inaugurate, as he suggested some ten years ago, a faculty of technics or applied science, in which should be put on an equality, as far as honours and rewards were concerned, all subjects which were related to the application of science to industry. With possibilities such as these in view, he thought the movement they were inaugurating that day ought to secure the sympathy and support of all the inhabitants of that great industrial region.

Mr. Chamberlain, M.P. (Colonial Secretary), also addressed the meeting, and in concluding his speech said:—You know, gentlemen, what a great change has taken place in the course of the last few years in our methods of business. Trades and industries which formerly were in the hands of private firms—whose members never, I think, were wanting in recognising their obligations to the community in which they lived—have now been turned over in many cases to boards of directors and shareholders. It always seems to me as if the first thing that these limited companies wanted to limit was their liability to the general public. That, I hope, will not be the case in regard to our present enterprise. If it is to be the case, I think the time will come shortly when it will be impossible to carry out any philanthropic or public work in our great towns. If it is the case, I venture to utter my warning, and to say that it will destroy that sympathy between classes, that community of interest, which has done so much in the past for this country; that, in place of it, you will find indifference on the one side, followed by suspicion and distrust on the other, and you will be encouraging, if you do not justify, those extreme Socialistic views which have done so much harm on the Continent—harm to the general prosperity of the nation and to the welfare of the working classes. An appeal, an organised appeal, will be made to the great companies which are carrying on business in Birmingham, and I venture to hope—I will say more, I believe—they will respond at least as liberally as would have the private individuals whom they have replaced. The second point is this. There is no doubt that our public life owes a great deal to the liberality of those ancient guilds and corporations by which the trades were controlled, and which have now almost disappeared, although I think that there are signs that they may be revived again on modern principles and in modern guise. But, however that may be, I think it is most desirable that the individual trades of Birmingham should be identified from the first with the new university, and I venture to hope that where the particular business is not large enough to justify on the part of the proprietors any very large subscription, they may nevertheless be associated as a trade, and in that way, by a multiplicity of small subscriptions, may reach amounts which will enable those trades to provide each of them with a professorship, a chair or a scholarship, and in that way for ever to connect their name and their industry, and show their interest and create a relationship between themselves and the new institution.

Donations amounting to 95,244*l.* were promised, including 20,000*l.* from the Brewers' Fund.

THE VENUS OF MILO.

AT the annual meeting of the Hellenic Society a paper by M. Reinach was read respecting the statue known as the Venus of Milo in the Louvre. He said he thought he had solved the riddle of the restoration of this Aphrodite. In 1892 M. Ravaisson published a photograph of a drawing of the statue as it was in 1819, the time of its discovery. On either side was a beardless Hermes with inscriptions. The first of these was the one that fixed the date at 260 B.C., but the other which contained the name Theodoretas was not as late as the middle of the fourth century. There was, therefore, an Aphrodite with two Hermes, one having an inscription of 260 B.C., the other of 370 B.C., but there was no reason for dating the statue from one rather than the other, since neither of the inscriptions was on it. Now, in 1877 a number of statues were found together in Melos, which M. Tissot, then French Minister at Athens, tried, without success, to get for the Louvre. They included a colossal statue of Poseidon, some parts of female statues and a statue bearing the name Theodoretas. The conclusion was that this remarkable statue of Poseidon of Melos belonged not to 50 B.C., but to 370 B.C. All those who had seen the two were struck by the resemblance that existed between this Poseidon and the Aphrodite of Melos in technique and in the folds of the draping, and some authorities had attributed them both to the same period. Having thus got to the opinion that the Aphrodite and the Poseidon were of the same period and technique, and had come from the same workshop, he conceived the idea that they must be combined in some way, not as a group, but as a pair. Now, it had been suspected that there was something wrong in the designation of the Paris statue, and when the matter was considered, the name was seen to rest on little or no evidence. His theory, then, was that this Aphrodite was not an Aphrodite at all, but an Amphitrite. That would go very well with the idea that she was associated with Poseidon, and would help towards the proper restoration of the Paris statue. The great difficulty in restoring the Venus of Milo was that she seemed to be looking a long way away, and that her regards were directed upwards. For this reason re-

storers had not, so to say, known what to do with her eyes. But it had been observed that the statues of sea divinities often seemed to be looking as if they were examining the distant horizon and this fact might be a clue in the case of the Venus of Milo. The statue of Poseidon had the right hand uplifted and holding the trident, while the left hand was approaching the body as if to take up the draperies. The Aphrodite might be taking up the draperies with the right hand and holding the trident in the left, and so the two might be imagined as responding to each other. The fragment of an arm holding an apple, exhibited with the Venus, he refused to take into account; it was not found at the same time as the statue, and its work was very poor. As a last consideration, he pointed out that Philochorus spoke of two big statues in Telos representing Poseidon and Amphitrite. At first M. Reinach thought Telos might be a mistake for Melos, but further reflection convinced him this was not the case. The statement of Philochorus showed, however, that about 400 B.C. there were two statues of Poseidon and Amphitrite associated together in the adornment of a shrine, and it might be that about the same time a shrine of Poseidon in a neighbouring island—Melos—was adorned with two similar statues at the expense of a rich man named Theodoretas.

ARTISTS' COPYRIGHT.

ON Monday the select committee of the House of Lords on the Copyright Bills now before that House heard two witnesses who gave evidence on the question of artists' copyright.

Mr. Arthur Lucas, art publisher, who attended as a delegate from the Printsellers and Art Publishers of Great Britain, said those he represented offered a hearty general support to the Bill of Lord Herschell, recognising in it a serious attempt to consolidate and amend the law, which was very desirable. Art publishers were persons who purchased an artist's copyright, got the picture, and engraved and sold the reproduction, taking all the risk. With reference to the question of copyright in artistic works, he submitted that some amendment was required in the clause which provides that public exhibition for reward, or the first offering for sale or hire, or of any copy, should for the purposes of the Act be deemed publication. There should be a definition of what should constitute publication so as to prevent the exhibition of a picture in the Royal Academy from being deemed publication for the purpose of conferring copyright. At present copyright in an engraving endured for twenty-eight years; the engraving was a new work and nobody else could engrave it, but he wanted power to protect the picture from being reproduced by any other process, *e.g.* by photography. More stringent powers were required to deal with the sale of pirated engravings. These things were sold in first-class carriages and in first-class provincial hotels; the vendors called on great mercantile establishments, public offices, and wherever they could get access. The difficulty of running to earth these pirates was very great. Their lordships, he was advised, hesitated about giving power summarily to arrest, but, however that might be, the present powers were very ineffective to put down the grievance, and costly as well. He remembered a case a good many years ago at Wimbledon where a man selling these pirated engravings refused to obey an ordinary police-court summons. Detectives were employed, who traced the man home, where, on being arrested, he created a great scene, his wife and daughters falling on his neck and crying, while in the meantime the negatives were spirited away out by the back door. The man was fined to the amount of 70*l.*, but this did not stop his business, for he transferred himself and his negatives to Jersey, and for years distributed through the Post Office pirated copies of artistic publications throughout the United Kingdom broadcast. In dealing with such a class of men a power of summary arrest seemed necessary, because they never responded to a summons. The pictures, too, on seizure should be forfeited.

Lord Thring: Do you think they should be seized whether the person got them innocently or not?—They should be, but publishers never would do so. I have seen even in my family doctor's rooms piracies of copyright publications. I do not desire to bring up the innocent buyer or seller, only we do not believe the seller ever is innocent.

Mr. E. Bale, artist, member of the Institute of Painters in Water-Colours, gave evidence on behalf of the Artists' Committee on Copyright. His view was that there should be no stipulation as to publication in order to secure copyright. The copyright should date from the moment the artist put his brush or pencil to the canvas, and the term should be a fixed period ending so many years after the artist's death. If, however, the artist was not a British subject, then, to secure copyright, he must have made or published it in some part of the British islands. Reproductions should be registered, and the author of such reproduction should have copyright for a certain number of years from the date of registration. A sculptor who made an original work should have a longer copyright than the sculptor who merely made casts from nature. If, therefore, thirty years was granted in the case of reproductive works, then a longer period should be given to original works. The committee he represented were in favour of compulsory registration of assignments of copyright. Six months ought to be allowed for such registration, and even after that time it ought to be possible to any person to whom copyright was assigned, if for any reason he had failed to register, to go before the court and obtain leave under terms to register. With regard to the term of copyright, artists did not understand why they should lose a considerable part of their copyright if they did not paint under their true name. It was not an uncommon thing for an artist to paint under a *nom de guerre*. The witness took strong exception to the clause declaring public exhibition for reward, or the first offering for sale or hire, or of any copy, to be publication for the purposes of the Act. This, he said, would create great difficulty in the case of presentation works and the like that were never exhibited for sale or hire. There was a picture of Sir Henry Irving by Sir John Millais in the Garrick Club. It was never exhibited for reward and never offered for sale or hire. There was no statutory copyright in that picture under this Act, but suppose a photographer were to photograph, by permission of the committee of the club, the picture, for the purpose of illustrating an article on the works of art in the club, he would gain a copyright in the photograph as a work of art under this Act.

Viscount Knutsford: Of course the committee might give anybody else a right to photograph the picture?—I do not think they could in the circumstances, because he has produced a work of art which gives him a copyright for his life and thirty years. He did not believe such was the intention, but he thought such was the effect of the Bill as drawn.

The witness also took exception to the provision giving the owner of the copyright in an artistic work the exclusive right to exhibit the work publicly. This might prevent such an exhibition as the recent one of the works of Sir John Millais, and the artists' committee did not think the copyright owner should be able to prevent the owner of the picture from exhibiting it.

Lord Thring: When you buy an article do not you think you have the property in it for all purposes whatever?—Generally, yes.

I want to know why, when you buy a picture, you should not have full property in it in every respect the same as in other articles?—The reason is that there are two properties and not one, and it often happens that the copyright is the more valuable of the two. When a man comes to buy a picture, it seems exceedingly unfair that because he buys a picture, which can be sold quite apart from the copyright, it should be taken for granted that he buys also that which is an even more valuable property. The copyright should not pass unless it is clearly so understood.

Lord Thring: I have no objection if you throw the onus of making the statement on the artist.

The witness, in further examination, said artists wanted to have something to say about the quality of their reproductions. Cases had occurred where an artist had been able to prevent bad reproductions of his work, in which he had been greatly interested.

REBUILDING OF CENTRAL FLORENCE.

THE British Consul-General Chapman, in his report to the Foreign Office, says:—

The rebuilding of the centre of Florence was first begun in 1888, and will be finished in 1899. The final project was drawn up by a commission appointed for that purpose by the municipality, who in their work followed the lines of a previous scheme approved by Royal Decree of April 2, 1885.

It consists approximately of a square surface, blunt at its north-eastern angle, the right side being that tract of the via Cerretani lying between piazza del Duomo and via Rondinelli, the upper side consisting of that branch of the via Tornabuoni situated between via Rondinelli and piazza Santa Trinità, the left side being constituted by the via Porta Rossa, and the lower side by the via Calzaioli. On the left the modifications extend somewhat beyond the given limit as far as the via Vacchereccia. At about 54 yards from the via Calzaioli lies a regular square (piazza Vittorio Emanuele), and parallel streets intersect the area in a southward and eastward direction, the main streets being southward via degli Strozzi, prolonged by via degli Speziali and eastward via Pellicceria, both of which cross in the centre at right angles by the upper side of the square.

The project, although intended to clear out the more central quarter of the town from heaps of old houses and trace larger and regular streets, had at the same time in view the arrangement and good environment of some important monuments like the church of Or San Michele, the Palazzo Strozzi, the church

of St. Gaetano, as well as the many old interesting palaces spread thereon, as that quarter of the town, being the oldest and more central, was once inhabited by the wealthiest and most powerful families of the Florentine Republic.

The area expropriated for the rebuilding of the centre is 51,428 square yards, besides the existing streets; the number of expropriated buildings is 356, with a total expense for the commune of 320,000*l.*; the number of streets is 16, their total length about 2,516 yards, and their average breadth 46 feet.

The Palazzo Strozzi, so remarkable for its grandeur as well as for the exquisiteness of its cornice constructed by Simone del Pollajolo, has greatly benefited by the change owing to the widening of the square at the back of it. The most interesting palace of Palla Strozzi in front of the above, by some attributed to Brunellesco, by others to Michelozzi, the architect of Palazzo Riccardi, though not yet finished, has likewise much benefited by this square, and will soon be repaired and completed. The large Archiepiscopal Palace, which was entirely hidden among heaps of miserable houses within the old fruit market, has been entirely freed, repaired and to some extent rebuilt. The baptistery opposite to the above palace was likewise greatly benefited by the considerable widening of the square round the church; the Palazzo Vecchietti (La Carolaia), the Casa dei Sassetti, and the Casa Lamberti were also thoroughly repaired and restored to their original state by order of the municipality, who, in selling the expropriated properties, obliged the buyers to rebuild any historical building that might be included in the lot. The Palazzi Medici-Tornaquinci, Orlandini del Beccuto, and others were repaired by the proprietors of their own accord, whilst the Palagio dell' Arte e della Lana and the Torre dei Foresi are not yet, but will soon be thoroughly restored to their former condition.

The extension of the city towards the east, considered the most pleasant and healthy part, has been heretofore delayed by the Florence-Rome Railway. The necessity of displacing this line had been fully anticipated and provided for thirty-two years ago in a general plan for enlarging the city, approved by Royal Decree, dated September 19, 1866. The removal of the capital to Rome had, however, caused the question to be postponed, and it was only in 1889 that a new project was brought forward, and this was followed by the construction of a new traffic station near the Campo di Marte in substitution of the "Croce" station, and the displacement of the line itself between the Affrico and Mugnone which was completed in 1896. Before opening it to traffic the commune made a convention with the Government to concentrate in the new station all the goods traffic previously discharged at the central station (Porta a Prato). The total estimate for the entire execution of the works was fixed by the High Council of Public Works at 270,927*l.*, the Ministry of War contributing 10,000*l.* and the commune 56,000*l.*, including the value of the ground given up to the Government. The latter, on the other hand, gave up to the commune the area occupied by the old branch of the line so displaced amounting to 102,856 square yards.

In order to facilitate the building of the new station the commune took upon itself to proceed to the expropriations of further ground required for the same with the payment by the Government of a lump sum of 10,000*l.*

The amount expended up to the present amounts approximately to 88,000*l.*

According to the above-mentioned convention, the Government is bound to carry out all further necessary works before the year 1900, when there will remain 5,200*l.* to be expended in order to complete the project of 1889.

In connection with the displacement of the Roman Railway and the consequent construction of the Piazzola bridge in substitution of the level crossing of the Querce, the commune has incurred an expenditure of 20,000*l.*, viz. 7,200*l.* for the displacement of the octroi boundary (cinta) and gate (barriera), and the remainder for expropriations. The above bridge has reduced to two only the five level crossings that were on the line between the Affrico and Mugnone, to the great advantage of railway shunting and inter-communal transit. The wooden structure temporarily made for passenger traffic at the Campo di Marte station will be replaced by a proper stone building.

A scheme is now on foot with a view to improving the central station, for which the Government assigned a sum of 12,000*l.* and the commune 2,400*l.* It is, however, anticipated that these amounts will prove entirely inadequate for the purpose. Owing to its situation in the centre of the city this old station is specially adapted for passenger traffic, which explains the interest now being taken in Florence as to the best means of enlarging it and rendering it more suitable to its purpose.

At the same time that the works in the centre of the city were being carried out, attention was devoted to the improvement of the buildings and streets of the Quartiere di San Frediano, the poorest in Florence, and the actual refuge of that part of the population driven out from the Ghetto and the old market. These works will not be completed for some time. However, part of the old city walls on that side have already been pulled down to put the quarter in more immediate contact with the town, a new gate called "Barriera di Bellosguardo" opened, a large square formed, and many houses expropriated for future changes. These preliminary works are intended to be followed by more substantial improvements of the houses and streets of this populous quarter.

THE NATIONAL GALLERY.

THE portrait of Mr. Gladstone, by Sir John Millais, which has been presented to the nation by Sir Charles Tennant, has been placed in Room 21 in the English wing of the National Gallery, where it will, no doubt, be a source of great attraction at the present time.

The portrait by Ambrogio de Predis, said to be of Francesco Archinto, which is now being exhibited in the collection of works of the Milanese School at the Burlington Fine Arts Club, has been purchased for the national collection. It will be placed, after the close of the exhibition, in Room 9 in the National Gallery.

The late General John Julius Johnstone has left by bequest to the National Gallery a portrait of a lady and child and a sketch portrait of Lady Hamilton, both by George Romney, and two portrait heads of Mr. James P. Johnstone and of Mr. Alexander P. Johnstone, both by Sir William Beechey. Colonel the Hon. F. W. Stopford has presented a portrait by Romney of Lady Craven, afterwards the Margravine of Anspach. They will be placed in Rooms 18 and 20 in the English wing.

REGULARITY IN FORMS.

WHEREVER we discover fitness or utility we infer the existence of design. In those forms accordingly which are distinguished by such qualities, the discovery of an end immediately suggests to us the belief of intention or design, and the same material qualities of form which signify to us this fitness or usefulness are the signs to us also of the design or thought which produced them. It is obvious, however, that we often perceive the expression of design in forms, both in art and nature, in which we discover neither fitness nor utility. By what means then do we infer the existence of design in such cases, and are there any qualities of form which are in themselves expressive to us of design and intention? Probably because there are certain qualities of form which are immediately and permanently expressive to us of these qualities of mind, and which derive their beauty from this expression. In this view it will easily be observed that the material quality which is most naturally and most powerfully expressive to us of design, is uniformity or regularity. Wherever in any form we observe this quality, we immediately infer design. In every form, on the contrary, where we discover a total want of this quality, we are disposed to consider it as the production of chance or of some power which has operated without thought or intention. "In all cases (says Dr. Reid) regularity expresses design and art, for nothing regular was ever the work of chance." In what manner this connection is formed, whether it is derived from experience or to be considered as an original principle of our nature, we need not inquire. It is, however, very obvious in children at a very early age, and it may be observed that the popular superstitions of all nations are in a great measure founded upon it, and that all uniform or regular appearances in nature are referred by them to some intelligent mind. The terms regularity and uniformity are used so synonymously that it is difficult to explain their difference. With regard to both terms, when applied to forms two things are observable. First, that they are only applied to such objects as compose a whole, and that they express a relation either between the parts of it considered separately or among the parts considered as constituting the whole. The relations between different wholes or the parts of different wholes are expressed by other terms. Second, that they express always similarity or resemblance of parts. With regard to uniformity the term itself is an evidence of it, uniformity being nothing but similarity of form. With regard to regularity it is not less evident. A regular form is a form where all the parts are similar, an irregular form is a form where all the parts are dissimilar. A form partly regular and partly irregular is a form where some parts are similar and others dissimilar. There is, however, another meaning of the term when applied to works of art, viz. the imitation of a model. Thus, we say that a pillar is regular, that a poem is regular, that any composition is regular when they have the same proportions and the same parts which are found in the model or prescribed by the rule. In this case it is still the similarity of parts which constitutes regularity, the similarity between all the parts in the copy and those in the original from which it is borrowed.

NOTES AND COMMENTS.

Florence, like so many other cities, has found it necessary to sacrifice a great many evils which years had respected. In course of time it will be nearly all modern with the exception of a few buildings. The British Consul says that those who recollect what Florence was fifty years ago can only adequately appreciate the great improvements made during that period. The via Gora once occupying part of the present via Montebello, the Camaldoli of St. Lorenzo, pulled down for the erection of the central market, San Frediano and San Niccolo, now partly improved, and the Ghetto, also pulled down, were the receptacles of dirt and misery. Hundreds of families lived and died there without ever coming out of those filthy and narrow streets. The public slaughter-house was situated within the city walls. There were no public closets, houses were unprovided with pipes to receive the rain from the roofs, with the result that on rainy days the water noisily poured into the public streets, flowing in large rivulets along the same; the sewers, too small to receive the drains, caused large puddles in many places in the town; moreover, being connected with the river, within the gates, they overflowed during heavy rains, inundating whole streets. No drinking water was available but that of the wells, the supply of the Montereggi aqueduct being insignificant, and the soil was continuously contaminated by the filtrations of cesspools and old sewers. This state of things, which had existed for centuries, has for some years entirely ceased. At present the drainage of the town, if not always that of the houses, is good; the water supply will soon be, by the new project, one of the best in Italy; lurid and narrow quarters which were a den of infection have almost all disappeared under the pick of industrial contractors, who have erected in their place large buildings with all modern comforts; small airy houses for the poor have also in many suburban quarters been erected. It is also to be hoped that the law of December 22, 1888, on hygiene, instituting a special sanitary department attached to each municipality, prescribing special provisions for house-building, for public disinfection, for the sequestration of unwholesome and adulterated alimentary products, and a special and strict surveillance on all matters concerning hygiene, will permanently secure to Florence the full fruits to be obtained through the above improvements as far as public health is concerned.

Of late years important improvements have also been carried out in the Florence galleries and museums. At the "Uffizi" the decoration of the Niobe room was restored and the paintings substituted by old tapestry. The jewellery room was entirely rearranged. Two new rooms were opened for sketches, pastels, and miniatures; but the most important improvement was the new arrangement given this year to the collection of portraits of painters, which were disposed chronologically, and at the same time according to nationality. In consequence of the opening of these rooms, a double staircase leading from the first to the upper floor was added with a view to rendering more imposing the access to the vestibule. The bas-reliefs of the Rapace Salustre kept therein were removed and replaced by four tapestry hangings, the former being placed, together with the collection of busts of the princes who have encouraged the gallery, in the room of the Hermaphrodite, substantially improving the arrangement of the latter and of the adjoining room containing inscriptions, statues and busts. In the Ancient and Modern Gallery (via delle Belle Arti) three rooms were added, one called the "Perugino" after a large picture of that master (*The Assumption*), and the other two rooms taking their name from "Botticelli," because they contain several pictures of that painter. The large room (Salone) was divided into three rooms called "of the Tuscan masters," where the works of the chief Tuscan painters from the thirteenth to the eighteenth centuries were arranged and classified. A new staircase leading to the Palatina Gallery was built in the Palazzo Pitti after the design of the late Professor del Moro, the architect who superintended the building of the façade of the cathedral, unveiled in 1887.

If Belgian manufacturers cared to imitate and adopt the ordinary English methods of making their productions known in this country they would be able to reckon on most profitable results. The business done by them at present passes through several hands, and the profits are therefore sometimes divided to an excessive extent. The Consul-General of Great Britain at Antwerp, in his last report, says he is "constantly in receipt of letters from buyers in Great Britain and the Colonies asking to be placed in communication with manufacturers of iron and steel girders, engineering plant, &c., which the comparatively cheap rates of wages and longer hours of labour enable Belgian manufacturers to furnish on advantageous terms." The demands are not confined to officials. We know of one expert at least who, when consulted, steadily declined to recommend any of the manufacturers of girders in Belgium, because he said he was without any certainty that his clients would be dealing with the people he had in view. The Belgians do not announce what they can supply, and consequently when they receive orders several commissions have to be deducted. Reciprocity should mark the dealings of both countries. The British Consul says that in engineering tools and labour-saving appliances English manufacturers could successfully compete with Belgian engineers. According to him, "Articles of this kind, if properly pushed by competent agents or by the personal exertions of principals, would, I think, find a favourable opening in Belgium; it is impossible, however, to lay too much stress on the importance of adopting a wise mode of introducing such articles."

Amidst the numerous archæological puzzles which await solution there is not one which is more mysterious than the origin of the great architectural and engineering works which are to be discovered in parts of South America, which otherwise would appear to have been always in the depths of barbarism. They are so wonderful as examples of construction that modern go-ahead engineers cannot ignore them. A few weeks ago a paper was read before the American Society of Civil Engineers by one of the members, Mr. R. B. Stanton, on "The Cliff Dwellers of the Far South-West: their Homes, their Agricultural and Engineering Works, and their Military Knowledge and Art." During professional excursions in Arizona and New Mexico, Mr. Stanton collected data about the habits, development and conditions of the races that inhabited that region. He believed that they were a superior race, mentally and physically, and well advanced in arts and industries, particularly in constructional skill. The excellence of their dry masonry, which has endured for thousands of years, and still shows careful design and construction, was remarkable. Some of the houses contained as many as 100 or more rooms, from 10 to 40 feet square, and were as high as seven storeys. There are also remains of great irrigation works that comprised dams and controlling works that would be creditable to modern designers, and canals having capacities up to 50,000 inches of water and lengths up to 100 miles. One of them was cut through solid rock to a depth of 20 or 30 feet for many miles, and without evidence of the use of metal tools or other instruments than the stone axes. Mr. Stanton came to the conclusion that the builders were of the same race as the men who erected the great structures of Yucatan. The late James Fergusson believed that the old Mexicans were nearly allied to the Esquimaux, while some were of the Red Indian variety. The Aztecs especially represented the latter. But in Yucatan there was undoubtedly another race that might have been Caribs. The Polynesian element is, he adds, strongly developed in Peru. As regards architectural forms Fergusson said that no one would be startled if told that the representations of some of the temples in Cambodia were derived from buildings in Yucatan, whilst many of the crinkum-crankums of Chinese builders have their counterparts in America.

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: FROM PALACE GROUNDS: RETRO-CHOIR.

THE NATIONAL PROVINCIAL BANK OF ENGLAND, PICCADILLY.

Our illustration exhibits the effect of the faïence work supplied by Mr. Alfred Whitehead, of Prudential Buildings, Leeds, from the designs of the architect, Mr. Alfred Waterhouse, R.A.

PETERBOROUGH CATHEDRAL.

THE following description of the interesting fan vaulting of Peterborough Cathedral, by the late Professor Willis, reveals arrangements which are not apparent to visitors. It forms part of his essay on the "Construction of the Vaults of the Middle Ages," published in the Transactions of the Royal Institute of British Architects :—

In fan vaults the difficulties of adjusting the curvatures of the ribs are at once disposed of by making them all of the same curvature. We may suppose that the increasing complication of the patterns in the vaults of the kind already described, and the great number of intermediate ribs and liernes that were thus introduced, may have led to the invention of this method, by which certainly the number of templets and the difficulties were greatly diminished. The construction of these fan vaults is in all examples so nearly the same that they seem to have proceeded from the same workshop ; and it is remarkable that, at least as far as I know, there are no continental examples of them, whereas of the previous vaults there are quite as many on the Continent as in England. In France, indeed, the lierne vaults are not very numerous, they are confined to small chapels, and their patterns are in general simple ; but in Germany and in the Netherlands there is an abundance of them, distinguished certainly from ours by local peculiarities, but nevertheless of similar mechanical construction, and requiring the same geometrical methods.

The general construction of fan vaults may be understood from the sections. These represent one of the most complete, which covers a kind of chapel at the east end of Peterborough Cathedral. The workmanship of this vault is the most perfect of any that I have examined. The span of King's College Chapel (42 feet) is much greater, but its workmanship is not nearly so good. The span of the Peterborough vault is 26 feet from wall to wall.

The pattern of these vaults is always a kind of tracery of the same class as the perpendicular tracery which at that period occupied the heads of windows or the surfaces of walls, the only difference being that the mullions, instead of being parallel and vertical, are curved and radiate from an impost. Instead, therefore, of the horizontal transoms of windows, we have level circles intersecting the ribs at nearly equal distances, and intermediate rays or ribs are inserted between the principal ones. The panel spaces into which the surface of the vault is thus divided are furnished with arch heads and foliation, exactly as the similarly produced panels are ornamented in the tracery of windows.

In the lierne vaults a star pattern is commonly found, which radiates from each impost in the same way as the fans of the present class of vaults. The difference between the star and the fan is that the star is formed of ribs, which may be and often are of different curvature, and the rays of the star of different length, but so skilfully arranged with regard to their solid effect that, although irregular upon the plan, this irregularity is not offensively perceived in the complete work.

The fan is, on the other hand, formed of ribs strictly of the same curvature and elevation, and its outline is bounded by a horizontal circular rib instead of the zigzag line of liernes in the former vaults by which the rays of the star are pointed. The effect of the fan is that of a solid of revolution upon whose surface panels are sunk ; the effect of the star is that of a group of branching ribs. This difference of character is assisted by the mode in which the mouldings are disposed in the two cases. In the older vaults a vertical plane upon the plan line of every lierne or rib divides it into two symmetrical halves ; but in the fan vaults the moulded rings and arch heads are all perpendicular to the surface of the vault. This will be more fully explained presently.

In fan vaults the quantity of decoration is so much increased and its parts become so small that it is no longer practicable to frame the tracery of these vaults on the rib and panel system with liernes and boss stones, and consequently the portions near the crown of the vault, where the decoration is compressed and crowded, are always constructed of jointed masonry. But the branching ribs below the first series of arch heads are still built of long stones filled in with panels, and the *tas de charge* from whence the ribs spring is also laid in level courses as before. There are a few exceptions to this general description ; for example, the vault of Henry VII.'s Chapel, which, however, differs in many other particulars from these fan vaults, and will be separately described. It is entirely constructed of jointed masonry without panels. Also the vault of Islip's Chapel at Westminster is a real fan vault, but without any mixture of rib and panel-work.

In fig. 1 the upper half of the plan represents the lower surface of the vault with the joints of the masonry and pattern of the tracery, and the lower half shows the upper surface of the vault with its joints. Fig. 2 is a vertical section through A C, and fig. 3 an isometrical projection of the upper surface. The portion of vault included within the spandrel A B C, consisting of plain ribs only, is constructed of rib and panel-work exactly like the older vaults ; but all the remainder of jointed stonework, as shown in the lower plan. In the King's College vault, and in many others, the short straight portions of rib that lie between K and L are also constructed in separate stones with panels dropped between.

FIG. 1.

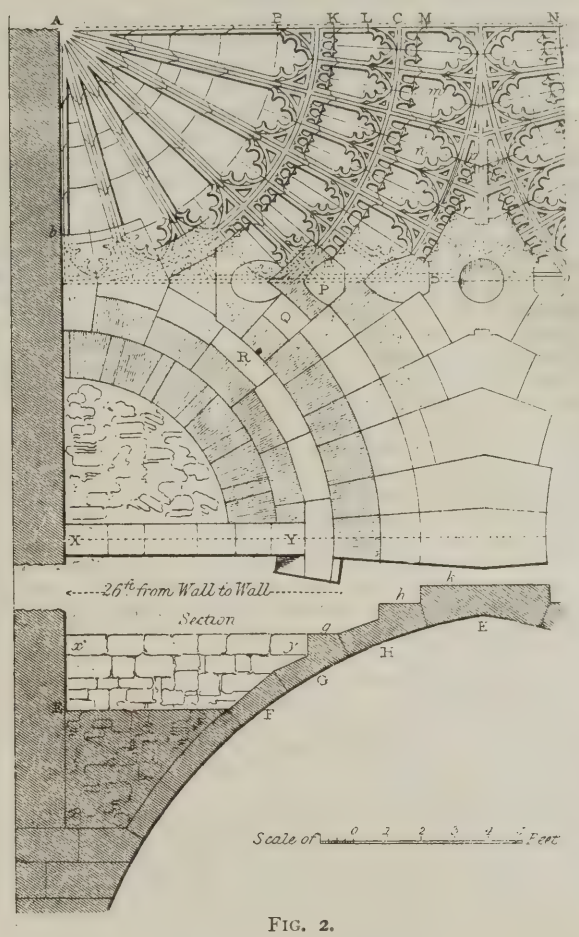


FIG. 2.

The section shows that the spandrels of this vault are filled up to the level of E with rubble-work, as are also the spandrels of King's College vault. In addition to this, a wall xy is at Peterborough added to stiffen the spandrel. This I have not seen elsewhere. Every one of the stones of the jointed masonry retains a portion of the horizontal surface of operation, which in this construction is evidently employed for the same purpose as in the boss stones of the lierne vaults. These horizontal surfaces are indicated upon the plan by the light tint, and are also shown in the section at g, h and k, and more clearly in the perspective drawing, fig. 3.

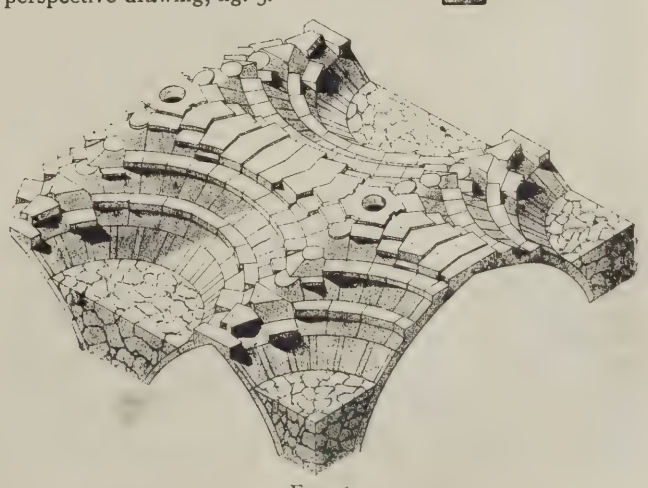


FIG. 3.

The joints of the masonry are evidently arranged with reference to the pattern of the vault. Thus a ring of stones round A, beginning at B K, is made to contain all the first series of panel heads, with the circular rib and crown of Tudor flowers. The succeeding ring from K M contains the next series of panels, with their arch heads and the Tudor flowers above them. As to the next ring, it begins at M N by extending

across the crown of the arch, and when the stones become too large they are divided, as at *m n*, *p q* and *r s* in such a manner as to interfere as little as possible with the lines of the pattern. It is remarkable that the masons of this period often place a joint in the very middle of a projecting rib, as at *p q*. As to the radiating joints they lie in this example in the middle of the panels, but in others not universally so. Since the disposition of the joints is thus governed entirely by the pattern of the tracery, it is clear that in setting out the moulds of the stones the lower joints must first have been drawn upon the plan, and then the moulds of the upper surfaces obtained from them by a system of projection similar to that which I have already applied to the lierne vaults and bosses.

It must be supposed that the lower surface of the stones was worked smooth, and the lesser ornamental details drawn upon this surface, so that for the purpose of settling the places of the joints only the ribs and circular bands were drawn on the plan, for if the entire pattern were drawn on the plan and transferred to the surface of the vault by projection, as in the case of the complex lierne vaults, the arch heads, circular panels and other figures which decorate the spaces between the principal lines would be distorted after the manner of the squares in the choir vault at Wells Cathedral. But such distortions never appear in these figures in fan-vaulting, so that we may assume that these details were traced upon the lower surface of the vault stones, but that all the principal lines necessary for obtaining the form of the stones and distribution of the joints were projected from the plan. Indeed, the new manner in which the mouldings are worked, namely, perpendicular to the surface of the vault, as already mentioned, shows that the patterns were now drawn upon and sunk into that surface, and not derived from the plan.

I will now explain the steps by which I suppose the shapes and moulds of the stones to have been obtained, and which in principle is the same as the method by which I have obtained the boss stones and liernes, namely, by means of the horizontal upper surface of operation, of which there is abundant evidence to prove the employment in all the existing specimens of fan-vaulting of which the upper surface is accessible.

Fig. 4 explains this method, and corresponds in the plan of the vault to fig. 1, the examples chosen being the stone marked P and those which correspond to Q and R on the opposite side of the ridge rib.

On the plan fig. 4, the ribs and circular bands being inserted, as shown by the double lines, draw A B the central line of the rib upon which the stones in question lie, and upon it draw in elevation C D, the curve of the rib, which, from the nature of fan-vaulting, is the same for every rib.

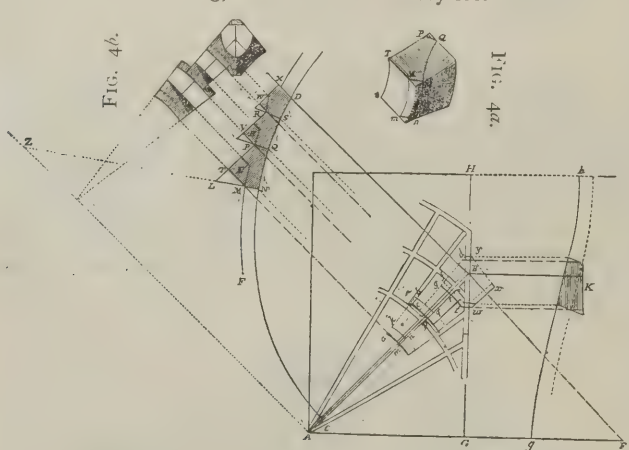


FIG. 4.

The joints at the lower surface must next be drawn upon the plan, as shown by the dotted lines, due regard being had to the ornamental details which are to be subsequently added. These joints are either radial or circular, from the nature of fan-vaulting. The radial joints which converge to the centre A are all in vertical planes, and therefore their places upon the upper plan or surface of operation will be vertically above and coincident with their places upon the lower surface, as at *a b* and *c d*. But the circular joints are arch beds,* and their places upon the upper surface may be obtained from those of the lower surface by upwards and downwards projection as follows.

The circular joints intersect the line A B at the points *n*, *q*, *s*. Project these upwards to meet the curve C D at N, Q, S. Draw F M X concentric to the curve, and at a distance from it equal to the necessary thickness of the rib C D.

From the centre of curvature of C D draw the arch joints N M, Q P, S R, intersecting their outer curve at M, P, and R; and through these points draw vertical lines M T, P V, R W, also projecting the same points downwards to the plan at *m*, *p*, and *r*. With centre A draw circular arcs *a m*, *c p*, *g r*. Thus will be obtained the plans or moulds of the upper level surface of operation of the stones N P, Q R, and the horizontal lines T P V R will be the sections of these upper surfaces.

To complete the third stone S X, however, it is necessary to draw the curve of the ridge rib, for this stone, being placed at the meeting of two ribs A B F B, and of the ridge rib G B H, resembles in this respect a boss. It is in fact upon the plan a six-sided figure, bounded by four arch joints, *g t*, *t w*, *w x*, *d y*, and two radial joints *g d*, *y x*.* The joint *w x* being opposite and similar to *g t*, the same section W S X D will serve for the two joints, but the joints *t w*, *d y*, must be obtained from the elevation of the ridge rib, which may be drawn as follows.

Since the arch ribs of a fan vault are all of the same curvature, the ridge ribs can no longer be horizontal, and their form is, in fact, determined by the intersections of the arch ribs, so that when the dimensions of the parallelogram which is to be covered by each severy of the vault, and also the curve of the rib are given, the form of the ridge rib may be found. For example, as follows :—Let A B C D (fig. 5) be one-quarter of the

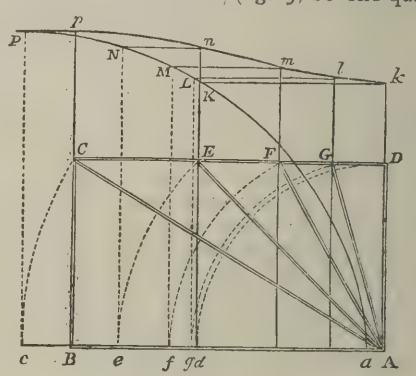


FIG. 5.

severy, A D A G A F A E A C the ribs branching from A, of which *a* K N P is the curve in elevation upon A B. A *c* is made equal to the longest rib, namely, the diagonal rib, A C; and the lengths of the other ribs are transferred by arcs of circles round the centre A to the points *d g f e* respectively. Draw perpendiculars upon these points meeting the curve in K L M N and P, then will G be the plan of the point at which the rib A G intersects the ridge rib, and A *g* is equal to A G, consequently *a* L is the portion of arch curve occupied by the rib A G, whence *g* L is the height of the ridge rib at G above the impost plane. In like manner A *e* (equal to A E) shows *a* N to be the quantity of arch curve occupied by the rib A E, and thence *e* N is the height of the ridge rib at E. Similarly it can be shown that *d* K, *g* L, *f* M, *e* N, *c* P are the respective heights of the points D, G, F, E, C of the ridge rib. Draw, therefore, perpendiculars D *k*, G *l*, F *m*, E *n*, C *p* through these latter points, producing them to A B, and also parallel lines K *k*, L *l*, M *m*, N *n*, P *p*, intersecting them in *k*, *l*, *m*, *n*, and *p*, then will the curve drawn through these points to the elevation of the ridge rib correspond to A B.

The curve so obtained being transferred to the plan fig. 4 at *g h*, the section of the stone in the middle plane of the ridge rib may be drawn, as at K, by upwards and downwards projection, in the same manner as the other sections have been obtained.

The stone N P may now be worked as follows. Having levelled the upper surface of operation, trace upon it the upper mould which has been described upon the plan at *m a c p* and also the arc *b q*. Work the radial joints perpendicular to this surface and trace upon them the side mould N M T P Q. Work a concave surface also perpendicular to the surface of operation, and meeting it in the line *a m* and a convex surface meeting it in the line *b q*. Fig. 4*a* represents the stone in the state to which it has now been brought. It is viewed angularly. *t* T P is the edge of the surface of operation, N M T P Q one of the radial sides plane and perpendicular to the latter surface, and T *t* M *m* is the concave surface, also perpendicular to the

* These beds are in fact conical surfaces, which may be obtained theoretically. Draw A Z perpendicular to A B, then will A Z be the axis of the solid of revolution or spandrel-conoid generated by the curve C D; and M N being any given arch joint of this solid, produce it to meet the axis in Z. The bed of which M N is a section is a frustum of the cone that would be generated by the revolution of Z N round the axis A Z.

* Sometimes, when the pattern of the vault admits of it, one or both of the ridge joints *d y* *t w* are omitted, and the stone brought to a point on the plan at *t w* or *d y*. This happens to be the case in the stone which at Peterborough corresponds to the one I am now describing, as will be seen in fig. 1; but as the two joints in question are very often employed I have inserted them in this place to make the description of the method complete.

upper surface. The outline of the side mould is shown traced upon the radial surface. To complete the stone it remains to form the two conical arch beds M *m* N *n* and P Q. The latter is easily wrought by tracing a horizontal line on the convex surface, beginning at Q, and then working away the stone in straight lines from this line to the arc already traced on the upper bed from P, or this bed may be worked by means of a bevel set to the angle T P Q, and thus the necessity for working the convex surface be dispensed with.

In like manner the lower arch bed M *m* N *n* may be wrought in two ways: first, by tracing from M the horizontal line M *m* on the concave surface and working the bed by a bevel set to the angle T M N; secondly, by working the lower surface of the stone into a horizontal plane passing through N and parallel to the upper surface, tracing the arc N *n* upon the lower plane and then working away the stone in straight lines from M *m* to N *n*. The bevel method being the simplest is most probably the one which was employed by the Middle Age workmen. The other method is more analogous to modern practice and is susceptible of greater precision. The two arch beds being completed, the lower surface *n* N Q is easily wrought from the lower boundary N *n* to the upper boundary which passes through Q by means of a sweep or templet whose edge is cut to the curve N Q.

A similar process will give the form of the more complex stone at the intersection B of the ribs.

In forming the boss, the stones were worked to an acute angle, by which means a superfluous angular lump of stone is left. If the upper plan of the stone had been projected as in the above method from the point where the arch joint meets the outer curve of the rib, the useless portion would have been saved and a smaller stone have served the purpose. This is a more complete and scientific process, and while the angle remaining in the Canterbury bosses and others is evidence of the ruder process, the vertical surfaces T M *m t* (fig. 4*a*), which may still be traced in the fan vaults, prove also the use of the improved method which I have just explained. In the later lierne vaults, however, this latter method is also applied to the bosses. In fact the fan vaulting was invented long after the lierne vaulting, but they continued to be practised together up to the latest period, and the improved system of stone cutting introduced by the increased complexity of the fan vaults would naturally be applied to the lierne vaults. Thus it happens that many of the later specimens of the latter are constructed with solid masonry instead of the original rib and panel method. In the view of the roof of St. George's Chapel it will be seen that the bosses were worked vertically downwards from the plan in the same manner as the stones in fig. 4.

The arch joints or beds of bosses, however, are planes, but those of fan vaults ought to be conical surfaces. This is not universally the case in practice. The joints of the vault of Henry VII.'s Chapel appear to be in many parts of the severy worked in planes. Those of Islip's Chapel are also worked in planes, as shown in fig. 6. This is a mere diagram of a portion of the fan, and therefore the joints are not projected over the mouldings.

The fans are in this example constructed entirely of solid masonry and not of rib and panel-work. A B is a wall rib, A D a diagonal rib, A C an intermediate rib, and the arch joints are planes, arranged with respect to the ribs A B A C A D so as to pass respectively through the axis of curvature of each of these ribs respectively. In other words, if the vault be divided by lines A *b* A *c* drawn through the middle of each compartment, every portion which is contained between two of these adjoining lines *b* A *c* A forms an ordinary arch with plane joints. But in

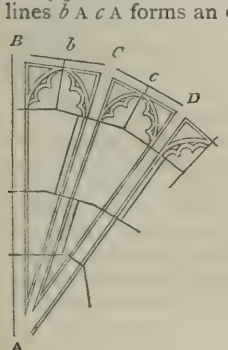


FIG. 6.

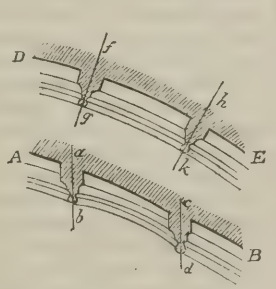


FIG. 7.

the lower stone or *tas de charge* the joint line runs obliquely across the tierceron, and beds are only provided for the wall and diagonal arches. Similar plane arch joints may be found in some parts of the smaller vaults at Peterborough, but the curvature of joints of this kind differs so little from a straight line that it is not always easy to satisfy oneself which of the two is the case, unless the joints are very accessible and decidedly marked, as they happen to be in the Islip Chapel. In the King's College vault the joints are circular and the arch beds consequently conical.

In a similar manner the panel surfaces of fan vaults which ought to be convex, and are so in many specimens, are wrought in planes in others, although the horizontal ribs are made circular. But in the fan vault of Wells tower and Islip's Chapel the horizontal rib runs in straight lines from one arch rib to the other, thus giving polygonal faces to the fans, and in these the panel surfaces are planes of course.

Fig. 7 shows the arrangements of mouldings which have been already alluded to as prominent characteristics of the two kinds of vaulting. In A B a rib is shown, which is intersected in its course by two liernes at *a b c d*. The middle plane of these liernes being as usual vertical, it is plain that their mouldings cannot mitre (as it is termed) with those of the rib, because they are placed symmetrically to their own axis, while the mouldings of the rib cross at an angle which throws them on one side below, on the other above, the corresponding ones in the lierne. This leads to great difficulties in the management of the intersections of these mouldings, which are in fact generally covered by bosses that prevent their awkwardness from being discovered; and we might fancy that it was for this purpose the bosses were invented, were it not that they are employed for the intersection of the crowns of arch ribs, in which no such difficulties occur, long before the liernes are introduced. The horizontal ridge ribs, however, which are much older than the liernes, present the same kind of difficulty in their intersection with the crowns of pointed arches. To overcome these difficulties we sometimes find, when bosses are not employed, that the mouldings of the rib are awkwardly warped and distorted at their junctions, as from *d* to *b*; also that the plain side of the lierne is several inches higher on one side than on the other, as at *a*, or else that the surface of the vault is dropped on one side to accommodate the lierne, but which introduces a similar difficulty with the rib, as at *c*. Nevertheless the branching and independent character of the ribs and liernes is so intimately bound up with this verticality of their middle planes, that I cannot help ascribing one of the first departures from the true Gothic character to the change in the method of intersecting the mouldings, which is the leading feature of fan groining.

This is shown at D E, where a rib of the same profile as A B is intersected by two others, *f g h k*, and by placing their axes of symmetry or middle sections perpendicular to the surface of the vault, a perfect mitring of the mouldings is obtained, and the workmanship of these mouldings is at once greatly simplified and reduced to the capacity of a much lower class of workmen. But thus the ribs and other moulded lines become at once visibly referred to the general surface of the vault and subordinate to it, decorating it nearly after the same fashion and principle as the panels and concamerations of a Roman vault, which are in like manner sunk perpendicularly to the general surface; whereas, in a genuine Gothic vault, the real surface should be subordinate to the branching ribs, and rest upon them.

In some of the lierne vaults subsequent to the introduction of fan vaulting, the liernes are worked perpendicular to the surface of the vault, as, for example, in the porch of Bishop Booth, at Hereford (1516-35).

The practice of thus working the mouldings and ribs square to the surface may possibly have originated with the makers of shrine-work and small canopies, which are often ornamented with very elaborate models of vaults. These are beautifully ribbed into patterns, and as the entire vault is worked out of a single stone, the mouldings are naturally sunk with reference to its surface. In the larger canopies of monuments, too, a similar method is often followed. Thus the monuments of Archbishops Stratford and Sudbury, in Canterbury Cathedral, have canopies vaulted with small lierne vaults very nearly alike, but in the former the mouldings are vertical, and in the latter square to the surface. Stratford died in 1348, and Sudbury in 1381.

In all the great fan vaults the surface of operation is reduced by cutting away a considerable portion of the stone so as to bring it to the form which is shown at fig. 4 *b*, and also in the isometrical view, fig. 3. This is effected by removing the portions marked E in fig. 4. The remaining part of the surface of operation retains lines drawn in the direction of the ribs, as shown in fig. 4 *b*, but which are not inserted in the other drawings of the complete vault, to avoid confusion between them and the joint lines.

This portion of the stone appears to have been removed to lighten it, for from the rude and irregular manner in which it is cut away, and from the remains of the vertical surfaces T M *t m* at the lower parts of the stones, it is clear that they were first worked completely into the form shown in fig. 4 *a*.

A Church is being built at Ystrad Meurig, Cardiganshire, in memory of an eminent schoolmaster who lived in the last century, named Edward Richard. The memorial-stones have been recently laid, with inscriptions in Welsh, English and Latin.

THE SOCIETY OF ARTS.

THE annual meeting of the Society of Arts was held on Wednesday last week. We take from the report of the Council the following extracts :—

In accordance with the usual practice, the Chairman of the Council, Major-General Sir Owen Tudor Burne, opened the session with an address. On the previous occasion, last year, the Chairman selected India for his special topic ; for the session which has just been completed he devoted his address to a review of the growth and present position of the "Arts, Manufactures and Commerce of our Colonies."

At the first meeting of the session, after the opening address was delivered, Professor Douglas read a paper on "The Progress of Metallurgy and Metal Mining in America during the last Half-Century." In it he may be said to have supplemented his recent course of Cantor lectures on American metallurgy, and laid special stress on those points in which he considered American practice to be in advance of that of the old country. On the whole Professor Douglas left the impression that he considered American practice to be distinctly superior to English, but this view was rather controverted in the discussion which followed his paper. A fortnight later Mr. Bennett H. Brough gave an account of "The Mining and Metallurgical Industries of Sweden as shown at the Stockholm Exhibition," at that time just closed. On previous occasions Mr. Brough has described to the Society the metallurgical sections of the exhibitions at Buda-Pesth in 1885, Barcelona in 1888, and Kimberley in 1893. The Stockholm exhibition was almost entirely devoted to those special industries, and consequently afforded an excellent opportunity for a review of their present condition.

In the other meeting, which was held before the Christmas recess, Professor Leonard Waldo, who read a valuable paper in 1886 on American watchmaking, gave an account of "The Theory and Practice of the Manufacture of the Bicycle in America." This was one of two valuable papers on the subject, for at the end of the session Mr. J. K. Starley, who is well known for the very large share which he has taken in the development of the modern cycle, gave an account of "The Evolution of the Cycle." In the former paper, Professor Waldo showed how thoroughly systematised the manufacture of bicycles in America now is, and described the elaborate machinery which has been laid down for the purpose by the Pope Manufacturing Company at Hartford, Connecticut. One of the peculiar features of the manufacture is the very complete system of tests which has been devised for insuring the strength of the different parts of the machine. Professor Waldo also described the new method of construction adopted by the company, in which a shaft with bevel gearing takes the place of the ordinary chain running over a pair of chain wheels, by which power is transmitted from the crank axle to the hind wheel of the machine. Such a method of transmitting power can only be employed when the bevelled wheels are cut with the utmost accuracy, and Professor Waldo stated that the machinery now used for this purpose in America had got over this first and greatest difficulty. Mr. Starley's paper was mainly historical. It gave a clear and careful account of the various stages by which the modern bicycle has been evolved, if not from the ancient hobby-horse, at all events from the original "bone-shaker" of Lallemont, produced about 1865. It is a useful thing that the history of an invention should be put on record by the original inventor, and in any future account of the origin of the safety bicycle, Mr. Starley's paper will certainly have to be largely drawn upon.

Three papers dealt with subjects of a more or less photographic character. Mr. Eric Bruce gave an account of the ingenious apparatus which he has devised for what he terms "The Projection of Luminous Objects in Space." An ordinary magic-lantern picture is projected upon a revolving wheel or lath, the rapidity of the revolution being such as to enable the whole picture to be seen in consequence of the "persistence of vision," while the moving lath does not entirely obscure any object in front of which it is placed. Various curious effects may be thus produced which will probably be available for stage purposes. Mr. Jules Fuerst described "The Cinematograph" constructed by Messrs. Lumière, and gave numerous illustrations of what are popularly termed "animated photographs," certainly the most remarkable of the recent developments of photography. Captain Abney, in his paper on "Photography and Colour Printing," gave an account of the application of photographic methods to the selection of those particular tints which, by their proper combination, can be made to give all the necessary hues for the production of pictures in colour. The process of three-colour printing, though it has long been known, and has for long been the object of research on the part of many earnest workers, has only of late been practically developed, or come into actual commercial employment.

Only one paper during the session was devoted to a sanitary question—that by Dr. Rideal on "The Purification of Sewage by Bacteria." The actual nature of the action of bacteria on sewage has only lately become an object of study, but its practical developments promise results of very great importance in the immediate future. Dr. Rideal gave a very clear account of the position which the subject has reached, and showed how great the practical usefulness of the methods adopted was likely to become.

In contrast to what has been the programme of recent sessions, only a single paper was devoted to a subject of an electrical nature—that by Professor Silvanus Thompson on "Telegraphy Across Space." Professor Thompson gave a most lucid exposition of the different methods which have been adopted for transmitting telegraphic signals without wires being laid between the two points between which the communications are to be sent, and succeeded in making a very difficult subject intelligible to a general audience.

Two papers dealt with economic matters. Mr. Provand, in his paper on "Compensation to Workmen," discussed the recent Employers' Liability Act ; and Mr. Iselin, in his paper on "The Protection of Industrial Property," described the objects and methods of the International Association for the Protection of Industrial Property, which has just held its congress in the rooms of the Society.

Professor Ewing in his paper on "Linde's Method of Producing Extreme Cold and Liquefying Air," described the remarkable regenerative method which Dr. Linde has devised, and indicated some of the purposes to which it was likely to be applied in practice. It seems hardly likely that the wonderful powers of producing extreme cold, which have resulted from the researches of Professor Dewar and others, can long be without many important applications to the arts and industries.

Captain Baden-Powell's paper on "Kites" showed the possible practical applications to military and surveying purposes of that which has always been considered but a child's toy ; and from what he said there seems little doubt that, at all events, for purposes of warfare, kites will take a useful place by the side of balloons for observation and signalling.

Mr. Clayton Beadle gave an interesting sketch of "The Recent History of Paper-making." Mr. Valentine, in his paper on "The Preparation of Meat Extracts," showed how much had been done in the condensation of nutritious material into a very condensed and portable form.

Mr. Edwin Sachs criticised the methods of modern "Stage Mechanism" in his paper on that subject, and while he showed what great advances had been made in scenic illusions, he also pointed out how in very many cases stage managers and theatrical architects had neglected to avail themselves of the resources of modern invention.

Mr. Brudenell Carter, in his paper on "Children's Sight," drew special attention to the work of the recent departmental committee on this subject, and urged the importance of proper provision being made in elementary and other children's schools for insuring that too great a strain was not put upon the sight of the children. One point which came out clearly from Mr. Carter's paper was that the children in elementary schools are far better off in this respect, as in other respects, than those in the oldest and wealthiest foundations.

Mr. Thomas Potter's paper on the "Fireproof Construction of Domestic Buildings" gained special interest from the recent disastrous fire in the City. The principles he laid down were of considerable importance, and well deserve the attention of those who are responsible for the prevention of fires in cities.

Miss Clive Bayley suggested the "Revival of Hand-loom Weaving" as providing a suitable occupation for women, and gave an excellent account of the progress which had already been made in it. She pointed out what a large demand there was for hand-made fabrics, and how easy it would be to supply this demand by means of proper organisation.

Professor Vivian Lewes added one more to the useful papers which he has given the Society on subjects connected with gas lighting, by his paper on "Water-Gas and its Applications." He gave a very full account of the process of manufacturing water-gas and of the extent to which it is now used in substitution of coal-gas. One important point raised was the danger to life of using the newer illuminant. In Professor Lewes s opinion there was little if any more risk with water-gas than with coal-gas, and in this opinion he was confirmed by Mr. Corbet Woodall, who was in the chair.

At the opening meeting (January 20), Sir Mountstuart Grant Duff read an interesting and anecdotal paper, entitled "Recreations of an Indian Official," setting forth the cultivated pursuits that occupied the leisure moments of his rule in Madras, and pointing out "some of the things which one learns incidentally by living in India if one only makes a reasonable use of even very indifferent eyes." In a very able paper, Mr. Herbert M. Birdwood described, on February 17, the origin and progress of the Bombay plague, explaining the elaborate methods so energetically carried out by the local authorities to grapple with the calamity. From the position of one whose official duties had afforded special opportunities of tracing the

influence of Sir Henry Maine's ideas, Mr. C. L. Tupper dealt, on March 10, with the Indian career of the distinguished author of "Ancient Law," his suggestive paper being followed by a discussion of exceptional weight and authority. The earthquake that a year ago devastated the province of Assam, causing the loss of some 1,500 lives, was the subject of a graphic and exhaustive paper, read on March 31 by Mr. Henry Luttman-Johnson, who was able to include in it much useful information not previously made public. On April 21 Mr. Horace Bell gave a comprehensive review of recent railway policy in India, and maintained that the time has come when State action in regard to railways should be limited to inspection and control. On April 28 an excellent and well-timed paper on "India and her Currency" was read by Sir Edward Sassoon. The session terminated on May 19 with a well-reasoned paper on "Colonies and Chartered Companies" by Sir Alfred Lyall, who contended that in the altered condition of the world trading corporations are no longer "convenient agencies for the acquisition and administration of territory."

Mr. J. Hungerford Pollen read a learned paper on "Renaissance Woodwork in England" at the first meeting of the section on January 25, in which he described from the architectural point of view the beautiful woodwork in the old mansions spread about the country. The subject was further illustrated by a fine series of lantern slides showing many of the halls with their grand panelling, screens, fireplaces, &c., which were lent by the Science and Art Department.

Mr. Cyril Davenport gave a full description of the various objects of "The English Regalia" in a paper read on February 22, which was illustrated by lantern slides taken from photographs, and coloured by Mr. Davenport in a remarkable manner, so that the individual precious stones were seen in their natural colours.

At the third meeting Mr. Lewis Foreman Day read a valuable paper on "The Making of a Stained-glass Window," in which he set himself the task of showing how such windows could best be made. After dealing with the material, the treatment it undergoes, the design and the framework of lead, he came to the conclusion there was no mystery about the old glass, and that as good stained-glass could be made to-day as the Mediæval artist produced. In illustration of the paper, Mr. Day showed examples of old glass, and specimens of the varied colours in modern glass, by projecting the image of the glass itself on the screen.

On March 29 Sir Edward Maunde Thompson, principal librarian of the British Museum, read an important paper on "English Art in Illuminated Manuscripts," which consisted of a masterly review of the history of the illuminated MSS. produced by Englishmen at a time when the pictorial art of the country was almost exclusively confined to this mode of treatment. The paper was illustrated by a series of lantern slides taken from some of the finest Mediæval manuscripts in existence.

Mr. Joseph Pennell, in his paper on "Senefelder and the Centenary of Lithography, 1798-1898," read on May 3, pointed out that we have the inventor's own authority for the assertion that, although experiments on printing from stone had been undertaken in 1796, chemical printing (or lithography as now practised) was not discovered until 1798. Mr. Pennell's paper was illustrated by a series of lantern slides taken from the masterpieces of the art in the Print-room of the British Museum.

The last meeting of the section was on May 10, when Mr. F. S. Ellis read an appreciative paper on the "Life Work of William Morris," in which the different productions of Morris's genius were reviewed. The meeting was held in the afternoon, and a fine collection of objects illustrating Morris's art was shown by daylight. There were two fine tapestries, one of the "Four Seasons," from Morris's own design, lent by the Science and Art Department, and the other a reproduction of Sandro Botticelli's "Primavera," lent by Messrs. Morris & Co.

Six courses of Cantor lectures were given during the session. The first of these was by Dr. Eugene Obach on "Gutta Percha." Dr. Obach is a well-known authority on this subject, and his position as chemist to the important firm of Messrs. Siemens Brothers has given him great experience of the application of gutta percha in telegraphic work and for other purposes. His lectures formed an exhaustive monograph of the subject. It was desirable that the history should be written before all those who had been connected with the introduction of the material into the industry had passed away and been forgotten; and the great mass of historical information which Dr. Obach has collected will certainly make this course of Cantor lectures the standard work of reference for this subject. By the liberality of Messrs. Siemens Bros., who contributed a sum of 150*l.* for the purpose, the Society was enabled to publish these lectures in a very complete form and with much supplementary matter.

Later on in the session the kindred subject of "India-rubber" was treated in two lectures by Dr. Morris. In these lectures the sources of supply of the material were the subjects principally considered. Besides describing the well-known plants from which india-rubber is mainly obtained, Dr. Morris indicated several less known plants from which the gum can be procured, and also described improvements in the method of manufacture which will probably, to some extent, supersede the old-established and crude methods which were well described in the course of lectures by Mr. Thomas Bolas on the subject in 1880.

The second course of Cantor lectures was by Mr. Cyril Davenport on "Decorative Bookbinding." The principal feature of this course was the manner in which it was illustrated by coloured lantern slides prepared by Mr. Davenport himself, mainly from originals in the British Museum. In connection with this course there was arranged a small exhibition of bookbindings.

Mr. Hugh Stannus, to whom the Society is indebted for several interesting courses of lectures on the application of art to industrial purposes, gave a course of four lectures in the early part of the present year on "The Principles of Design in Form."

These were followed by three lectures by Professor Noel Hartley on "The Thermo-Chemistry of the Bessemer Process." A melancholy interest is attached to these lectures, because while they were in actual course of delivery, the death occurred of the distinguished inventor whose work they were intended to commemorate. Professor Hartley has been for a long time engaged on the application of the spectroscope to the Bessemer flame, and this course of lectures included the results of his investigations.

The last course of lectures for the year was delivered by Professor Carus Wilson, late Professor of Electrical Engineering at the McGill University, Montreal, on "Electric Traction." The application of electric power to railways has formed a special object of study to Professor Carus Wilson for some time past, and his lectures embodied the results of considerable original investigation, and will, when published, be found to be of great value to those engineers who are dealing with this rather new and difficult subject.

The Albert medal for this year has been awarded to His Excellency Dr. Robert Bunsen, the veteran professor of chemistry at the University of Heidelberg. Amongst the numerous and important scientific discoveries which have rendered the name of Bunsen famous wherever science is valued, perhaps the most striking is the one in which he was associated with his distinguished colleague, Professor Kirchhoff, viz. spectrum analysis, a discovery which has shed a new and unexpected light on the composition of terrestrial matter, and has enabled us to obtain a distinct knowledge of the chemical composition of sun and stars. The contributions which Bunsen has made in the application of chemistry and physics to the arts and manufactures are of the utmost value, and their importance may be measured by two out of many instances. The Bunsen battery was, until the introduction of the dynamo, the cheapest source of electricity; the Bunsen gas burner, by which a non-luminous, smokeless but highly heated flame is obtained, is now not only indispensable in all laboratory work, but is used for heating purposes in thousands of houses and manufactories, and for illumination, by the incandescent system, in millions of lamps. Beyond these Bunsen's contributions to the sciences of chemistry and physics have been of the highest importance; but, perhaps, the greatest benefit which he has conferred through a long life devoted to the advancement of science has been the influence which he has exerted as a teacher.

The Owen Jones prizes have now been awarded annually since the year 1878. The Council of the Society of Arts are trustees of the sum of 400*l.*, presented to them by the Owen Jones memorial committee, being the balance of subscriptions to the memorial fund, upon condition of their expending the interest thereof in prizes to "students of the Schools of Art who, in actual competition, produce the best designs for household furniture, carpets, wall-papers and hangings, damask, chintzes, &c., regulated by the principles laid down by Owen Jones." The prizes are awarded on the results of the annual competition of the Science and Art Department.

Six prizes were awarded this session, each prize consisting of a bound copy of Owen Jones's "Principles of Design" and a bronze medal.

The list of the successful candidates was given in the *Journal*.

The next award will be made this summer, on the result of the present year's examinations. Six prizes have again been offered for competition.

In 1871 John Stock left 100*l.* Consols to the Society, with the condition that the interest should be applied for the promotion of drawing, sculpture and architecture. From time to time, as the accumulated funds permitted, prizes have been awarded under this head, the last previous award having been made in 1893. A gold medal, or a prize of 20*l.*, was offered for competition among the students of the schools of art at the annual competition of 1897, for "the best original design for an architectural decoration suitable for the interior of a building."

At the request of the Council, the adjudication was made by the examiners of the Science and Art Department, who awarded the prize to Alfred Coumber, of the Goldsmiths' Institute, New Cross.

Since 1889 the Council have placed at the disposal of the Royal Drawing Society for competition among the candidates at its annual examination twelve bronze medals, and, as usual, these medals were awarded for drawings sent in by students to the exhibition held by the Drawing Society held in April last.

The considerable growth in the number of candidates entering the Society's examinations still continues, the number for this year being 7,636, an increase of 717 over last year's number of 6,919. The figures for the past nine years are given in the following table, from which it will be seen that the numbers are now more than three times as great as in the year 1890, and that they have more than doubled in the past six years :—

Year.	No. of Candidates.	No. of Papers Worked.	No. of Centres.	No. of Subjects.
1890	2,315	2,474	79	14
1891	2,460	2,667	78	14
1892	2,928	3,143	96	13
1893	3,702	3,916	109	13
1894	4,106	4,376	131	14
1895	4,777	5,108	146	14
1896	6,111	6,568	197	16
1897	6,919	7,513	221	19
1898	7,636	8,372	243	19

It would be satisfactory if it could also be stated that the candidates generally keep up to the same standard, but this is certainly not the case. There is probably not a very serious difference, but the tendency of recent years has been for the qualifications of candidates to decline, and the average of those entering is distinctly below the average of those who entered a few years ago. The percentage of first-class certificates in 1896 was 10·5, in 1897 it was 8·8, in the present year it is 6·05. The percentage of failures has not altered so regularly. From 1895 to 1897 the percentage of failures decreased from 21 to 19·8, which was a satisfactory sign. For the present year the percentage of failure has increased and is now 26·1. It must not be understood from this that the better class of candidates are of a lower standard than of old, or that there are fewer of them. This is distinctly not so. There appears on the whole to be a slight improvement at the top of the list, not perhaps as regards the quality of the very best candidates, which is not likely to improve, but as regards the numbers of high-class candidates. In working out the average results, however, this slight improvement is entirely counterbalanced by the fact that the large increase of candidates is due in the main to the addition of students of a less educated class.

The rapid increase in numbers is due, as has been previously pointed out, to the fact that the County Councils are now able to dispose of considerable funds for the promotion of technical education, and this, as defined by the Technical Education Act, includes the commercial subjects in which the Society holds examinations. Large numbers of students are encouraged to enter for the examinations, and in many cases have their fees paid for them. The result of this is that while the numbers go up the standard goes down. It is not to be argued that this is wholly a bad sign. The Society's examinations serve two distinct purposes. They are, on the one hand, a test of capacity, and they afford students who have passed them evidence that they are qualified in subjects which may be of service to them in their future careers. But the examinations also serve another purpose. The hope of obtaining a certificate may often act as an inducement to students to study a subject, and though the certificate itself may be of slight value, or even though the students may fail to get a certificate at all, they will have profited by the actual study. It does not, therefore, seem desirable to the Council that because the numbers increase the standard should, *pari passu*, be raised. If the standard were made too high the examinations would no longer be an attraction to the humbler class of students, while it is obvious that if the standard was appreciably lowered the examinations would fail to have any value whatever. Practically, therefore, the standard for each class has been kept at about as nearly as possible the same level as that which the experience of past years proves to be most practically useful, probably, if anything, it has a tendency to rise rather than to fall. But since a large number of less qualified students enter for the examinations, the proportion of those taking first class must of necessity, if the standard is kept up, be smaller, while the numbers of those who fail to pass at all is likely to increase, but not to increase in anything like the same degree as the proportion of first-classes decreases. It may reasonably be anticipated that as the excellent work of the County Councils goes on and produces its natural results, the class of new students who have been brought under examination will be improved, and that the proportion of first-classes will again rise to the former level.

The increase in numbers has been spread over nearly the whole range of the examinations. There has been a falling off in the two musical subjects: for rudiments of music 366 entered, against 402 last year, a decrease of 36; and for harmony 161, against 190, a decrease of 29. In all the other subjects—that is to say, in all the commercial or technical subjects—there has been practically an increase, or at all events no falling off. In précis-writing there is one candidate less than last year—17 against 18. In French also there were 5 fewer, there being 322 against 327, but this deficiency is more than made up for by the increase in elementary French, a subject introduced last year; for this there were 218 candidates, last year there were 191. The total number in French and elementary French together amounts to 540, an increase on the corresponding number last year (518) of 22. German shows an increase of 16, 227 against 211. Elementary German an increase of 49; 110 against 61. Italian shows a small, but a good, proportionate increase of 12; 37 compared with 25 last year. In Spanish there are 92 compared with 85, and in elementary Spanish 41 against 22. Portuguese also shows an increase; 26 against 14. The regular increase in all these modern-language subjects is certainly a satisfactory feature. It is also satisfactory to note that there is a distinct advance in arithmetic, 259, whereas last year there were only 191, an increase of 68. This is a subject which ought to draw larger numbers. Possibly the reason that it does not do so is that there are many other examinations available in it. Arithmetic also suffers from the drawback that it is not scheduled by the Science and Art Department as a technical subject. The same remark is applicable to English, in which also a moderate increase is to be noted. There are 189 candidates this year, an increase of 14 over the 175 last year. Commercial geography also shows an increase from 62 to 120; this is, comparatively, a large addition. The subject of economics has not attracted very many more than last year; there are now 27, there were then 23. The two subjects which, as usual, attracted much the largest numbers are book-keeping and shorthand. Book-keeping shows a large increase; there were 3,730 candidates, an addition of 295 on the 3,435 of last year. In shorthand there was an increase of 232, the numbers being 1,791 and 1,559. It is a matter of regret that no candidates ever enter for the less popular languages—Russian, Danish, Japanese and Chinese—and this fact is a comment upon the absence of facilities in this country, as compared with those in other countries, for education in modern languages. In domestic economy there were 21 more than last year, the numbers being 206 and 185.

FRESCOES IN THE HOUSES OF PARLIAMENT.

THE following memoranda by Professor A. H. Church, stating details of his treatment of various works of art at the Houses of Parliament last year, and containing suggestions for future proceedings, have been sent by him to the Office of Works. The First Commissioner says that the Government and the public are much indebted to Professor Church for the great amount of trouble and skill which he has gratuitously bestowed upon these paintings, and it is proposed to ask him to be kind enough to advise as to the steps to be taken to carry out his further recommendations:—

No further treatment of the wall-paintings in the Palace of Westminster was carried out during 1896, but I considered it advisable, in the autumn of last year, to deal once more with the two large water-glass pictures by Maclise in the Royal Gallery, as well as the five frescoes by Dyce in the Queen's Robing-room. The two annexed memoranda, in continuation of those which I forwarded to you in November 1895, refer to the state and treatment of the above-named wall-paintings. The operations were carried out to my complete satisfaction by Messrs. Redhead & Turner, employés of the firm of Messrs. Shrigley & Hunt, of Lancaster and London. The former of these employés has worked in accordance with my recommendations at intervals for some years, while both of them were similarly employed last year in carrying out my instructions as to the treatment of the important series of wall-paintings by the late Mr. Ford Madox Brown in Manchester Town Hall. The operations lasted from September 28 until November 1. During their course I paid seventeen visits of control and inspection. You will recollect that on July 22 last I addressed a letter to Sir John Taylor, in which I stated that there were four glazed paintings in the Peers and Commons' corridors which needed attention. They had become disfigured, since they came under my more particular observation, through the formation of dark stains or through efflorescence and scaling. The pictures referred to are

these :—"The Burial of Charles I.," "Charles I. Erecting his Standard at Nottingham," "The Parting of Lord and Lady Russell," "The Last Sleep of Argyll."

You were good enough, in a communication dated July 28, 1897, to approve of my proposal. But there proved to be practical difficulties in removing and replacing the glasses of these paintings, so that their treatment, expedient as I still believe it to be, has been deferred. In my letter of July 22 I also made mention of an apparatus then being constructed to my order for producing a powerful air-jet, charged with breadcrumbs, to be employed in the cleansing of the Westminster paintings. This apparatus, consisting of a manual air-compressor, a receiver with pressure gauge, and a breadcrumb distributor, was delivered in the Royal Gallery at the end of September. It had to be returned to the makers for some alterations, but did not ultimately prove efficient for the purpose in view. I still hope that, after further modifications, I may be able to bring it into use on a future occasion.

In conclusion, I beg to recommend that during the summer of 1889 the frescoes in the House of Peers should once again be cleansed under my supervision, and that the four glazed corridor paintings already mentioned should be so treated as to remove all their present difigurements, such as the grey film on all of them, and the numerous dark circular patches, possibly of fungoid origin, which are increasing on various parts of the surface of one of the pictures.

The Royal Gallery.—As my previous memorandum concerning the two water-glass paintings by Maclise gives an outline of their history and condition, and of their treatment under my supervision in the autumn of 1894, it is unnecessary to repeat here the details already furnished (in the Parliamentary Paper C. 7,651, 1895). I formerly stated that it would probably be advisable to protect the surface of these wall-paintings with a preservative solution containing as its chief ingredient hard paraffin wax. I waited until the present year before venturing to carry out this plan, being anxious to ascertain previously whether efflorescence took place after the cleansing operations conducted three years ago. However, so little change of any kind had occurred since 1894 that I felt confident that the suggested application might be safely made. It was of course necessary first of all to clean once more the surface from accumulated dust and soot. This having been accomplished by an air blast, careful dusting and the use of bread, the paraffin wax (dissolved in toluol to which had been added a small quantity of a specially-prepared copal-varnish free from lead) was applied. Some parts of both pictures, being more tender and absorbent than the rest of the surface, were treated several times, indeed until suction had practically ceased. Not only was the improvement thus effected in the definition and general appearance of the paintings very decided, but there is good reason to conclude that the injurious action upon these works of the impure London atmosphere, and of the occasional condensation thereon of corrosive moisture, will be considerably lessened in the future. It will be necessary to repeat the cleansing operations at regular intervals, say every third or fourth year. And it may be expedient to apply the paraffin-wax solution once again, especially over areas where weakness of the ground or of the pigments has been observed. This further treatment is the more desirable because of the loose condition (pointed out in Memorandum I.) of much of the blue pigment and of some of the dark red in the "Nelson" stereochrome. For the same quantity of paraffin-wax applied during the past season to this painting is not likely to suffice for the consolidation and for the attachment to the ground of these peculiarly powdery pigments.

The Queen's Robing-room.—The history, condition and treatment of the five true frescoes in this room were fully discussed in Memorandum III. During the three years which have passed since they were last cleaned and treated with paraffin-wax they have hardly deteriorated at all. The surface was cleansed with bread, a few necessary but quite insignificant touches were given, and the same preservative solution as before was applied, the application being repeated twice or thrice on those places where the ground or the pigment was friable. With reference to the future treatment of the paintings, I recommend that they should be cleansed, and if necessary paraffined, at intervals of three or four years. I believe that by continued care and attention they may be maintained for a long time pretty nearly in their present condition.

The Annual Congress of archæological societies was held at Burlington House on Wednesday. The principal subject for consideration was the preservation of ancient monuments. It was pointed out that in the Blue-book containing an account of what was done in foreign countries, Russia alone resembled England in the absence of any provision for securing remains from injury. After some discussion it was decided to enter into correspondence with the various county councils, inviting their co-operation to insure safety for ancient buildings.

TESSERÆ.

The Portrait Statues of Buddha.

THE great pioneer of our Indian researches, Sir William Jones, pronounces unhesitatingly that Buddha, in the opinion of his worshippers, was a negro; M. Langlés is peremptory on the subject of his African origin, and a host of lesser names, such as that of Moor, the author of the "Hindoo Pantheon," are arrayed on the same side of the question. On the other hand, Remusat has collected abundant evidence to prove that the descriptions of the person of Buddha in the Buddhist books refer to an Asiatic, and that his titles and epithets, as applied to a negro, would be in the highest degree ludicrous. In Davy's "Description of Ceylon" there are arguments on the same side by a practical man, and Guigniaud dismisses the subject in a short note as incontestably proved against Sir W. Jones. The statues of Buddha are the principal, if not the only witnesses in this dispute, and they are appealed to by both sides. In the first place, these images are sometimes represented black, but as the images of Vishnu and Krishna are so also, this proves nothing more than that black is a symbolical colour among the Hindoos. "Such representations," says Mr. Upham, "have not only the hair, but the thick lips and the features of an African negro." The statues Mr. Upham alludes to have, it is true, thick lips, but they are not the thick lips of an African negro, and as for the other parts of the face, we cannot well imagine anything more dissimilar to negro features. The hair of a negro is matted and crisp, like the wool on the back of a sheep, while that of the Buddhaic statues is divided with the nicest regularity into small curls. Nevertheless, it is impossible to deny that the colour and compact appearance of the latter suggest very forcibly the idea of the former. The Buddhists very naturally evince some uneasiness when their idol's hair comes in question. They cannot deny that it presents a different appearance from the living Asiatic locks with which it may be compared, and the stories they invent to account for a phenomenon of which the tradition is lost are not a little absurd. In one of them the mystery is solved by the fact of their sage having had his hair cut with a golden sword. The Jains, according to Major Mackenzie, account for the negro heads of their statutes by affirming that their ascetics being forbidden the use of the razor employ their disciples to pluck up the hair by the roots. This curious explanation is received in triumph by Remusat, who thus contrives to expose the blindness of prejudice in himself and his opponents at the same time. In the superb statue of Buddha in the cave of Gharipuri (Elephanta), Moor tells us a large rose projects on each side of the head, as if confining the hair. The same author is confident that the hair is woolly, and affirms that the appearance is seen in no other Hindoo deity, but when we turn to the plates he has himself given us in the Hindoo Pantheon, we find that the latter assertion was very incautiously made. Some authors attempt to solve the problem by remarking that Ethiopia may have been one of the countries which produced a Buddha, or into which the Buddhaic religion was introduced at some early period, and that his Ethiopian statues introduced into India in the infancy of art may have been blindly copied by succeeding generations. Crawfurd's account of Burmese statuary is perhaps equally applicable to the art in the whole of the Buddhist countries. "The Burmese statues are as rudely finished as possible. They are almost all in the same attitude; the form and position of the limbs are the same; the head and features are the same, and there is no room in any respect for the display of taste, fancy or talent, the whole operation being purely mechanical, and this of the lowest order."

Sir W. Chambers and Horace Walpole.

A design for Lord Clive's villa at Claremont, in Surrey, was made by Sir William Chambers, but that of Brown, the landscape gardener, was preferred, and this occasioned a difference between the two artists which was never entirely reconciled. The learned and travelled Chambers considered the unlearned and untravelled Brown as an ignorant intruder—one whose mean education rendered him an unworthy antagonist to a knight of the Polar Star; and who, moreover, made light of the mystery of Oriental gardening, and was therefore entitled to no respect. Upon this he wrote and published in 1772 his "Dissertation on Oriental Gardening," and in the introduction handled Capability Brown, as he was generally called, with little delicacy or deference. Of the numberless satires which the dissertation called into life, the only one, however, which survives is the "Heroic Epistle," attributed for a time to Anstey, the author of the Bath Guide, but now known to be the work of Horace Walpole, with some aid from Mason the poet. When Warton was pressed in conversation to say what he knew about it, and whether it were or were not Mason's, he replied, "Aye, sir, cut out by Walpole, but buckramed by Mason." Lord Orford, secure as he imagined in concealment, thus wrote of the work of Sir William and his own epistle in 1784 :—"The great improvement suggested by Chambers was

the abolition of geometrical lines and curves, and the contrary extremes of bareness, trimness and serpentine walks, by which an equally disgusting monotony was produced. His remedy was to introduce an infinite variety of artificial embellishment, and thereby to effect continued surprise by objects totally new to the English eye, somewhat familiarised to Grecian forms. But the triumph of Chambers was of short duration; no sooner had the 'Heroic Epistle' followed so closely upon his dissertation than the national taste recovered from its aberration—the wit and irony delighted—the delicate satire was universally relished, pointed as it was by political allusions. The gardens of Kien-Long transplanted into England were made to contain the court, and so concluded the Chinese controversy." Chambers's crime, in the eyes of Walpole, was no less than using his elaborate work as a weapon to deter the king from introducing classic improvements into the gardens of Richmond. The main doctrines of the dissertation had, however, been made public some years before the English Garden of Mason appeared, and there is no better foundation than surmise for the suspicion of Walpole. It must be acknowledged that the lofty and cumbrous language of Sir William's dissertation is imitated with much skill in the Epistle, and that the poet has aptly caparisoned his rhyme from the turgid sentences of the architect. "In their lofty woods," says Chambers, "serpents and lizards of many beautiful sorts crawl upon the ground, and innumerable monkeys, cats and parrots clamber upon the trees. In their lakes are many islands, some small, some large, amongst which are seen stalking along the elephant, the rhinoceros, the dromedary, the ostrich and the giant baboon. They keep in these enchanted scenes a surprising variety of monstrous birds, reptiles and animals, which are tamed by art, and guarded by enormous dogs of Tibet and African giants in the habits of magicians. Sometimes in this romantic excursion the passenger finds himself in extensive recesses, surrounded with arbours of jessamine, vines and roses, where beauteous Tartarean damsels, in loose transparent robes that flutter in the air, present him with rich wines and invite him to taste the sweets of retirement on Persian carpets and beds of Camusakin down."

The House of R. Cosway, R.A.

In his anecdotes relative to Cosway, Nollekens's biographer says that, after quitting Pall Mall, "he (Cosway) fitted up his new residence (No. 20 Stratford Place) in so picturesque and indeed so princely a style, that I regret drawings were not made of the general appearance of each apartment, for many of the rooms were more like scenes of enchantment pencilled by a poet's fancy than any thing, perhaps, before displayed in a domestic habitation." If such really was the case, they certainly were worthy of being delineated, yet we may be allowed to entertain some misgivings—first, because such a character of the house partakes too much of the "glamour might" of some of George Robins's advertisements; and, secondly, nothing is said to corroborate it, or to give us any idea whatever of those "scenes of enchantment," notwithstanding that the writer could at least have done that, have spoken of "the general appearance of each apartment," and have so far rescued them from complete oblivion. Instead of which, he merely goes on to astound us by enumerating some of the costly articles of furniture and *vertu* which were displayed in the habitation of that once fashionable and now forgotten painter; to wit, "ancient chairs, couches and conversation stools elaborately carved and gilt, and covered with the most costly Genoa velvets; escritoires of ebony inlaid with mother-of-pearl, rich caskets for antique gems exquisitely enamelled and adorned with onyxes, opals, rubies and emeralds. There were also cabinets of ivory curiously wrought, mosaic tables set with jasper, bloodstone and lapis-lazuli." Suffice it to say that there were besides, among a variety of other things, "massive musical clocks, ottomans superbly damasked, Persian carpets, chimneypieces carved by Banks, bronzes, models in wax and terra-cotta, crystal cups adorned with the York and Lancaster roses, &c., &c." To meet with such prodigal sumptuousness in the house of a painter must have been astonishing enough—almost incredible when contrasted with the scrubby, though never scrubbed, dog-hole rooms in which old "Nolly" and his amiable spouse thrived so well; or the wretched but richly cobwebbed garret in which Barry entertained Burke with a beefsteak and a pot of porter. Still, one is at a loss to make out, from all that Smith says of Cosway's house, aught that warrants the expression of the rooms being so many scenes of enchantment, there being not a syllable even with regard to any of their decorations, or to indicate any particular fancy or *recherché* taste, or well-studied effects in the rooms themselves. Sumptuous furniture and almost priceless works of art may be put into a very commonplace room, but in such case the latter is merely the receptacle of the other objects, stripped of which it would not be worth looking at, whereas—in a first-rate mansion, at least—every part of it, except the entirely private and domestic rooms, should be laid out with studied regard to effect and to variety of effects—without, however, departing from consistency as to general character. Each apartment should be itself a picture—strikingly beautiful in itself, charming, captivating, before it receives its finishing touches in the way of furniture and other accessories.

GENERAL.

The Pont Alexandre III., now in course of erection over the Seine, will be adorned with sculpture on a large scale. The four lions at the extremities will be the work of MM. Dalou and Gardet. M. Freimet will model two winged horses, and commissions are held by MM. Coutant, Cordonnier and Récipon.

Ashton Hall, Liverpool, which has been altered into a school of hygiene in connection with University College, was opened on Monday. The laboratory is well equipped for investigation of sanitary problems.

Viscount Peel was on Tuesday elected a Trustee of the British Museum in succession to the late Mr. Spencer Horatio Walpole.

The Report of the Select Committee on Museums is expected to recommend that a school of science and art with a library should be formed in connection with the Bethnal Green Museum, as originally contemplated.

The Duke of Devonshire has presented to Eastbourne a site for a technical institute and public library as a memorial of his mayoralty.

Mr. E. A. Abbey has been elected a Royal Academician. He is the third American possessing the privilege. Mr. Abbey has been only a few years in England, and was at first known by his illustrations of books and periodicals.

An Interesting archæological discovery has just been made at Tongres, province of Hasselt, Belgium, where excavations in one of the tumuli at the intersection of two Roman roads have brought to light a sarcophagus containing the remains of a Roman artist of the third century. With the remains were found a large number of urns, vases and miscellaneous trinkets; but perhaps the most interesting item were the bronze cups containing remains of the artist's colours, which will, it is hoped, throw some light on the process of contemporary painting.

Chantilly is to be opened for three months on Saturdays at a charge of 1 franc, the proceeds to be given to the Society for the Relief of the Wounded. On Sundays and Thursdays admission will be free.

A Meeting of friends and admirers of the late Sir Edward Burne-Jones was held at Dorchester House on the 4th inst., when it was resolved to raise a fund to be applied to the purchase of a characteristic work by him, to be presented to the nation as a memorial. The sum required will be from 3,000*l.* to 5,000*l.*

A Special General Meeting of the Architects' Benevolent Society will be held in the rooms of the Royal Institute of British Architects on Wednesday, July 13, to confirm the resolution passed at the annual general meeting held on March 9, 1898, to the effect that the words "six pensions of not less than 20*l.* each" be substituted for "three pensions of not less than 15*l.* each" in By-law No. 65.

The Annual Exhibition of handwork of the pupils of the School Board for London will be held at the Hugh Myddelton School, St. James's Walk, Clerkenwell Green, E.C., from Friday, the 15th inst., until the following Wednesday. It will be open each day from 12 o'clock noon until 8.30 P.M. The exhibits will include specimens of the following work:—Drawing, painting in water-colours, designing in paper and colour, modelling in clay and cardboard, manual training (woodwork), wood-carving, metalwork, kindergarten, &c dress cutting and making, and needlework from evening continuation schools, and special exhibits from schools for the deaf, schools for the blind, and schools for the instruction of physically and mentally defective children.

A Chapel for the Welsh Calvinistic Methodists is being erected in Suffolk Street, Birmingham, and the memorial-stones were laid on Wednesday. The new building is well set back from the road, and when finished will be 30 feet wide by 47 feet long, giving accommodation for rather over two hundred people. In addition there is to be a meeting-room and a house in the rear. Its cost, it is estimated, will amount to about 4,000*l.*, including 1,412*l.* 18*s.* 11*d.* for the purchase of the land.

The National Trust for Places of Historic Interest o Natural Beauty, of which the Duke of Westminster is president, is, it is stated, in the field for the purchase of Tintern Abbey. It is suggested that a number of local gentlemen should purchase the abbey and Monmouth and Raglan castles, pending the promotion of a Bill in Parliament enabling the Monmouth County Council to acquire these historic buildings.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

COMPETITIONS OPEN.

GLASGOW.—Aug. 15.—Designs are invited for the exhibition buildings to be erected on sites in the Kelvingrove Park and Bunhouse Ground. A premium of 200*l.* will be awarded to the author of the design considered first in merit, second and third premiums of 150*l.* and 100*l.* respectively. Mr. H. A. Hedley, general manager and secretary, 141 Buchanan Street, Glasgow.

SALFORD.—Aug. 16.—Designs for three chapels, offices, lodge, entrance gates and boundary walls at proposed cemetery in Langley Road and Agecroft Road, Pendlebury. Premiums of 50*l.*, 30*l.* and 20*l.* respectively. Borough Engineer, Town Hall, Salford.

STOCKHOLM.—Aug. 31.—Designs for railway station Particulars from the Offices of the Consulate, 27 Great Winchester Street, London.

CONTRACTS OPEN.

ABERCYNON.—July 14.—For erection of twenty four houses. Mr. A. O. Evans, Post Office Chambers, Pontypridd.

ABERDEEN.—July 13.—For additions to city hospital. Mr. John Rust, city architect, 224 Union Street, Aberdeen.

ABERFORD.—For renovation of Wesleyan chapel. Mr. Walter Charnock, Aberford.

ABINGDON.—July 18.—For erection of a block of three houses in the Albert Park. Mr. J. G. T. West, architect, The Knowl, Abingdon.

ANNAN.—July 14.—For erection of pair of semi-detached villas. Messrs. John S. Millar & Son.

BARROW.—July 23.—For erection of new medical wing to Barrow Hospital. Messrs. Austin & Paley, architects, Castle Hill, Lancaster.

BARTON STACEY.—July 18.—For erection of block of three cottages. Messrs. Westbury & Son, land agents, Andover.

BELFAST.—July 18.—For erection of a Presbyterian church at Cushendall. Mr. William J. Fennell, architect, 11 Chichester Street, Belfast.

BETHNAL GREEN.—July 12.—For erection of two blocks of working-class dwellings, to be known as Hedsor Buildings, on the Boundary Street area. Plans, &c., at the Architect's Department, London County Council, 17 Pall Mall East, S.W.

BILSDALE.—July 14.—For taking-down and re-erecting Raisdale Bridge. Mr. W. H. Dixon, surveyor, Kirby-in-Cleveland.

BRISTOL.—July 19.—For construction of a new goods shed, offices, &c., at Lawrence Hill, for the directors of the Great Western Railway. Mr. G. K. Mills, secretary, Paddington Station, London, W.

BURTON-ON-TRENT.—July 16.—For erection of a school-chapel, for the United Methodist Free Church, at Midway. Rev. T. S. Clarke, Newhall.

CARDIFF.—July 13.—For erection of premises at 31 and 32 High Street. Mr. E. Jenkin Williams, architect and surveyor, 14 High Street, Cardiff.

CASTLEFORD.—July 14.—For erection of drying kiln and offices. Mr. Arthur Hartley, architect, Carlton Chambers, Castleford.

CHESTER.—July 16.—For erection of shedding, &c., for the annual exhibition of the Cheshire Agricultural Society to be held on September 7 at Macclesfield. Mr. Thomas A. Beckett, secretary, St. Werburgh's Chambers, Chester.

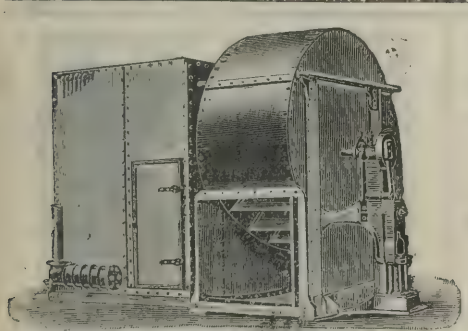
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COLNE.—July 23.—For erection of technical schools and public library in Albert Road. Messrs. Woodhouse & Willoughby, architects, 100 King Street, Manchester.

COVENTRY.—For erection of Sunday schools, Vine Street. Messrs. George & Isaac Steane, architects, 22 Little Park Street, Coventry.

CULLINGWORTH.—July 18.—For erection of a Baptist Sunday school. Messrs. John Judson & Moore, architects, Keighley.

CUMBERLAND.—For erection of a cottage-house at Craika, Dearham. Mr. J. Kirkbride, Dearham.

DARTFORD.—July 14.—For erection of a destructor-house, with pair of destructors, at the Gore Farm Hospital, Kent. Messrs. A. & C. Harston, architects, 15 Leadenhall Street, E.C.

DARLINGTON.—For erection of business premises, Park Gate. Messrs. Martin & Davis, architects, Skinnergate, Darlington.

DEWSBURY.—July 20.—For erection of twenty shops in an arcade. Messrs. John Kirk & Sons, architects, Dewsbury.

DROMORE.—July 11.—For enlargement of the cathedral, Dromore, co. Down. Mr. Henry Hobart, architect, Dromore.

DURHAM.—July 12.—For erection of schools for 400 children at Ushaw Moor. Messrs. Clark & Moscrop, architects, Feethams, Darlington.

FULHAM.—July 13.—For the demolition and clearing away of 1, 3, 5 and 7 Harwood Road. Particulars supplied by the Surveyor, Town Hall, Walham Green, S.W.

GOOLE.—July 15.—For erection of a Wesleyan Methodist church, Boothferry Road. Mr. H. B. Thorp, architect, Goole.

GRANGEMOUTH.—July 11.—For erection of three double cottages in Wallace Street. Mr. G. Deas Page, architect, Old Glebe Chambers, Falkirk.

GRANGE-OVER-SANDS.—July 21.—For erection of the new public hall and Urban District Council offices. Mr. John Hutton, architect, Kendal.

HALIFAX.—July 12.—For erection of workshops, sheds, offices, engine and boiler-houses, and chimneys for the premises to be erected near North Dean railway station, for Messrs. Lumby, Son & Wood, Limited. Messrs. R. Horsfall & Son, architects, 22A Commercial Street, Halifax.

HALIFAX.—July 11.—For erection of 30 yards chimney, engine-bed, concrete floors and alterations to premises in Thomas Street, off Horton Street. Messrs. Geo. Buckley & Son, architects, Tower Chambers, Halifax.

HALIFAX.—July 18.—For erection of a detached villa residence on the Green Royd estate. Messrs. Geo. Buckley & Son, architects, Tower Chambers, Halifax.

HALIFAX.—July 18.—For erection of a villa at West End. Mr. H. Hatton, architect, Town Hall Chambers, Sowerby Bridge.

HALIFAX.—July 26.—For erection of workshops, sheds, offices, engine and boiler-houses, and chimneys for the premises to be erected near North Dean railway station, for Messrs. Lumby, Son & Wood, Limited, boiler makers, &c. Messrs. Horsfall & Son, 22A Commercial Street, Halifax.

HARROGATE.—For erection of semi-detached villas at Starbeck. Mr. Arthur A. Gibson, architect, 8 Cambridge Crescent, Harrogate.

HENDREFORGAN.—July 19.—For erection of cottage at Gellyrhaidd crossing, near Hendreforgan station, for the Directors of the Great Western Railway. Mr. G. K. Mills, secretary, Paddington Station, London.

HINCHELSEA.—July 11.—For erection of small bridge near Hinchelsea in parish of Brockenhurst. Mr. T. J. Fripp, surveyor, Gosport Street, Lymington.

HORNCASTLE.—July 15.—For erection of a cottage at Wood Enderby, near Horncastle. Messrs. F. T. White & Son, solicitors, Boston.

HUDDERSFIELD.—July 12.—For erection of isolation block at sanatorium, Mill Hill. Messrs. Edward Thomas & Sons, architects, 7 Queen Anne's Gate, Westminster, London.

HULL.—July 20.—For erection of an engine shed for the standage of forty-eight engines, offices, fitters' shop, coaling-stage, ash-tip, &c., for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

KESWICK.—For cementing and plastering eight houses (labour only). Mr. R. Relph, Keswick.

KEIGHLEY.—For erection of a block of shops, arcade and offices in North Street. Messrs. John Judson & Moore, architects, Keighley.

KIDDERMINSTER.—July 14.—For painting and colouring Coventry Street, Hume Street and Mill Lane schools. Mr. J. T. Meredith, architect, Bank Buildings, Kidderminster.

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LANCASTER.—July 12.—For erection of a residence at Caton. Mr. N. G. Lewis, architect, 1 New Road, Lancaster.

LANCASTER.—July 14.—For erection of a church at Slyne. Messrs. Austin & Paley, architects, Lancaster.

LEEDS.—July 16.—For pulling-down and rebuilding the Three Horseshoes Hotel in Park Lane and Princess Street. Mr. Thomas Winn, architect, 92 Albion Street, Leeds.

LEEDS.—For plastering two villas at Roundhay. Mr. T. Oliver, builder, Roundhay.

LEIGH.—July 18.—For erection of new bank premises in Bridge Street. Mr. J. H. Stephen, architect, Leigh, Lancashire.

LITTLE TORRINGTON.—July 15.—For restoration of the tower of St. Giles's Church. Mr. Harbottle Reed, architect, 12 Castle Street, Exeter.

LLANELLY.—July 11.—For erection of a house at Halfway. Mr. W. Griffiths, architect, Llanelly.

LLANHILLETH.—July 11.—For erection of a police-station. Mr. William Tanner, county surveyor.

LONDON.—July 12.—For construction of an underground convenience at the St. George's Circus end of Borough Road, and an underground urinal at the Newington Causeway end of the same road. Mr. Oliver E. Winter, surveyor, Vestry Hall, Borough Road, S.E.

LONDON.—July 19.—For construction of underground conveniences in Fenchurch Street. Town Clerk, Public Health Department, Guildhall.

LONG EATON.—For erection of offices, showrooms and gas manager's house. Mr. E. R. Ridgway, architect, Long Eaton.

MAIDENHEAD.—July 11.—For erection of a public convenience at the Guildhall. Mr. Percy Johns, borough surveyor, Guildhall, Maidenhead.

MOSS SIDE.—July 16.—For alterations to and extension of two schools in Princess Road and Upper Lloyd Street. Messrs. Potts, Sons & Pickup, architects, Victoria Buildings, Manchester.

MURRAYFIELD.—July 16.—For erection of ten houses in Abinger Gardens. Messrs. Dunn & Findlay, architects, 35 Frederick Street.

MUSWELL HILL.—July 11.—For erection of fire-engine station. Mr. E. J. Lovegrove, Southwood Lane, Highgate, N.

NEWARK.—July 18.—For erection of out-offices and cloak-room at Christ Church schools. Messrs. Tallents & Co.'s offices, Carter Gate.

NEWHAVEN.—July 21.—For erection of kitchen, scullery and offices on land adjoining the union workhouse, and a connecting corridor to the infirmary and workhouse, and for alterations and additions to the workhouse. Messrs. Clayton & Black, architects, 152 North Street, Brighton.

NORTON-IN-HALES.—July 16.—For repairing the tower of the church. Messrs. Lynam, Beckett & Lynam, architects, Stoke-upon-Trent.

NOTTINGHAM.—Aug. 5.—For erection of the superstructure of the workhouse, infirmary and appurtenant buildings for 1,600 inmates and staff at Bagthorpe. Mr. Arthur Marshall, King Street, Nottingham.

PLYMOUTH.—For completion of the tower of St. Peter's Church. Mr. Geo. H. Fellowes Prynne, architect, 6 Queen Anne's Gate, Westminster, S.W.

PORTSMOUTH.—July 19.—For providing an additional staircase at the girls' department of the St. Mary's Road Board school. Mr. A. H. Bone, surveyor, School Board Offices, Town Hall, Portsmouth.

RAMSEY.—July 11.—For erection of a villa on Bury Road. Mr. James Ruddle, architect, Boroughbury, Peterborough.

ROCHDALE.—July 12.—For erection of a parpoint boundary wall, about 45 yards in length, between the vicarage and the park slopes. Mr. James Leach, town clerk, Town Hall, Rochdale.

ROCHESTER.—July 14.—For erection of schools (for 760 children) in Gordon Road, Strood. Mr. G. E. Bond, architect, High Street, Rochester.

ROWLEY REGIS.—July 11.—For conversion of the closet buildings into water-closets at the following Board schools:—Cradley Heath School, Congreaves School, Macefields Schools (boys and girls), Old Hill School (girls and infants). Mr. J. T. Meredith, architect, Kidderminster.

RUGBY.—July 14.—For painting, colouring and general repairs to the assembly-room at the town hall. Mr. Richard Over, 5 Railway Terrace, Rugby.

SALISBURY.—July 16.—For erection of a building to accommodate the nursing staff in the grounds adjoining the Infirmary.

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SCOTLAND.—July 21.—For making approaches to new stone bridge at Clova and alterations on roadway there. Mr. Ross, surveyor, Brechin Road, Kirriemuir.

SCOTLAND.—July 15.—For erection of a county police-station. Mr. David Smart, architect, Perth.

SELSTON.—For erection of a chapel. Mr. W. W. Jepson, Mexborough House, Top Mexborough, Selston, Nottingham.

SHEPTON MALLET.—July 18.—For erection of school and residence. Mr. William John Willcox, architect, 1 Belmont, Bath.

SHOTLEY BRIDGE.—July 12.—For erection of cottage homes at Shotley Bridge, Durham. Mr. W. Lister Newcombe, architect, 89 Pilgrim Street, Newcastle.

STIRLING.—July 11.—For erection of police-station at Blackbraes. Messrs. A. & W. Black, architects, Falkirk.

STIRLING.—For erection of a school at Carron. Messrs. M'Luckie & Walker, architects, Stirling.

STOKESLEY.—July 14.—For taking-down and re-erecting Raisdale bridge in township of Bilsdale. Mr. W. H. Dixon, surveyor, Kirby-in-Cleveland.

SUTTON-IN-ASHFIELD.—For alterations to the New Cross Hotel. Messrs. Vallance & Westwick, architects, White Hart Chambers, Mansfield.

SWINDON.—July 19.—For enlargement of post office sorting-room at Swindon station, for Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

TRURO.—July 23.—For erection of scullery at dwelling-house, new stable and converting present stable into a wain-house at Higher Trenoweth, Belowda, in parish of Roche. Mr. George Gow, Tregothnan Office, Truro.

TYRONE.—July 15.—For erection of a manager's residence at Coalisland, co. Tyrone. Mr. James G. Lindsay, architect, 6 Chichester Street, Belfast.

ULVERSTON.—July 12.—For erection of stables at the Old Brewery. Messrs. J. W. Grundy & Sons, architects, Centra Buildings, Ulverston.

WALES.—July 18.—For erection of a mission church at Garn, Dolbenmaen. Mr. P. Shearson Gregory, architect, Bangor.

WALES.—July 15.—For painting and decoration of the Methodist chapel, Rhayader, with alterations and repairs. Mr. F. Glyn Evans, architect, Glenview, Builth Wells.

WHITBY.—July 15.—For erection of a small villa residence at Goathland. Mr. Edward H. Smales, architect, 5 Flowergate, Whitby.

WHITEHAVEN.—July 17.—For alterations and additions to the Board schools at Arlecdon. Mr. J. S. Moffat, architect, 53 Church Street, Whitehaven.

WIGTON.—July 11.—For erection of a footbridge at Waterside, near Wigton. Mr. J. Sibson, surveyor, Longthwaite, Wigton.

WICKLOW.—July 20.—For taking-down and rebuilding a portion of the old quay wall, for the Wicklow Harbour Commissioners. Mr. Francis W. MacPhail, secretary to the Harbour Commissioners, Wicklow.

WREXHAM.—July 16.—For erection of infant school and reading-room at Marchwiel, near Wrexham. Mr. Edward Jones, architect, 12 Temple Row, Wrexham.

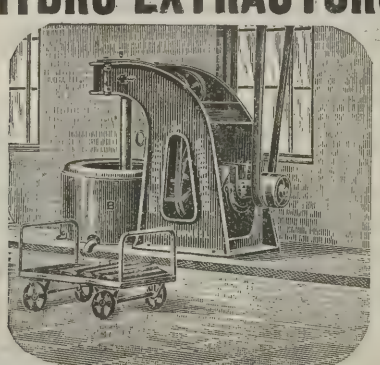
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BEXHILL.

For erection of a pair of cottages at Grinses Farm, Littlecommon, for Mr. Albert Parks. Mr. SYDNEY SMITH, architect, Bexhill.

	Plan No. 1.	Plan No. 2.
F. W. Parker	£430 0 0	£445 0 0
Barker & Rogers	422 0 0	430 0 0
W. Gilham	415 10 0*	425 0 0

* Accepted.

BLACKBURN.

For construction of the basement to the Victoria wing of the Blackburn and East Lancashire Infirmary. Messrs. SIMPSON & DUCKWORTH, architects, Richmond Chambers, Blackburn.

J. Cronshaw	£2,189 0 0
J. Boland	2,130 0 0
J. Fecitt & Sons	1,999 0 0
E. Lewis & Son	1,998 0 0
J. Whittaker & Son	1,849 0 0
W. J. WOOF CRONSHAW, Pump Street (*accepted*)	1,747 0 0

BRAMPTON.

For erection of reading-rooms, &c., at Talkin Village, Brampton.

Masons.

Watson & Routledge	£116 15 3
R. ARMSTRONG & Co., Gilsland (*accepted*)	110 3 6
A. & P. Routledge	95 0 0

Joiners.

T. & W. Hope	69 10 0
W. Edger	69 0 0
T. WARWICK, Brampton (*accepted*)	55 0 0

Plasterer.

W. BARKER, Brampton (*accepted*)	18 7 0

Painter.

PENFOLD & SON, Brampton (*accepted*)	15 0 0

Slaters.

Watson & Routledge	39 19 6
NANSEN, Brampton (*accepted*)	28 0 0

BRADFORD.

For erection of a five-stall stable, cartshed, &c., in Picton Street. Mr. CHARLES E. MARSDEN, architect, 3 John Street, Bradford.

Accepted tenders.

T. Illingworth, Lumb Lane, mason.
E. Watmough, Bramley Street, joiner.
T. Nunwick, Manningham Lane, plumber.
T. Widdop, Picton Street, Manningham, plasterer.
A. Hill & Son, Spring Row, Manningham, slater.
A. Bassett, City Road, painter.
Total, £306 3*s.*
Rest of Bradford.

CORNWALL.

For erection of girls' classroom and cloak-rooms, with alterations, at the Paul (Newlyn) Board School. Mr. H. MADDERN, architect, Penzance.

Mason.

J. Lavers	£218 0 0
J. Burnett & Son	208 0 0
C. Tregenza	185 19 0
J. WHITE, Newlyn (*accepted*)	184 10 0

Carpenter.

A. Chapman	137 0 0
R. Walters	130 10 0
T. J. Harvey	129 4 0
J. James	127 0 0
C. M. RICHARDS, Newlyn (*accepted*)	120 0 0

Architect's estimate :—Mason, £200 ; carpenter, £131.

For erection of two cottages at Sheffield, Paul. Mr. HENRY MADDERN, architect, 1 Parade Passage, Penzance.

Carpenter.

J. James	£97 0 0
T. J. Harvey	95 0 0
W. Grenfell	94 10 0
T. E. Wallis	83 0 0
J. G. James	81 15 0
C. M. RICHARDS, Newlyn (*accepted*)	75 0 0

Mason.

J. LAVERS, Penzance (*accepted*)	57 0 0

Architect's estimate :—Mason, £60 ; carpenter, £83.

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CHELSEA.

For pointing and repairs to the brickwork, and for painting the exterior of the infirmary, Cale Street. Messrs. LANSDELL & HARRISON, architects, 38 Bow Lane, Cheapside.

F. W. Harris	£2,130 0 0
G. WADE, Chelsea (*accepted*)	2,098 0 0

HALLING.

For reconstruction of wharf, for Messrs. Hilton, Anderson & Brooks, Limited.

PEDRETTE & CO., per schedule of prices (*accepted*).

HARROGATE.

For erection of a villa residence in Leeds Road, Harrogate. Mr. CHARLES E. MARSDEN, architect, 3 John Street, Bradford.

Accepted tenders.

J. Ellis, Harrogate, mason.
J. H. Horner, Harrogate, joiner.
T. Sutcliffe, Bradford, plumber.
J. Tyson, Harrogate, plasterer.
J. W. Richmond, Leeds, slater.
E. Armitage, Harrogate, painter.
Total, £996.

KEIGHLEY.

For erection of four houses in Park Wood Street. Mr. JOHN HAGGAS, architect, North Street, Keighley.

Accepted tenders.

J. Jackson, Laycock, joiner.
W. Thornton, Bingley, slater.
Edmondson & Harris, Lees, plasterer.
A. Crabtree, Keighley, plumber.
Total, £250.

KETTERING.

For completion of eighteen private streets and parts of streets, comprising a total length of 2,600 yards. Mr. THOS. R. SMITH, surveyor.

For six contracts.

Currall, Lewis & Martin	£9,361 15 5
Siddons & Freeman	9,313 0 0
Bentley & Loch	9,169 5 3
H. H. Barry	8,895 0 0
W. G. Wilmott	8,594 0 0
F. BARLOW, Rothwell (*accepted*)	8,170 0 0

LANCASTER.

For setting back *Guardian* office front in Church Street. Mr. J. COOK, borough surveyor.

Accepted tenders.

R. Thompson, mason	£225 0 0
R. S. Wright & Sons, joiner	80 0 0
H. P. Calvert, plumber	37 0 0
J. Taylor, painter	7 18 6

LEEDS.

For erection of a cloth warehouse and waste warehouse at Valley Mills, Apperley Bridge, near Leeds. Messrs. MILNES & FRANCE, architects, Bradford.

T. OBANK & SONS, Thackley, near Bradford (*accepted*).

LIVERPOOL.

For the lowering of the wall and the providing and fixing of iron railings upon a portion of the Brownlow Hill boundary of the workhouse.

J. HENSHAW & SONS, 8-14 Chatham Street (*accepted*).

NEW BROMPTON.

For erection of drapery and art furnishing stores at rear of 46 High Street. Mr. ERNEST J. HAMMOND, architect, 111 High Street, New Brompton.

H. Wyles	£985 0 0
J. Wilford	935 0 0
J. H. Harris	875 0 0
T. Cornelius	859 0 0
H. E. Phillips, New Brompton (*accepted*)	830 0 0

OXENHOPE.

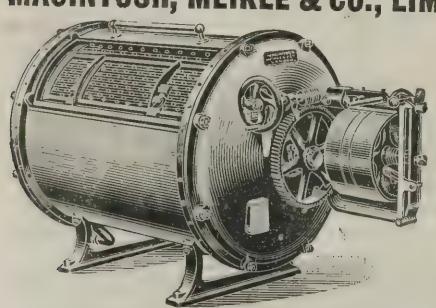
For erection of two houses and shop, Station Road. Mr. JOHN HAGGAS, architect, North Street, Keighley.

Accepted tenders.

J. & J. Crabtree, Oxenhope, mason.
W. Wright, Oxenhope, joiner.
W. Thornton, Bingley, slater.
G. Holmes, Oxenhope, plasterer.
Total of accepted tenders, £600.

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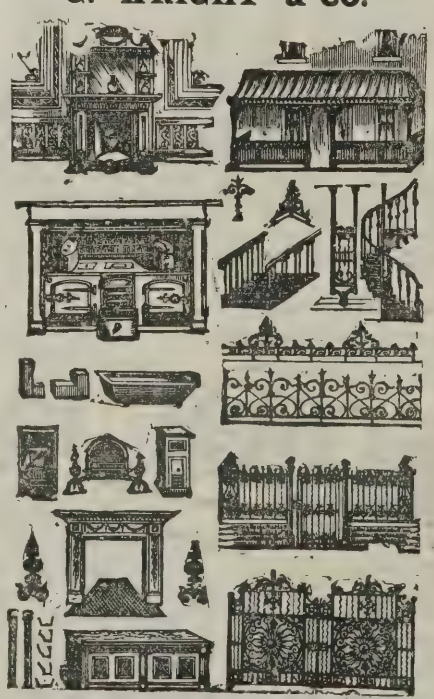


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NEW BARNET.

For erection of semi-detached villas, Leicester Road. Mr. EUGENE C. BEAUMONT, architect, 78 Fleet Street, E.C.

H. BROWN, Stoke Newington, N. (*accepted*)	£2,400 0 0

PAISLEY.

For extension of sick-room accommodation of Riccartsbar Asylum. Mr. W. D. M'LENNAN, architect, 96 High Street, Paisley.

Accepted tenders.

R. Blackwell & Co., Crossflat, mason	£1,059 16 8
J. Inglis, High Street, joiner	692 18 10
J. Boyd & Sons, McDowall Street, heating	213 7 0
J. Martin, George Street, plumber	205 6 10
J. Jeffrey & Co., New Sneddon Street, slater	109 13 1
Galbraith & Winton, Glasgow, tilework	75 5 10
J. Collins & Son, George Street, plasterer	71 5 2
E. Kemp, jun., Hamilton, painter	59 15 0

RIPON.

For making of a new road. Mr. J. W. HIGHMOOR, surveyor, 19 Coltsgate Hill, Ripon.

Wright Bros.	£902 4 6
F. U. SIMPSON, Burton Leonard, Leeds (*accepted*)	878 19 8

SMETHWICK.

For enlargement of Brasshouse Lane School.

BROOKS & TANDY (*accepted*)	£3,743 0 0

ST. LEONARDS-ON-SEA.

For erection of house and shop in Norman Road. Messrs. ELWORTHY & SON, architects, St. Leonards-on-Sea.

H. E. Cruttenden	£1,436 0 0
P. Jenkins	1,400 0 0
Eldridge & Cruttenden	1,375 0 0
Padgham & Hutchinson	1,350 0 0
C. Harman	1,275 0 0
F. G. Hatton	1,230 0 0
Barter & Gasson	1,047 0 0
W. G. MORGAN, St. Leonards (*accepted*)	1,035 0 0

SURBITON.

For erection of District Council offices. Messrs. FORSYTH & MAULE, architects, 16 Great Marlborough Street, London, W.

S. Dockerill & Son	£6,865 0 0
J. H. Jarvis	6,831 0 0
J. W. Brooking	6,754 0 0
J. N. Try	6,541 0 0
Potter Bros.	6,395 0 0
F. Gough & Co.	6,334 0 0

THRAPSTON.

For annual whitewashing and painting at the workhouse.

H. H. PARTRIDGE, Thrapston (*accepted*)	£29 11 0

TUNBRIDGE WELLS.

For wiring of the new baths, Monson Road, for electric lighting.

Benham & Sons	£207 5 0
G. F. Ratcliff & Co.	170 0 0
Electrical and General Engineering Co.	153 0 0
Fowler, Lancaster & Co.	152 10 0
J. Hills & Son	125 10 0
STOREY & PRESTON, Tunbridge Wells (*accepted*)	97 0 0
W. J. Fryer & Co.	83 0 0
S. E. Haward & Co.	79 19 6
W. V. Scott & Co., Limited	79 1 0

WALES.

For additions and alterations to the Acrefair Board Schools. Messrs. J. MORISON & Son, architects, King Street, Wrexham.

J. Davies	£2,684 0 0
Jenkins & Jones	2,580 0 0
W. E. Samuel	2,430 0 0
J. Gethin	2,072 0 0
J. T. JONES, Cefn, Ruabon (*accepted*)	2 175 0 0

WEDNESBURY.

For reinstating roads damaged by mining operations. Mr. E. M. SCOTT, borough engineer.

F. J. Smith	£248 0 0
J. W. FEREDAY, Wednesbury (*accepted*)	188 15 0

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WEDNESBURY—*continued.*

For erection of fire station and other buildings in High Bullen. Mr. E. MARTIN SCOTT, borough engineer.

W. H. Mallin	£965	0	0
J. Dallow	950	0	0
G. Williamson	903	0	0
W. T. Lees	900	0	0
G. Summerhill	895	0	0
J. HOLLOWAY, Wednesbury (*accepted*)	850	0	0
W. Ginder	835	0	0

For street improvements, Walsall Road and Mill Street, King's Hill. Mr. E. MARTIN SCOTT, borough engineer.

F. J. Smith	£188	0	0
J. W. FEREDAY, Wednesbury (*accepted*)	157	9	3

WREXHAM.

For erection of a bridge over a stream at Llanfynydd, near Wrexham. Mr. W. NEWTON, surveyor, Drury Bank, Buckley.

Swelt & Randel	£275	0	0
A. Hulse	190	0	0
W. & R. Williams	174	17	0
E. PETERS, Leeswood, near Mold (*accepted*)	155	0	0
J. Davies	153	0	0

YORK.

For erection of the electric-lighting station.

PARKER & SHARPE, York (*accepted*)	£7,174 12

BUILDING AND BUILDERS.

A NEW parsonage house is being erected in the parish of Bollington, Manchester.

TENDERS amounting to 7,818*l.* have been accepted for the erection of the new Wesleyan college on the Weaponness Estate, Scarborough, and the first sod will be cut at Conference by the President.

A WORKING agreement has been signed on behalf of the Master Masons' Association of Glasgow and Neighbourhood and the Glasgow and suburban lodges of the Operative Masons' Association of Scotland regulating the rate of wages and conditions of labour for the next twelve months. The most important point in the agreement is the raising of the standard rate of wages from 9*d.* to 9½*d.* per hour.

THE foundation-stones were laid on the 2nd inst. of a Free Methodist chapel at Alderman's Green, near Coventry. The new building is to supersede one erected about forty years ago. It will be of red brick, relieved by Bath stone dressings, and will accommodate some 320 persons. The cost will be upwards of 1,000*l.*

AT the hospitals committee of the Liverpool Corporation there was read a letter from the assistant-secretary, Local Government Board, stating that the Board were willing to sanction the borrowing of 38,000*l.* for the purchase of a site for the proposed infectious hospital at Fazakerly on certain conditions. There was also read the report of the medical officer. The report was approved, and the town clerk is to inform the Board that the conditions stated in their letter will be carried out.

A SPECIAL meeting of the Pateley Bridge Rural District Council was held on the 2nd inst. for the purpose of considering the question of an isolation hospital for the district. Mr. Harker, C.C., chairman of the Council, reported upon a combined meeting held at Harrogate for the consideration of the question. Dr. Kay, medical officer for the West Riding Council, was present, and gave several particulars as to cost, &c., of a separate and also of a combined hospital. Dr. Lumsden, the local medical officer, was also present. After some discussion the Council decided to join the Knaresborough and Harrogate districts in providing a joint hospital for the three districts.

ABOUT 350 men and boys employed at the terra-cotta and brickworks of Messrs. Gibbs & Canning, Limited, Glascote, Tamworth, are on strike. The men belong to the National Union of Gasworkers and General Labourers. Taking the various sections of work, for which different rates are paid, it is stated that the increase demanded averages 7½ per cent., and that the firm made small advances in certain departments before work ceased, but that the men are holding out chiefly to secure an increase in the wages of labourers. The firm has intimated that the conditions of trade prevent them from granting any further concessions in wages. At the works during the latter part of last week clerks, managers and other officials loaded up several orders for despatch by rail.

THE threatened strike in the Paisley building trade, which was expected to have commenced last week, was avoided by the

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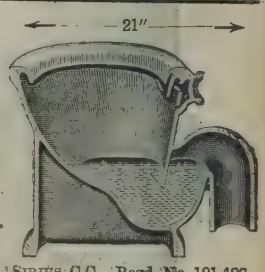
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master builders of the town granting the demands put forward by the workmen. The men had asked for an increase of wages from 9*d.* to 9½*d.* per hour, and also a stipulation from the masters that they would not change the present agreement, which allows not more than six apprentices in their service. On this latter point—the question of apprentices—the masters had been anxious to have the number allowed increased from six to nine, but owing to the present briskness of the building trade, they have had to concede both demands put forward by the workmen. The arrangement now come to is to be effective for a year.

The Labour Department of the Board of Trade has sent a communication to Bristol appointing Mr. A. A. Hudson, Q.C., of the Temple, London, as arbitrator in the Bristol building dispute. At present several hundred plasterers and masons are on strike, demanding a halfpenny per hour advance in their wages, and many labourers are temporarily thrown out of employment. Mr. Hudson will sit next week at a conference of representatives of employers and employed, and various points will be submitted to him for settlement.

The North-Eastern Railway Company contemplate an important addition to their Hull property by the erection of an engine-shed and other offices. Accommodation is to be provided for forty-eight engines, and the floor space required will be about equal to the present passenger station in the city. This has turned public attention to the project, now discussed for many months, for the enlargement and improvement of Paragon station. For some time past the company have been buying large areas in Collier Street and the neighbourhood adjacent to the station. On these areas there stand many tenements, the great majority of which are in a dilapidated and tumble-down condition, and quite unfit for human habitation. The sanitary authority of the city are therefore equally as anxious as the travelling public for the improvement, for areas will be cleared which at the present time are a disgrace to any civilised community. In making arrangements for the building of a new engine-shed, the company are inspiring a general belief that the proposed works are but the immediate prelude to a scheme for a new station which, when completed, will be worthy of the size and rank of Hull, as one of the chief ports of Great Britain.

The foundation-stone of a parish church which is in course of erection at Newport (Mon.) was laid on the 30th ult. The new church of St. John the Baptist is for the parish of that name, which has just been formed. It is situated in the Risca Road, and will accommodate about 700 persons. The present contract, which has been taken by Mr. W. A. Linton, of Chepstow Road, Newport, is for the erection of the nave, north and south aisle, south porch, chancel, south chancel aisle, north chancel aisle as an organ chamber, a sacristy on the same floor as the church, and a large vestry, a store and heating chamber in the basement, with stairs leading up to the north chancel aisle. This will complete the church, with the exception of the west tower, which is contemplated, but the designs for this have not been elaborated yet. The style of work is of the Devon and Western Counties type of Late Gothic. The material is red Risca walling with Bath stone dressings. The floors for the most part are to be of wood block, but the chancel floor will be in mosaic. The roof will be covered with grey slate. The design is intended to be greatly enriched as regards the interior from time to time as funds will allow. It is hoped that the screen, the altar-pieces, the pulpit and chancel fittings will eventually be of elaborate woodwork, and that many of the windows may be filled with painted glass of the best description, a scheme having been proposed for the treatment of every window in the church, so that there may be a proper fitness in the whole conception and treatment. The designs are by Mr. F. R. Kempson, of Cardiff and Hereford.

In Glasgow Sheriff Court Frank M'Fadyen, mason's labourer, residing at 17 Brown Street, sued James Stevenson, brickbuilder, 3 Hamilton Road, Rutherglen, claiming compensation for injuries which he sustained on September 27. Plaintiff on that date was in the employment of Messrs. M'Kay & Gray, builders, when a brick partition wall on the fourth storey of a tenement in course of erection at Barrington Drive fell upon him. Defendant was the contractor for the brickwork of the tenement, and Sheriff Strachan, holding that he was responsible for the accident, awarded the plaintiff 25*l.* and expenses. The Sheriff said that such a wall would not have fallen if it had been built with ordinary skill or care. The work was executed by two young lads, one in the fifth and the other in the third year of his apprenticeship, without the superintendence of a foreman or skilled workman.

The memorial-stone of Queen's Cross Free Church, Glasgow, which is at present in course of erection in the mission district in connection with Free St. Matthew's Church, was laid on the 22nd ult. The church, which is situated at the

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corner of Garscube Road and Springbank Street, is being built from designs prepared by Messrs. Honeyman & Keppie, architects. The style is a free treatment of Late Gothic, and the work is of a substantial character. The principal feature of the building is a tower of robust proportions, placed at the corner of the two streets. This is flanked in the Garscube Road by the transept gable, and in Springbank Street by the window of the choir chamber, which is placed at a high level. The building will provide accommodation for 790 sitters, and a choir of 30 members. The interior is so arranged as to give an uninterrupted view of the pulpit, which is placed at one side. The passage from the main entrance from Garscube Road runs along a narrow aisle, from the inside piers of which the roof principals spring. There is a transept and back gallery, and behind and at the side of the pulpit are the organ chamber and seats for the choir. At the back of the church is a hall seated for 260 persons. The site of the church cost 1,880*l.*, and the estimated cost of the buildings is 6,300*l.*, which, with architects' fees, &c., will be increased to about 7,000*l.*, making an estimated total cost for site and buildings of about 8,900*l.* sterling.

TRADE NOTES.

WE are informed that the Yost typewriter has been awarded a gold medal at the Agricultural Show held at Pretoria, South Africa, in April last. This makes a total of eighteen gold medals awarded to this machine—quite a record in the typewriter business.

IN the ventilation of the Paisley Parish Council Halls (Mr. T. G. Abercrombie, architect), Cousland's "Improved Climax" continuous exhaust patent direct-acting ventilators have been used, supplied by the Climax Ventilating and Heating Company, 93 Hope Street, Glasgow.

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: FROM PALACE GROUNDS. RETRO-CHOIR.

THE NATIONAL PROVINCIAL BANK OF ENGLAND, PICCADILLY.

ELECTRIC NOTES.

AN important meeting of the Stockport electric-lighting committee was held last week. It was reported that the public supply for street lighting would be available at the beginning of November, and that tradesmen would also be supplied then under specially advantageous arrangements. The committee will also cater specially for the adoption of electric power in manufacturing processes. The inauguration of an electric tramway system is under consideration, and if carried out will be immensely popular.

SCHEMES for electric tramways between London and Oxford and London and Brighton are shortly to be submitted to the Light Railway Commissioners.

AT a recent meeting of the gas committee of Dundee Town Council, a report was submitted by the electrical engineer with regard to the proposed extension of the electric lighting area of the city. After consideration, the committee agreed to recommend the erection of twenty-seven lamps, at an estimated cost of 838*l.* 17*s.*, the running cost being 550*l.* per annum.

ON the representation of the resident engineer, the electric lighting committee of the Edinburgh Town Council have recommended an extension of the low-tension continuous current mains to Balcarres Street, the usual guarantee being given. The probable cost is 1,600*l.* It has also been agreed to recommend acceptance of an offer for new offices, stores and other buildings at the Corporation's electric lighting station in Dewar Place, amounting to somewhat over 6,000*l.*

THE electric light and traction committee of St. Helens, Lancashire, have decided to lay out the Boundary Road site so as to concentrate the whole of the plant both for lighting and traction purposes there. It has been further decided, in view of the possible lighting of Church Street, Bridge Street, Liverpool Road, Cropper's Hill, Westfield Street Cotham Street, Corporation Street, Duke Street and Shaw Street by means of arc lamps, that finials be put on every second or third trolley pole in those streets.

THE North Berwick Gas Commissioners had under consideration at their monthly meeting on Monday evening a report from Messrs. Burstall & Monkhouse, Westminster, in regard to the proposed introduction of the electric light into the town. The report showed that it would be unsuitable to put down the electric-lighting station at the present gasworks, and dealt with the extra capital and annual cost of placing it at the

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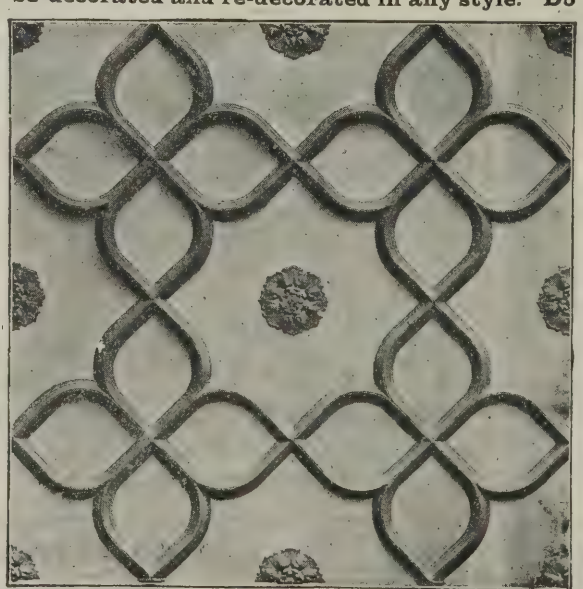
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site proposed for the new gasworks, and with other details of the scheme. The system proposed is the low-tension current one. The capital cost is estimated at 7,600*l.* It was resolved that the Board have an early special meeting to discuss the matter.

A SPECIAL meeting of Kirkcaldy Town Council was held on Tuesday night to consider the electric-light and tramway scheme for the burgh. A letter was read from the Edison Light Company, intimating their intention to apply for an order to put down electric-light plant for Kirkcaldy. The Provost explained that the question for them to decide was whether or not the Council should take up the scheme. He felt warranted in saying that the scheme as prepared by Professor Kennedy would pay, and he was in favour of the Council taking up the matter. The meeting agreed to remit the matter back to the joint committees to consider, and report to the September meeting.

FOR years the advisability of introducing electric light into Runcorn has been mentioned, but the District Council have taken no steps to obtain the necessary powers. Their hands have now been forced. The Electrical Power Distribution Company, London, have notified their intention to apply to the Board of Trade for a provisional order to supply electricity in the district. The Council, believing such power should be vested in the Council, have decided to make a similar application in opposition.

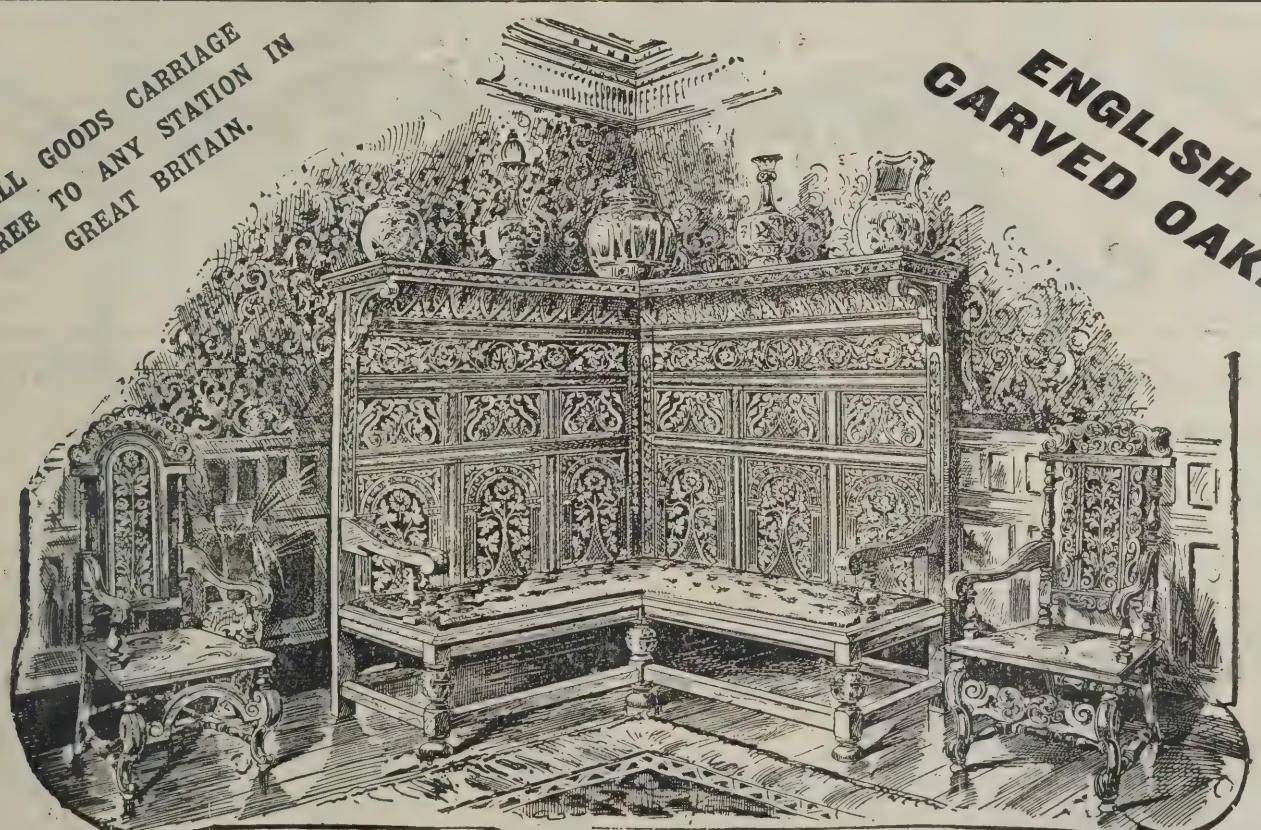
A SPECIAL meeting of the Tipton District Council was held on the 24th ult. to further consider the question of giving their consent to the application by the Midland Electric Corporation for Power Distribution, Limited, to the Board of Trade for a provisional order to supply electricity within the Tipton district; Mr. C. H. Burrows presided. Mr. Parrish (solicitor) submitted a draft agreement which would be entered into if the Council decided to withdraw their objection to the Bill. He pointed out that under the agreement the maximum price for the supply of electricity for lighting in bulk would be 3*d.* per Board of Trade unit, and the Council would have the option of appealing to an arbitrator twelve months after the passing of the Act to determine whether or not this was a fair price. The price was also subject to revision every seven years. Mr. Doughty said he was still of opinion that the price should not exceed 2*d.* per unit, and the question was whether they should resort to arbitration at the outset to determine the point. Mr. Lowe (solicitor to the Corporation) said the Company would supply the meters to individual consumers, and would accept the Council's reading of them for the basis of their charge. The chairman pointed out that the Council would be empowered to charge 6*d.* per unit for the first hour, and this would be the only means by which they would be able to make a profit, after meeting the expenses incidental to obtaining the readings of the meters, &c. After some further discussion, the Council decided to adopt the agreement, and withdraw their opposition to the Corporation's application.

INFORMATION has been received by the Leamington Corporation that the Board of Trade will not proceed this year with the electric-lighting order which the Corporation has been endeavouring to obtain. It is expected that an official communication on the subject will be received in a few days. In the meantime it is understood that the delay is owing to the unwillingness of the Board of Trade to deal with the Leamington order until certain points have been decided in two other orders which have already passed their second reading in the House of Commons, but have still to be dealt with in committee. It is stated that on the ultimate decision of the House on these points will depend the Board of Trade's action in regard to similar questions in the Leamington order. It will not, however, now be possible for the Corporation to take further active steps in the matter until next session. It is expected that then the Midland Electric-lighting Company, who are at present supplying electricity in the borough of Leamington under an agreement with the Corporation, will also seek to obtain a provisional order.

AT Morley, Yorks, on the 24th ult., the opening of the Corporation's newly completed electricity works was a function of considerable local interest, attended by all the leading residents. The generating works are situate in Corporation Street, between the new public baths and the Corporation depôt. The buildings, which were designed by the late borough surveyor (Mr. M. H. Sykes), are placed on the south side of the land reserved for the generating works, and are so arranged that a considerable area of land is reserved for future extensions. The total area of the site consists of 4,132 square yards. The engine-house is 40 feet wide by 38 feet long, with switch-room at one end. At a height of 20 feet an overhead travelling crane runs along steel rails the full length of the engine-house. The test-room is conveniently situated at the east side of the switch-room, the floors of which rooms are laid with wood block flooring. The accumulator-room, 40 feet by 12 feet 6 inches, is

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placed over the switch-room and test-room, and is approached by a staircase near the main entrance. The boiler-house is placed parallel with the engine-house on the west side thereof and is 68 feet long by 48 feet wide. Along the west side of the boiler-house are placed the coal bunkers, 10 feet wide, and the pump-room, 10 feet by 12 feet. At present there are two Lancashire boilers, 30 feet by 8 feet diameter, and accommodation is provided for other two of equal size. The offices are situated over the work and store-rooms, and are approached by two staircases, one being from the main entrance-hall and the other being a spiral staircase from the boiler-house to the chief engineer's private office.

VARIETIES.

A NEW Roman Catholic church at Oswaldtwistle, dedicated to St. Mary, is now open.

A NEW railway station has been erected at Felixstowe by the Great Eastern Railway Company at a total cost of about 33,000*l.*, and has now been opened for the purposes of public traffic. The building was designed by Mr. John Wilson, the company's chief engineer. It stands upon a conveniently central site, beside an extension of the Victoria Parade, which forms the principal business thoroughfare of this rising seaside resort, and the accommodation provided will doubtless be sufficient for a good many years to come. The "circulating area" beyond the booking offices is 92 feet long and 84 feet broad; the main platform is 785 feet long, 500 feet being roofed over with glass, and there is a second platform 650 feet in length.

THE greatly enlarged and renovated Roman Catholic parish church of Bray, Ireland, is now so far completed as to be ready for the opening service, which is to take place on Sunday next, and it is not too much to say that the new building is an acceptable addition to the architectural features of Bray. The dimensions of the new portion are, in length, 104 feet from back of wall of apse to the point of contact with the old portion (which latter measures 50 feet, making the entire length over 150 feet); width across the transepts, 90 feet, and across the nave, 45 feet; external height to cresting of roof, 72 feet, and that of the interior to centre of panelled ceiling, 54 feet. The depth of apse is 27 feet and its height 48 feet, while the baldachino over the high altar reaches an altitude of 32 feet. The style is Late Romanesque; the windows and arches are rounded, the carving of capitals, corbels and cornices tends rather to the ornate Gothic period and the heavier lines of the strict Romanesque are thus agreeably toned down considerably. The architect is Mr. W. H. Byrne. A new roof has been put on and a new ceiling inserted. The church is now very nearly finished in all its details, and by the day of the opening ceremony it is confidently expected that everything will be completed.

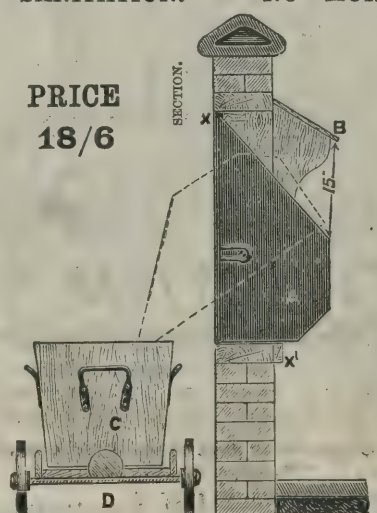
MUCH interest has been excited in Leicester by the discovery of two additional tesselated Roman pavements in one of the most ancient quarters of the borough. They were laid bare at a depth of about 8 feet. One measures 13 feet by 10 feet and the other 12 feet by 7, and both are in a remarkable state of preservation. They are of really beautiful design, and in this respect resemble others which had been previously discovered. In the larger portion there is the representation of a peacock with spread tail. It is known that the old Roman forum stood here, and it is accordingly believed that the pavements originally belonged to the Governor's residence or to the temple of Janus, which was situated in the same neighbourhood. The newly-discovered pavements will be preserved intact in the position in which they have been found.

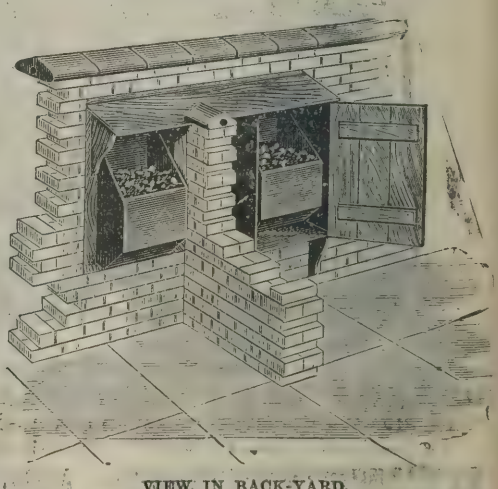
A NEW Baptist chapel was opened at Redditch on Wednesday. The building is of the Early Gothic style, of red brick with white stone dressings. It is 60 feet long, 36 feet 6 inches wide inside and 40 feet wide across the transepts, and seating accommodation is provided for 630 persons, with room for adding 130 sittings. There is an ornamental tower about 60 feet high. The plans for the church and schools—the latter, though detached, harmonising with the former—were prepared by Mr. John Wills, F.S.Sc., of London and Derby, and the work was done by Messrs. C. G. Huins & Sons of Redditch. The original estimate of the cost was 3,546*l.*, but 800*l.* has since been added.

ON Saturday last Lady Overtoun opened the new Bonhill Bridge, which replaces the old suspension bridge on the same site, the dangerous position of which led to the design of the structure now completed. The new bridge has one span of 169 feet, with a width of 35 feet, divided into a roadway of 21 feet, with a footway on either side of 7 feet. The type selected, viz. a girder bridge, was necessitated by the existence of a towing path which could not be interfered with, and which precluded the possibility of employing an arched structure. The bridge is of the bowstring girder type, and has a curved upper member connected to the lower member by a series of diagonal bracing; and to augment the headway as much as possible the bottoms boom, instead of being truly horizontal,

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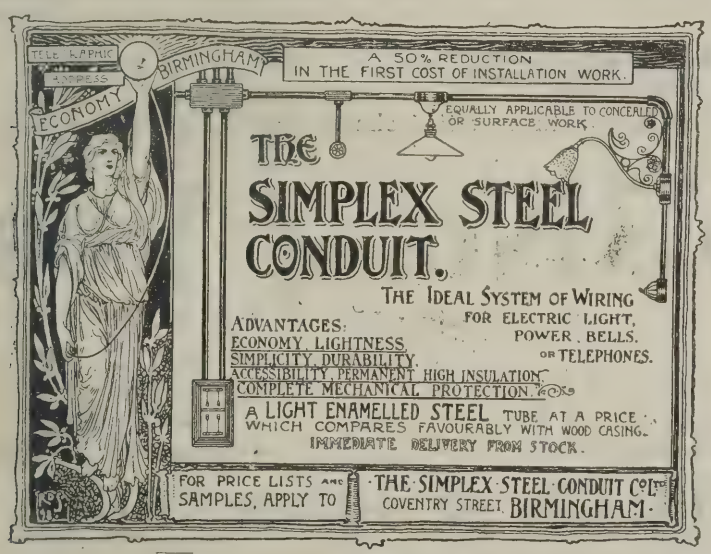

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was given a "camber" or arch of 3 feet. A light lattice screen girder fastened to the main girders on either side, and surmounted by a teak cope, forms the parapet. The abutments are of red sandstone, with granite blocks under the ends of the girders, and massive pilasters, with ornamental mouldings and corbels, are erected at each end of the structure. The bridge, which has cost about 7,000*l.*, was designed by Messrs. Crouch & Hogg, Glasgow.

THE plain old Wesleyan chapel in Oxford Place, Leeds, is being greatly modernised and improved, and the Sunday schools in connection therewith have been rebuilt. The latter, which are from the designs of Messrs. Danby & Thorp, Leeds, are now furnished and were opened on the 29th ult. In the new building there are two main floors. The ground floor, on the same level as the chapel, and having direct communication with it by means of a well-lighted corridor 6 feet wide, includes a large lecture-hall with sitting accommodation for 240 infants, five classrooms and a caretaker's living-room, whilst there are also separate entrances for boys, girls and infants. The upper floor is approached by two well-lighted stone staircases. On this floor is the schoolroom (64 feet by 34 feet), which has an open timber roof 26 feet high, and is a most cheerful apartment. Ten classrooms have access to the schoolroom. One of them, 25 feet by 21 feet in extent, is separated from it by a patent folding partition. When the two rooms are thrown into one it will be possible to seat 660 persons. The upper floor has communication with the gallery of the chapel. In the basement is a kitchen, storerooms, heating apparatus and other conveniences.

A HANDSOME clock-tower has been erected at Ripon, and was inaugurated on the 28th ult. with considerable ceremony. The Victoria Clock Tower (the name by which it is to be known) is Ripon's memorial of the Jubilee, and rises at the junction of the Palace and North Roads. The structure is 10 feet square and rises to a height of 43 feet, culminating in a Crown Imperial in copper. The finishing of the tower is rather uncommon. On the angles are four octagonal buttresses, which rise above the parapet in pinnacles, with carved finials and crockets. From these spring four flying arches or buttresses, and from four smaller pinnacles, corbelled out over the dials, spring four others. These eight unite in a keystone or carved boss, which carries the stone terminal on which he Crown Imperial rests. Of this manner of finishing a tower there are few examples. The principal ones are those of St. Giles's Church, Edinburgh (eight ribs); King's College, Aberdeen (four ribs); the Tron steeple in Glasgow and one at Newcastle. Formerly there was one at Linlithgow and one at Haddington. There are four dials enclosed within circular moulding within squares, the spandrels carved. On the stage below that of the clock the statue of the Queen occupies a canopied niche on the side fronting the city. Her Majesty is represented in a sitting position, the statue, as well as the rest of the carving, having been executed by Mr. Milburn of York.

A NEW pupil teachers' college has been erected in Clarence Street, Liverpool, and was formally inaugurated on the 30th ult. The new building, which has been designed to supersede the old premises in Shaw Street, which have hitherto had to do duty, although they had become sadly inadequate, have been erected at a cost of upwards of 17,000*l.* It has a frontage to Clarence Street and Pleasant Street, with an entrance for female students from each of these streets. The male students' entrance is from Green Lane. The main elevations are executed in buff terra-cotta and pink brick of specially selected tints. The style of architecture adopted may be described as a free treatment of English Renaissance, dominated largely by the requirements of modern education. Adjoining the college in Clarence Street is the principal's residence, now in course of erection. The classroom accommodation provided is for 569 students on the ground and first floors. The lowest floor is a half-basement, containing a tea-room 58 feet by 24 feet, a recreation-hall, accommodation for cloaks, lavatories, &c., store-room, heating apparatus, &c. There are separate entrances and staircases for female and male students, giving free exits and entrances. One of the female students' entrances is from Pleasant Street and communicates both with the basement and ground-floor. Another entrance will be from Clarence Street incorporated with the principal's house, which contains cooking arrangements in the basement in connection with the tea-room. One staircase is provided for the female pupil teachers, connecting the whole of the four floors, and another staircase from Green Lane, a side street, is provided for the male pupil teachers, also connecting the four floors, and giving access to their lavatories and cloak-rooms. The classrooms accommodate from thirty-five to sixty students each, and two pairs of fifty can be thrown together by sliding glass partitions. The science department, which occupies the top or second-floor, contains a chemical laboratory, 60 feet by 23 feet, giving accommodation for forty-eight students, with storage and preparation-room, balance-room and science teacher's room in connection



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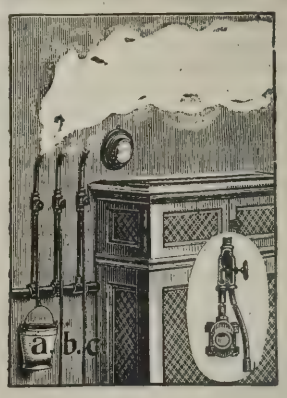
therewith. There is also a lecture and examination-room, 51 feet by 25 feet, divisible by a roller screen. The art class-room is 37 feet by 23 feet. Two of the classrooms are fitted with tables for science demonstrations, and one of them is, in addition, provided with light-proof shutters to all the windows to admit of the room being darkened for optical experiments, &c. An office for the principal commands the entrance for the female students from Pleasant Street. Special attention has been paid to lighting, heating and ventilation. The artificial lighting is by electric incandescent lamps suspended in clusters of three. The rooms are heated by hot-water pipes, and the corridors by means of radiators on the low-pressure system. Open fireplaces are also provided. A natural system of ventilation has been adopted, fresh air being admitted at the meeting rails of the windows, with other forms of inlet where required. Extraction is obtained by means of large air flues and roof extractors. The buildings have been designed and erected under the supervision of Messrs. T. Mellard Reade & Son, architects, 2 South John Street, Liverpool.

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It is well known that the presence of a certain proportion of moisture (aqueous vapour) is necessary not only in order to render the air agreeable for breathing purposes, but especially for industrial purposes, and, as a general rule, it is to be noted that the warmer the air the higher should be the percentage of moisture. From this it naturally follows that in the case of enclosed spaces, in which a number of persons are continually breathing, the percentage of moisture requires to be increased by artificial means, as otherwise the heated air gradually becomes drier, and consequently heavier and more unpleasant to breathe. To keep the atmosphere in confined spaces sufficiently humid, according to the varying conditions of temperature and requirements, is the principal object of the



"Humidifier," and it is, as shown in illustration, an exceedingly simple contrivance, which can be easily fixed. As it has no delicate parts, it cannot get out of order, and it is remarkably inexpensive.

DEPTFORD FUND HOUSE.

THE Prince of Wales, who was accompanied by the Princess, visited Deptford on the 2nd inst. for the purpose of laying the foundation-stone of the Deptford Fund House. The fund, which is doing excellent work, has undertaken a vast field of labour, including the establishment of a sick kitchen for the issue of dinners to the convalescent poor; rescue and preventive work, a requirement of the greatest urgency and importance; a social club for the girls employed in the cattle market and elsewhere; the issue, on a large scale, of hospital and convalescent letters, &c.; the distribution of clothing and blankets, and of careful assistance of all sorts; recreative work, educational classes, and a variety of carefully organised branches, aiming to hold out the helping hand with care and discrimination; not pauperising or interfering with existing work, but helping and encouraging those uphill efforts which

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are being made by the hard-worked clergy and helpers in the district.

The general idea of the new buildings which are to be the future home of the Fund is that of two large blocks; one facing the old road, consisting of a building of two storeys above the ground floor, containing accommodation devoted entirely to the charitable and philanthropic portion of the work, including club-rooms for girls and bath-rooms; and a higher building, with loftier rooms, for educational work and class-rooms, with club-rooms for men and boys and dormitories for girls, facing the new road.

These two blocks, which form two sides of a triangle, will eventually be joined by the large hall, &c, which forms the second part of the scheme and the base of the triangle. The centre of the triangle will be occupied by the staircase, lavatories, &c., and an area for light and ventilation. The staircase is ingeniously planned; it is, in fact, a double one, and is so managed that there is a staircase for men only, leading to the men's rooms, lavatories, &c., and another one for women only, leading to their parts of the buildings, an arrangement which has been carried out with success in many of the London School Board buildings.

In the basement there is on the old road side the sick kitchen, 28 feet by 16 feet, with larder, store-room, scullery, &c., and on the new road side a club-room for men, measuring 33 feet by 22 feet, boiler-rooms, coal stores and offices.

On the ground floor is the entrance hall from the new road, a porter's lodge, cloak-room, &c.; on the Creek Road side is the sick kitchen entrance, waiting-room and serving-room, with a lift communicating with the kitchen.

The first floor on the Creek Road side is entirely occupied by a club-room for girls, 40 feet by 22 feet, while on the new road side is the cooking classroom, 21 feet by 25 feet, exclusive of the scullery, store-room and larder. On this floor are also the secretary's and teachers' rooms.

The second floor is taken up on the Creek Road side by bathrooms for men and for women, while on the new road side the sewing classroom comes over the cooking classroom; and there is also a men's recreation-room.

The third floor brings us to the roof of the Creek Road block, which is an asphalte flat and capable of being fenced in and used as a recreation ground. On the other side we find a large laundry classroom over the sewing classroom, and a reading-room for men over their recreation-room.

The fourth floor of the block of buildings on the side of the new road consists of a range of capital dormitories for girls, with ample lavatory accommodation; and over the staircase are the rooms reserved for the caretaker.

Thus every care has been taken by the architect, Mr. Chas. H. M. Mileham, to secure the maximum of internal accommodation, while the elevations are quite simple and without any architectural pretension.

A SANITARY PAVEMENT.

THE pavement manufactured by the Cork Pavement Company, and the advantages of which were demonstrated to a somewhat numerous company on Monday last, although long past the experimental stage, is not so well known as from its merits it deserves to be. It has been laid for several years in certain positions the nature of which obviously renders the test of its qualities a severe one, and its behaviour has been such as to prove that it is durable, practically noiseless, non-slippery, non-absorbent and therefore sanitary. The ingredients of which the blocks (similar in size and form to those with which we are familiar in the hardwood now in such general use) are composed are granulated cork, bitumen, &c., subjected to a pressure of 600 lbs. to the inch, from which it emerges a homogeneous and hard, but at the same time elastic mass. It is claimed for this pavement that it affords an ideal foothold for horses and that its general adoption would greatly reduce the number, if indeed it did not entirely obviate the occurrence, of accidents through horses slipping, which are in certain circumstances—as after a shower, for instance—inevitable with any of the pavings at present in use. Whether dry, wet, or only damp it affords the same grip, and never requires the sprinkling of sand on it to supply its own deficiencies in this respect. As regards price it comes out about the same as some of the other pavements in use, but its greater durability renders it cheaper in the end. As we have mentioned above, the paving has been already subjected to practical tests, a notable one being the incline into the Great Eastern station at Liverpool Street. The gradient is one in sixteen, and the traffic is of the heaviest. The result of its behaviour during the six years it has been down is that the Great Eastern Railway Company have expressed their satisfaction in the most desirable manner by having other portions of their

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property paved with it as opportunities have arisen. It was also laid down in Princes Street station, Edinburgh, in 1892, and in 1898 the Caledonian Railway Company gave the following testimonial:—"We have pleasure in stating that we have lately examined your cork pavement laid in the cab-stands and cab entrance at Princes Street station about five years ago, and find that, although there is a heavy traffic, the pavement is still in excellent condition. The quantity laid by us was 1,800 yards. We would also recommend it for its noiseless and non-slippery character. We shall be very pleased, and will have every confidence, in recommending it to anyone making inquiries." The Chelsea Vestry have used it with satisfactory results. Strutton Ground was paved with it by the Westminster Vestry, who now contemplate putting it down in Orchard Street; and the London County Council, the Bermondsey and Paddington Vestries, Messrs. Tattersall and the North British Railway Company have also used and expressed satisfaction with it. Among private users who have had it laid in courtyards, stables, kennels, &c., may be mentioned the Duke of Westminster, the Duke of Bedford, Viscount Curzon, the Earl of Gosford, Mr. Panmure Gordon, &c.

ELECTRIC LIGHTING AT BALMORAL CASTLE.

THE arrangements for lighting Balmoral Castle by electricity are now being carried into effect, and during Her Majesty's recent stay there considerable progress was made with the estate work in connection therewith. Half a mile of iron pipes of large diameter has been laid for bringing the water from the upper portion of the Gelderburn to the site of the turbine house which is situated near the old sawmill, about a mile and a quarter from the castle. In some places ways 12 feet deep had to be blasted through the rock for laying the pipes. Provision is being made for two Gilkes vortex turbines, which, with a fall of nearly 80 feet, will give 80 horse-power combined. This power will be utilised in driving the dynamos for charging a large battery of accumulators at the castle, and also for lighting the lamps direct. The current will be transmitted by large cables laid underground all the way. The electric light will at first be limited to the Queen's private apartments, the ball-room and a few of the principal rooms in the castle, and the installation is expected to be in working order by the time Her Majesty returns to the North next month. Eventually more than 600 lights will be installed in the castle alone, but if electric lighting is extended to the stables and outbuildings about 1,000 lights will be required. The whole of the work, with the exception of fixing the turbines, is being carried out by the Commissioners' staff at Balmoral, assisted by some of the household electricians.

TESTS OF TIMBER.

THE recent issue of Circular No. 18 by the Division of Forestry of the United States Department of Agriculture again brings to attention the valuable work being done by that Division in the field of timber physics. The expression "timber physics," says the *Engineering Record*, is used because that is precisely the term which should be employed, and because, further, the tests of timber by the Division of Forestry do not represent results which would be found by the testing of timber ordinarily used, even in the best of structural engineering. It is probable that few people have been more interested in the timber testing of the Division of Forestry than civil engineers, and it is certain that no others have so earnestly advocated the support and continuance of the work. At the same time, it is unfortunately the case that civil engineers cannot accept the results of the Forestry tests as directly applicable to their regular practice in connection with timber structures.

This matter has come to be a most serious one, and it is full time that the real significance of the timber tests which have been conducted under Mr. Fernow's general direction should be accurately understood. In spite of his positive statements as to what engineers may take for their practical operations, as determined by his tests, his conclusions, so far as they affect engineering practice, are quite erroneous. These observations are made with a full and clear understanding as to their importance, and for the reason that certain conclusions expressed without qualification in Circular No. 18, as well as in some previous circulars, are not only untenable, but may be dangerous.

On the first page of Circular No. 18 Mr. Fernow states that "one of the questions which has disturbed the minds of men engaged in practical construction work has been whether and how far data obtained on small laboratory pieces are applicable to construction members of the size used in practice."

Every reputable engineer knows that such questions do not at the present time disturb the mind of any professional man;

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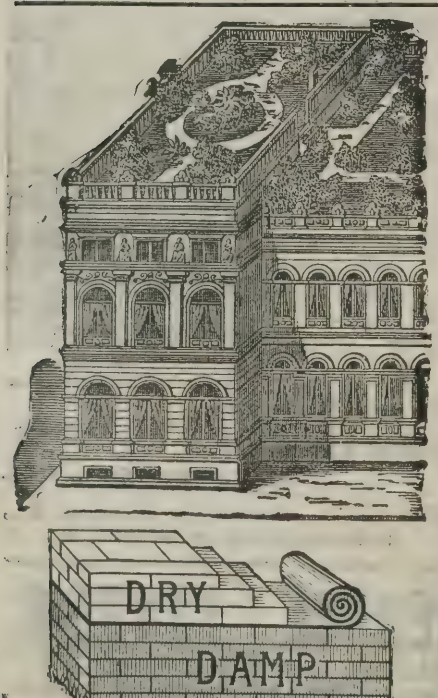
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he knows perfectly well that the ultimate resistance of full-size members can only safely be determined by testing those full-size members, and not by testing a small specimen, whether the material be timber, steel or anything else. That question might have been an open one twenty-five years ago, but it has long since been answered, and that answer is sufficiently attested by the expense to which engineers have put themselves and their clients in testing such full-size members as eyebars, columns and girders, to say nothing of actual structures. Apparently Mr. Fernow, and possibly those who are working with him, are unaware of these concepts of the best engineering practice of the present day.

The testing of the timber specimens and such full-size pieces as have been employed by the Division of Forestry has been conducted mostly by Professor J. B. Johnson, and latterly to some extent by Mr. S. T. Neely, and they cannot be given too much praise for the carefulness and thoroughness with which they have conducted their operations. They have contributed to the subject of timber physics an amount of experimental knowledge which is of untold value, and it is the last thing the *Engineering Record* wishes to do to detract in the slightest degree from the merit of their work; but it is necessary to point out precisely what they have done as well as what they have not done.

Both the test specimens and the full-size pieces which they have tested have not in a single instance been selected either from a lumber yard or from the timber which has been cut for market purposes; whereas it is from those sources, and those only, that the engineer must select his material. The sticks for the Forestry tests have been selected by able Forestry experts, and their very efforts to find such as they consider fairly representative of the timber which they are to test prevent them from securing such material as the engineer is constantly liable to use. In other words, their regular sticks correspond to the very best pieces which the engineer ever secures, and thus do not represent the average run of his timber. The lumber companies cut everything which they think they can market, and they manage to market practically everything they cut. The Forestry experts have usually selected the butt sticks of the very best trees that the lumberman ever secures, and their test specimens are usually clear heart material. All the small specimens, numbering thousands, which the Forestry Division has tested are, besides, fairly if not entirely free from knots. With such special grades of material it is not a matter of surprise that Mr. Fernow should find the unit resistance of small sticks so nearly equal to that of the large ones as to induce him to ignore the difference.

On page 10 of Circular No. 18 he concludes :—"Average values derived from a large series of tests on small but representative material may be used in practice with perfect safety, and these averages are not likely to be modified by tests on large material."

That conclusion is contradicted by the experience of every engineer who has had practice with full-size pieces, such as are used in structural engineering. Furthermore, the same conclusion is contradicted by the full-size column tests made at the Watertown Arsenal and by Professor Lanza. The Forestry tests are probably correct for the special quality of timber which they have employed, but the error arises from the fact that they have not used the quality of timber which an engineer must introduce into his structures. The tests at the Watertown Arsenal in a number of instances have showed that the unit resistances of small pieces of considerable size were only about half of those found by testing full-size members from which the small pieces were cut, and those instances can scarcely be considered extreme. This matter is one which needs to be set forth in its true relation to such timber members as are regularly used in the civil engineer's practice. In such cases it is absolutely essential, as it is in metal members, to test not only full-size pieces, but full-size pieces of the same quality and character as those actually put into structures.

SPITALFIELDS MARKET.

AT an early meeting of the London County Council a proposal will be made by the public control committee that powers should be sought in the next Session of Parliament for the acquisition by the Council, either by agreement or compulsory, of the freehold and other interests in Spitalfields Market. In a report upon the matter the committee state that the freeholders and owners of the market are the Goldsmid Trustees, who, in 1882, leased it to a Mr. Horner for eighty-four years at a rental of 5,000*l.* per annum. The area of the market was now about 2¾ acres, and the interior, to the extent of about 1½ acre, was covered by a large glass and iron roof. Under Mr. Horner's management the revenues from the market had increased year by year; in 1887 they were 11,338*l.*, and in 1897 19,353*l.* Mr. Horner had spent about 80,000*l.* in recon-



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structing the market; but notwithstanding this the market area was altogether inadequate for the business carried on. Consequent upon this there had been an overflow into the surrounding streets to such an extent that it had created a serious public nuisance by interfering with the traffic, especially in Commercial Street. Various improvements in the traffic arrangements had, at the suggestion of the committee, been gradually carried out, but they now believed that little further in that direction could be done until the market was acquired by the Council and its area enlarged. The committee are of opinion that the acquisition of the market will not involve any cost to the ratepayers, as the income would probably not only be sufficient to defray the cost of acquisition, but would ultimately prove a profitable investment.

THE VESTRIES AND ELECTRIC LIGHTING.

THE Chairman of the House-to-House Electric-Light Supply writes:—

From the statement of policy recently announced by Mr. Ritchie in the House of Commons, it appears that the Board of Trade considers that section 1 of the Electric-Lighting Act of 1888 imposes on the Department the duty of granting competing provisional orders (preferably to local authorities) unless strong reason can be shown to the contrary; and, further, that the efficient exercise of its powers by an existing company is no reason why it should enjoy undisturbed occupation of its area.

For the justification of this opinion the Board of Trade relies partly upon the language of the Act and partly upon the report of Major Marindin in 1889.

With regard to the language of the Act the wording of the section is as follows:—

"The grant of authority to any undertakers to supply electricity within any area, whether granted by license or by means of a provisional order, shall not in any way hinder or restrict the granting of a license or provisional order to the local authority or to any other company or person within the same area."

These words were introduced as an amendment to the Bill by Sir George Campbell (Hansard, vol. 326, third series, p. 873), and the argument employed in recommending them was, that inasmuch as it was the admitted intention of Parliament that the Electric-Lighting Acts should not confer a monopoly, such words were either surplusage, and therefore unobjectionable, or were wanting, and therefore necessary.

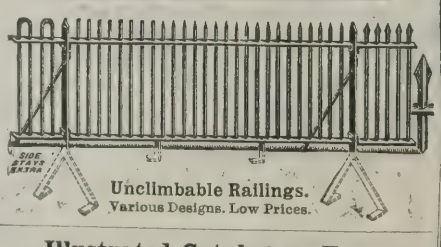
Sir George Campbell was followed by Sir Michael Hicks-Beach, at that time President of the Board of Trade, who deprecated the amendment on the ground that the Bill had been rendered necessary in order to give greater encouragement to capital than was afforded by previous legislation, and that the words might be very mischievous by defeating the object in view. Sir Michael Hicks-Beach was followed by the late Mr. Mundella, the President of the Board of Trade, who endorsed this opinion and said that the words in question might be held to promote "indiscriminate competition" to which the best opinion was opposed, adding also that Mr. Chamberlain and Lord Herschell supported this view. The debate was then adjourned, and on June 11 the amendment was agreed to without further discussion.

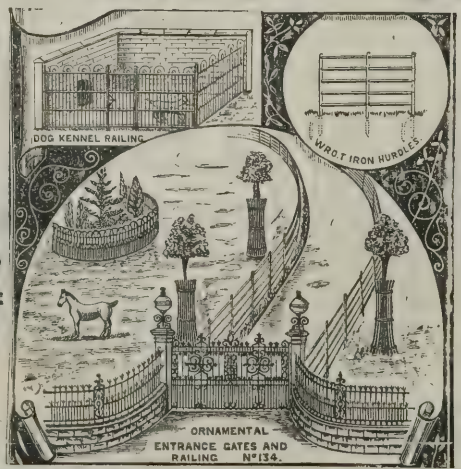
Now surely, these proceedings, though somewhat inconsequential, meant that Parliament intended to convey, on the one hand, an announcement to the consumer that he should be protected against the inefficient exercise of powers by the investor; and, on the other hand, an announcement to the investor that he should be protected against injurious competition so long as he discharged his responsibilities to the consumer.

How, then, can it be contended that section 1 of the Act of 1888 imposes on the Board of Trade the duty of granting a competing order unless strong reason can be shown why it should be refused? Is it not clear, on the contrary, that, whilst Parliament intended to deny that a provisional order conferred an absolute monopoly (as might perhaps have been contended in the absence of the clause), the last thing Parliament intended to deny was that a provisional order conferred a conditional monopoly so long as the powers vested were efficiently exercised, and therefore that the language of the Act imposes on the Board of Trade the duty of refusing a competing order unless strong reason can be shown why it should be granted?

Investors, of course, knew perfectly well that if they failed in the efficient exercise of their powers they would have to make room for others better qualified than themselves, and in this sense, but in no other, it may be said that a company applying for a provisional order came with its eyes open to the possibility of competition. But investors assuredly believed that, provided they discharged their statutory obligations, the traditional practice of Parliament would secure them from disturbance, and if they had thought that after risking their

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money they would have been deprived of the fruit of their enterprise in the event of success, the Act of 1888 would certainly have proved as ineffectual as the Act of 1882 in inducing the requisite investment of capital, as Sir Michael Hicks-Beach and the late Mr. Mundella said at the time.

With regard to the report of Major Marindin, the Board of Trade relies upon the fact that in 1889 they were advised that a second order might be granted under certain conditions in the same area.

Now, it is no disparagement of Major Marindin's report to say that its recommendations are not good for all time, and, assuredly, the conditions in regard to electric lighting which prevailed in 1889 bear no resemblance whatever to those which prevail to-day. In 1889 the metropolitan areas were not occupied, and the methods of producing and distributing electricity were still in the experimental stage; no one could tell whether the important areas into which London is divided ever would be occupied by the then occupants, or, if they ever were, whether the continuous system or the alternating system or either or both of them could be depended upon for a sufficient supply. What more reasonable, in such circumstances, than that concurrent powers by different methods of supply should be granted in the same area? But it is not because a policy based upon such recommendation in the past has worked with advantage to the consumer and without prejudice to the investor that it can be pursued with equal advantage to-day, when most of the areas are fully occupied and when experience has proved that both systems in use may be depended upon for both cheapness and quality. What magic can there be in the grant of two orders in every area? Two orders may be too few in one area and too many in another, or they may be too few in one area at one time and too many in the same area at another time. The desirability of two orders, in short, is wholly a question of circumstances, and of circumstances which have almost if not entirely passed away. The present companies, who have struggled bravely with the initial difficulties of the industry, and who have so far returned most inadequate dividends to their shareholders, do not set up any claim to monopoly, but they protest against the indiscriminate competition which the Board of Trade is disposed to promote in the supposed interest of the consumer, but really at the instance of certain companies who, in view of the profits now apparent, are seeking to invade the areas of others, and of certain local authorities who are impelled in the circumstances to try to forestall them.

THE DEANSGATE GOODS DEPOT.

ON the 1st inst. a part of the great depôt of the Great Northern Railway Company in Deansgate, Manchester, was opened for traffic. Hitherto the goods traffic of the company for the Manchester district was entrusted to the Manchester, Sheffield and Lincolnshire Railway Company, but owing to differences between the two on account of the extension to London, the Great Northern Company decided to become entirely independent, and an Act was obtained authorising the erection of a goods depôt in Manchester on a site which is bounded by Deansgate, Great Bridgewater Street, Peter Street and Watson Street. The works are said to have already cost about a million, and were carried out from plans prepared by Mr. W. T. Foxlee. In laying out the site, it was arranged to use the frontage to Deansgate for several shops, and offices for the staff are in course of construction in Peter Street. The depôt is on two levels. The connection of the new works with the Cheshire Lines is, says the *Manchester Guardian*, made by a double junction, which has been laid in at the east end of the Cornbrook viaduct, about half a mile from the Central Station. Three lines of way are carried upon a viaduct as far as Bridgewater Street, where they diverge into twelve other sets of rails, ten of which are continued over the streets into the warehouse, situated at the northern end of the large area of land which has been acquired by the company. The remaining two lines are carried down by inclines, one on each side of the site, to the street level, where access is obtained to a commodious goods yard, a large area of which is covered by the viaduct carrying the rails into the warehouse. These inclines are constructed for the most part of steel girders resting upon brick piers and terminating with brick arches and retaining walls. The approach viaduct, of rather more than a quarter of a mile in length, consists of brick arches with steel girder bridges at the street crossings; where it is carried over the lower yard it is constructed entirely of steel, supported by built-up stanchions of the same material, the flooring consisting of jack arches, covered with concrete and rendered waterproof by means of asphalte. The warehouse, which is of fireproof construction throughout, is 267 feet long and 217 feet wide, and when complete will rise to a height of about 75 feet above street level. The lower floor, which is at street level, contains lines of rails running alongside platforms, with ample roadways for carts and lurries; the upper floor, the approach to which from the railway has been described, is also

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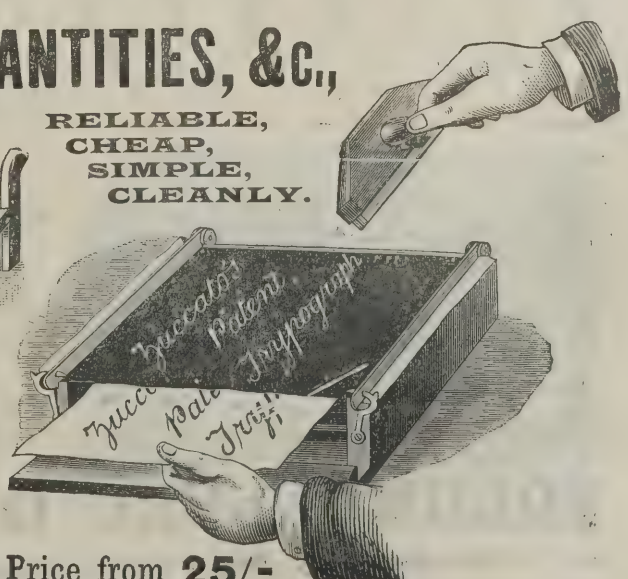
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occupied by rails and platforms, with ample carting space, connected by an inclined road with Watson Street. The lower yard, situated at street level, will have four entrances, conveniently situated at the corner of Deansgate and Peter Street, Great Bridgewater Street and Watson Street. Ample siding accommodation will be provided for dealing with every class of traffic, the roadways being paved throughout either with granite setts or Australian hardwood blocks. Cranes, capstans, &c., are provided for dealing with the traffic in the most expeditious manner. It will thus be seen that there are practically two goods stations, one over the other. Above the upper set of rails in the warehouse there are three floors for the storage of merchandise, grain, &c., extending over the full area of the building.

The building is erected in a most substantial manner, the lower portion consisting of blue brickwork in cement, and the upper portion of hard local bricks relieved by blue-brick bands. The floors, which consist of steel girders with jack arches between, are covered with concrete and supported by built-up steel stanchions, these resting upon massive granite blocks supported upon blue brickwork in cement. The whole of the foundations are carried down to the solid red sandstone. Ample communication has been provided between the various floors by means of hydraulic hoists, jiggers, &c., working through numerous hatchways; hydraulic cranes are also fitted on all the platforms for the purpose of conveying goods from the waggons to the carts and *vice versâ*. The power for this work is obtained from the Corporation mains. The building throughout, as well as the adjacent yards, are lighted by electricity, also supplied by the Corporation.

Under the central portion of the site there exists in tunnel, between 35 feet and 40 feet below the surface, a disused branch of the Bridgewater Canal, and it has been arranged in connection with this waterway to construct a commodious basin dealing with canal traffic, which will be connected to the warehouse by means of hydraulic lifts. This new goods warehouse will then be the only railway warehouse in Manchester having direct communication with the Ship Canal. The company have also under consideration the desirability of constructing a vegetable warehouse providing special facilities for dealing with a large trade in potatoes, roots and vegetables. A handsome block of offices to accommodate the staff of the goods department is in course of construction at the part of the site that abuts upon Peter Street, and under an arrangement with the Corporation the company are constructing a range of shops extending for a distance of 600 feet or 700 feet in Deansgate, between Peter Street and Great Bridgewater Street. Something will also be done at this point in the way of widening Deansgate, which thoroughfare may in the end be improved rather than have its appearance injured by the construction of the depôt.

The main contract for the works which have thus been described is being carried out by Messrs. Robert Neill & Sons, of Manchester, the steelwork being supplied by Messrs. Heenan & Froude, of Newton Heath, Sir William Arrol & Co., of Glasgow, and Messrs. Keay, of Birmingham. The hydraulic machinery has been chiefly supplied by Sir William Armstrong, Whitworth & Co., and a portion has also been supplied by Messrs. Musker and Messrs. Higginbottom & Mannock.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

APPLICATIONS FOR PATENTS.

13649. Edwin James Masters and George Henley Couves, for "An appliance to stand on to clean or paint windows externally."

13746. William Beak, jun., for "Improvements in and relating to brick-kilns."

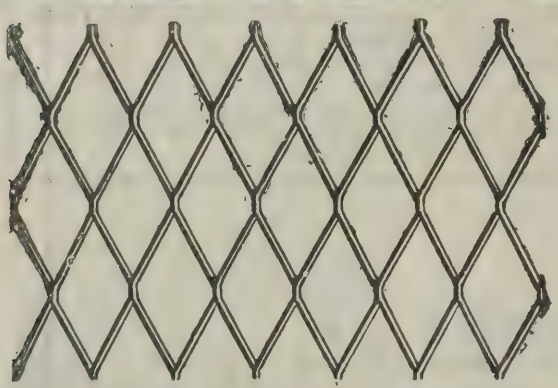
13928. Ralph Collenette, for "Improvements in brick presses."

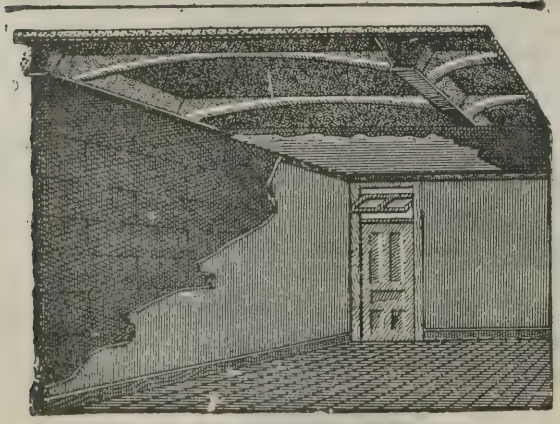
14011. William Appleton, for "Improvements in dies for brick-making machines."

14993. Martin, for "Brick-making machine."

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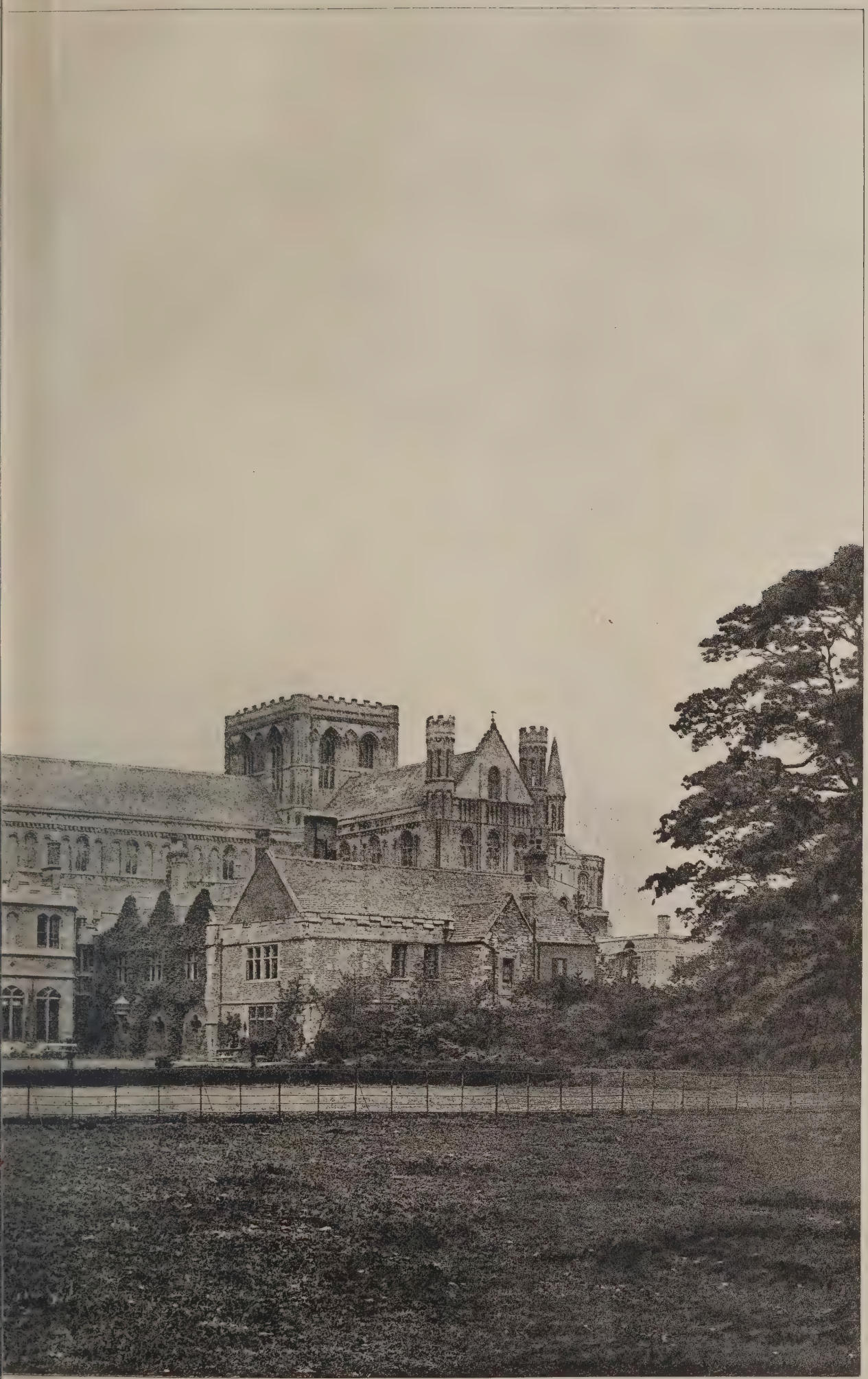
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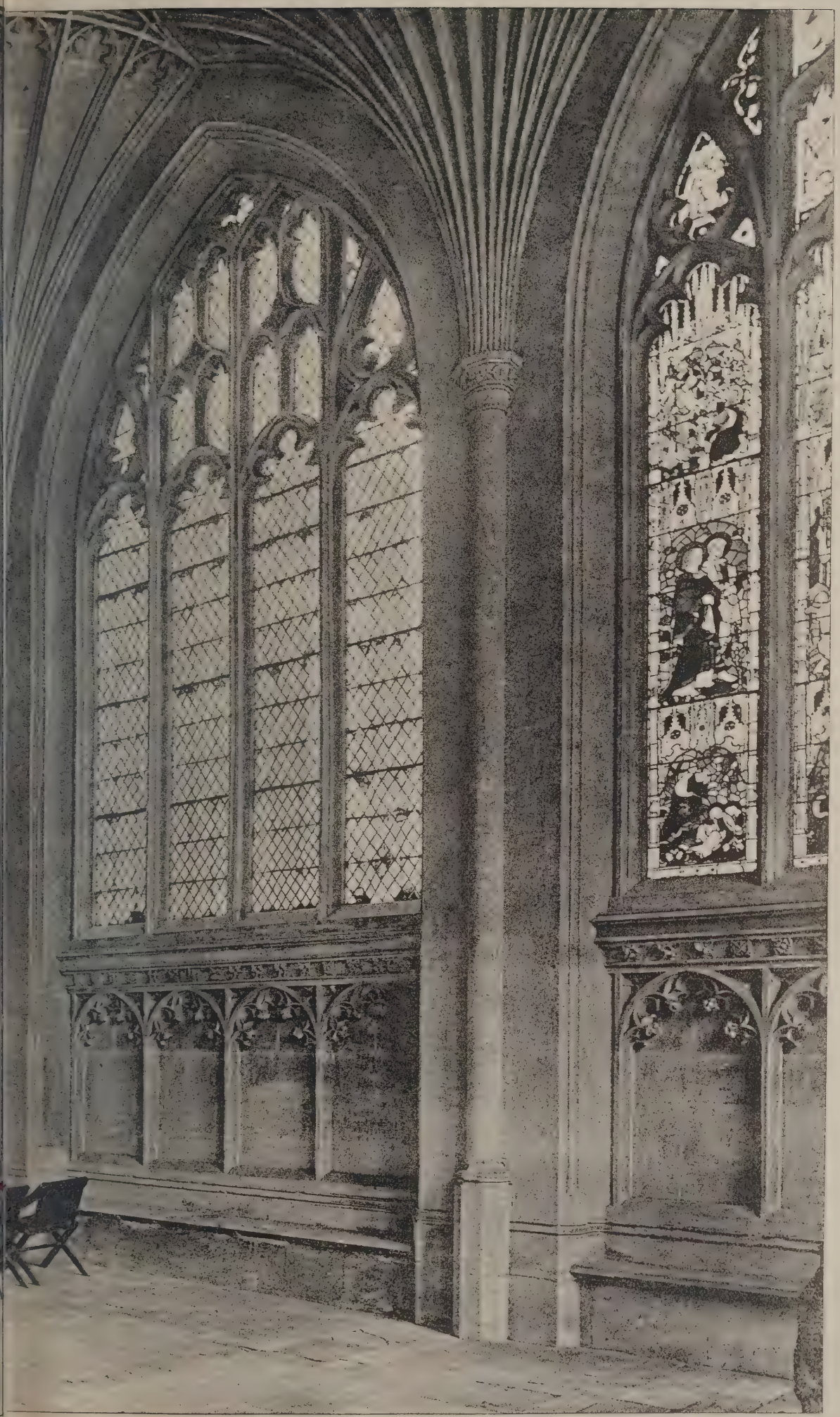


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BOROUGH: FROM PALACE GROUNDS.

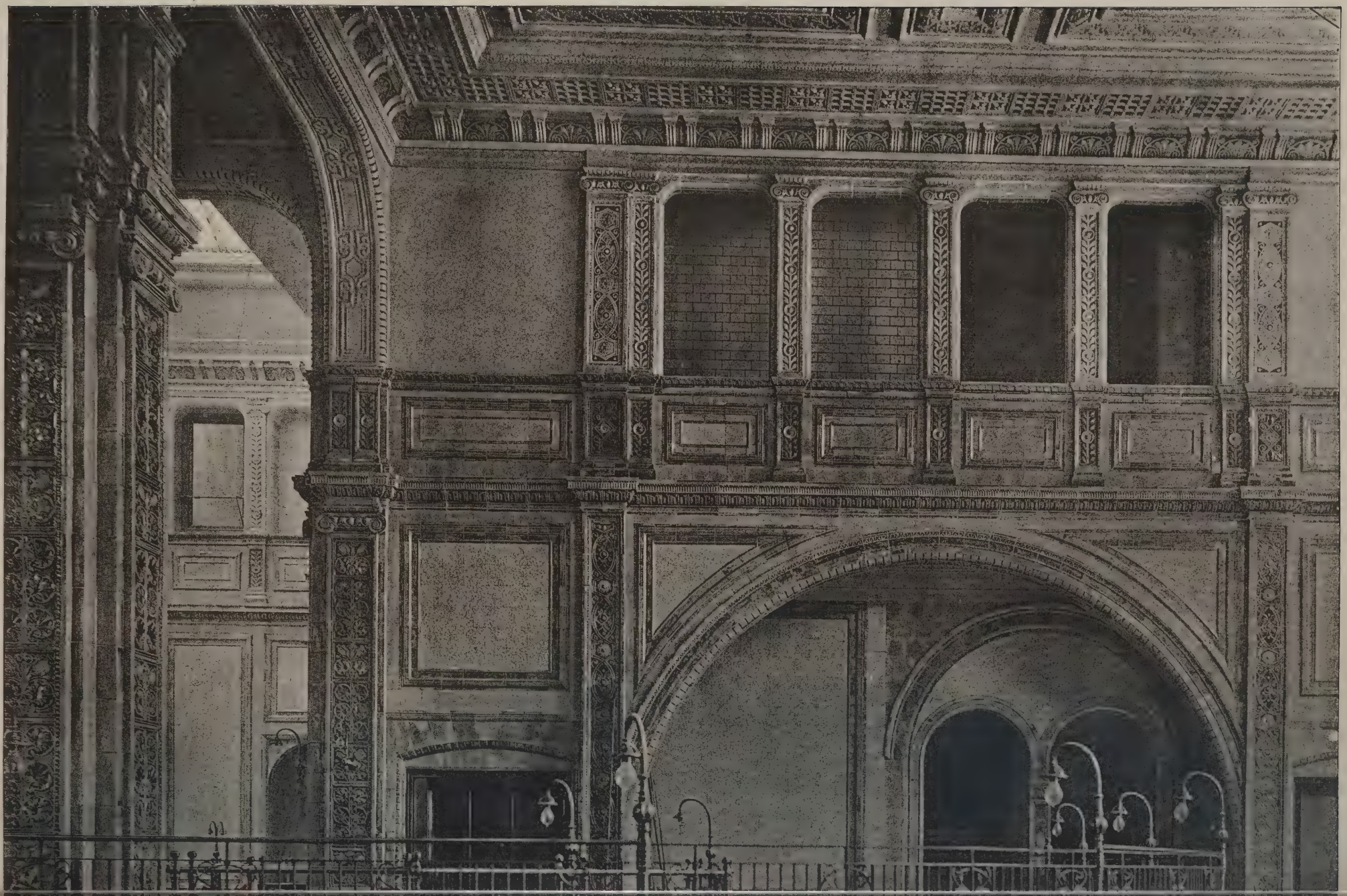


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TERBOROUGH: RETRO-CHOIR.





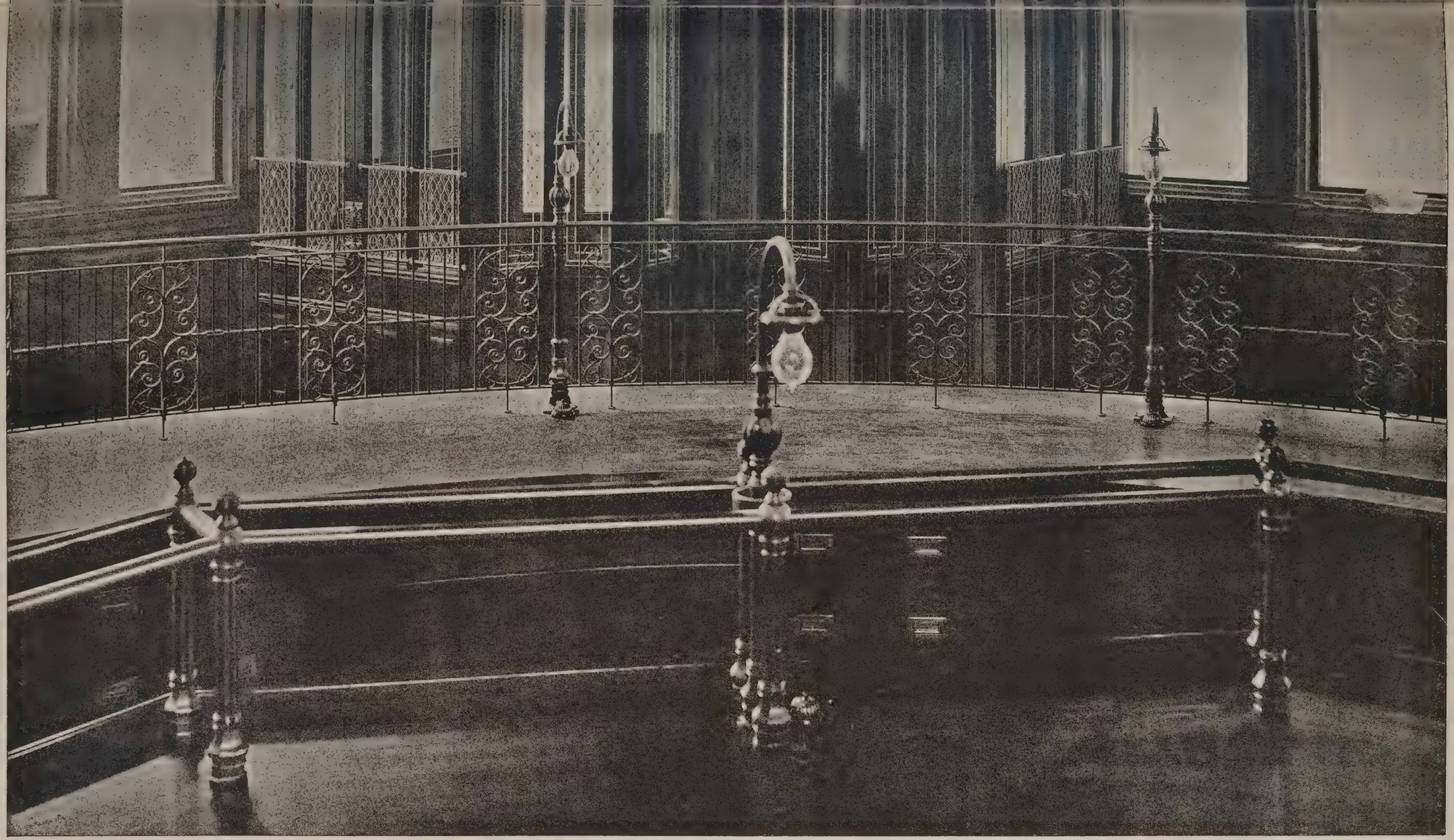
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THE NATIONAL PROVINCIAL BANK OF ENGLAND, PICCADILLY.

ALFRED WATERHOUSE, R.A., Architect.





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THE NATIONAL PROVINCIAL BANK OF ENGLAND, PICCADILLY.

ALFRED WATERHOUSE, R.A., Architect.

The Architect.

THE WEEK.

MR. JUSTICE HAWKINS is an admirable judge, and he never allows his attention to the details of a case to be diverted. But we hope he will not turn his keen wit upon witnesses who have to prepare plans for his court. On Tuesday at the Sussex Assizes his lordship had to try a labourer who was charged with feloniously and maliciously setting fire to a stack of hay at Arundel. A local surveyor produced plans showing the position of the stack, and deposed to distances between various points. Mr. Justice HAWKINS, on looking at the plans, complained that a rough road on the river bank was shown much the same as the hard macadamised roads of the neighbourhood. The witness said, "We couldn't show every stone, my lord." His lordship retorted, "I didn't suppose for a moment you had sufficient observation or sufficient scientific knowledge to do that." He also complained that a telegraph pole looked like "an ornamental ant." It is needless to say the judge's remarks, which were an imitation of Dr. JOHNSON's manner, were received with the usual "laughter" which is always awaiting displays of the kind. But surely Mr. Justice HAWKINS cannot expect that a plan should resemble a view by a landscapist. What distinguishes a rough road from a high road on a plan is the irregularity in the course and the absence of uniformity in the width. With a telegraph-pole it is sometimes convenient to indicate the direction of the wires regardless of the resemblance to an ant. The surveyor appears to have done his work properly, and did not, as well as we can judge, deserve a judicial rebuke.

THE Edinburgh Town Council on the 6th inst. considered the various suggestions about sites for the proposed Usher Hall. The following motion was adopted by a majority of three votes:—"That the magistrates and Council resolve to make an offer of 65,000*l.* to the North British Railway Company for the area at Port Hopetoun, for a site for the City Hall, and if this is not accepted, that no other steps be taken towards acquiring the area for this purpose, and delay consideration of the motion and amendments until an answer is received." It will be impossible for the Town Council to grant the money, if the railway company are willing to accept the amount, without the sanction of Parliament. After so many discussions of rival schemes it is not impossible that Mr. USHER will be asked to withdraw his offer.

THE following students have passed the June examinations of the Royal Institute of British Architects:—*Preliminary.*—L. P. Abercrombie, C. J. H. Ascroft, S. B. Ashworth, H. W. Asman, A. H. Atkinson, F. Barclay, H. M. Barker, M. S. Bigwood, H. T. Bill, R. H. Boyd, A. C. Broadbent, W. Broadbent, C. A. Broadhead, J. T. W. Brooke, A. E. Brooker, E. D. Brown, J. Brown, E. A. Brymer, A. A. Carder, W. A. T. Carter, R. M. Chalmers, A. L. Chapman, S. W. Clark, H. H. Clegg, A. R. Conder, V. C. Cook, E. C. R. Dibdin, H. H. Dodd, L. W. Ensor, J. W. H. Farrow, A. E. C. Fenoulhet, J. R. Fothergill, R. R. Gall, H. W. Gammidge, A. E. Gelder, C. R. B. Godman, V. R. Gould, W. L. Guest, E. Harding, J. A. Harrisson, O. B. Hatchard, T. Hedges, A. Herklots, W. H. Hobday, A. H. Johnson, L. A. Jones, S. A. Kelly, H. Kenchington, W. Leaning, A. H. Lewis, J. Love, G. H. Lovegrove, B. J. McAdam, A. McDonald, J. C. Mackenzie, H. N. Maunder, W. Michelmore, J. Miller, P. Minor, A. C. Notley, E. Ogden, C. T. Palmer, E. O. Payne, W. S. Payne, T. S. Peace, A. M. Peart, R. T. W. Purchas, A. R. F. Raven, G. Raymond, A. J. Redfern, W. B. Rees, W. F. Richardson, A. R. Robertson, J. G. Robertson, G. M. Roe, S. Salisbury, E. M. Simpson. G. S. Simpson, M. Skinner, E. R. Sladen, P. J. Smith, M. S. Stillman, F. G. Stockdale, F. A. Stowell, H. M. Tait, E. R. Taylor, A. Tedman, R. W. Thomas, F. E. Tomson, H. Wakeford, C. F. Ward, W. Ward, A. E. Webb, R. D. Wells, P. J. Westwood, J. Wilson, D. Wood, C. L. Wright. *Intermediate.*—R. P. S. Twizell, T. J. Bee, S. Harrison, R. T. Barker, J. G. Ross, C. H. F. Comyn, J. E. Fawcett, A. E. Lacey, L. F. Ward, J. Quail, J. H. Gibbons, N. Thomas, C. H. Heathcote, S. G. Highmoor, H. Moger, H. Gelder, A. Woodroofe, J. F. J. Goodacre, P. J. Turner, R. D. Wells, G. A. Brown, J. M. Ross, A. S. Dorrell, J. J. P. Jones, H. S. Barrett, C. J. Strachan, R. B. Brook-Greaves, H. J. Triggs, E. G. Heathcote, P. T. Hopwood, F. R. Foster, W. Higenbotham, N. Thorp, J. T. Alexander, H. C. Bishop, F. W. A. Buckell, F. B. Chester, W. W. Ellison, P. E. Gloyn, K. J. S. Harris, J. H. Higson, J. Holt, G. F. M. Merriman, J. L. Nicholson, H. W. H. Palmer, A. R. P. Piercy, F. E. Price, E. E. Shepherd, E. A. Toombs, W. J. Walford, H. P. Williamson, W. Wrigley, C. F. Young. *Final.*—J. C. Baines, P. C. Blow, V. E. Bösher, R W. Carden, E. M. Charles, A. Cowie, S. C. Denmead, A. R. Gough, J. S. Harrison, A. Herbert, G. McMichael, L. Moore, C. Riddey, C. W. Surrey, A. W. Vercoe.

THE congress of the French Archæological Society which was opened at Bourges on the 5th inst. was a great success. M. DE MARSY presided, and in his address he spoke with much sympathy of Spain and its trials. M. DE VILLEFOSSE delivered an eulogium on the late A. DU CAUMONT, the founder of the Society, and who rendered many other services to archæology. There were excursions to Dun, Meillant, La Celle and Bruère. The Château d'Amboise was also visited. Much attention was given to the house of JACQUES CŒUR and the cathedral. The stained-glass windows were described by the Marquis DE MELOIZES. The musée of Bourges is rich in ivories and enamels, which were duly appreciated. There were about 250 subscribers who attended the conference.

ON Friday last the Académie des Beaux-Arts presented to the late secretary, the Comte HENRI DELABORDE, the medallion which was specially sculptured by M. CHAPLAIN. It is in gold, and is of rectangular shape. On one side is a portrait of the recipient, who is in his eighty-seventh year; on the other side is an inscription which testifies that the Académie accepted M. DELABORDE's resignation with the greatest regret, and were grateful to him for his long and eminent services. The resolution is surmounted with attributes of the fine arts.

THE restoration of the tower and spire of Salisbury Cathedral having been completed, at a cost of about 14,000*l.*, under the direction of Sir A. W. BLOMFIELD, a thanksgiving service was held on Monday last. The Archbishop of CANTERBURY preached, and spoke of the privilege of being able to symbolise the glory of Christian worship, although fervent prayer might be offered in a building that resembled a barn. The spire is of a later date than the body of the cathedral, and it showed great daring on the part of the architect, or more skill in estimating the strength of masonry walls than is commonly understood, to raise such a mass on another architect's work. The older masonry had to be strengthened in various ways. According to PRICE, one hundred and twelve additional supports, exclusive of iron bands, were introduced. Windows were filled up, and three hundred and eighty-seven superficial feet of new foundation were constructed. It is amazing that so compound a structure should have endured for so long a time, and we hope that after Sir A. W. BLOMFIELD'S restoration it will endure for as many more centuries. The height of the spire has been calculated at different figures, but apparently four hundred and four feet is correct.

FOR the purposes of the Building Act the district of Fulham (hitherto comprising the whole of the parish of Fulham) has been divided by the County Council into two districts, viz. North Fulham, comprising that part of the parish lying to the north of the Fulham Road and High Street, Fulham, down to Putney Bridge; and South Fulham, comprising that part of the parish lying south of the above roads. At a meeting of the County Council on the 5th inst., it was decided to appoint Mr. STANLEY F. MONIER-WILLIAMS district surveyor for South Fulham, and Mr. FREDERICK W. HAMILTON, A.R.I.B.A., district surveyor for North Fulham.

EDMUND BURKE.

A CENTURY has elapsed since the remains of EDMUND BURKE were laid in a grave in the church of St. Mary and All Saints, Beaconsfield, and until Saturday last there was no memorial of a man who served his country well erected in England. There is a statue of him outside the college where he studied in Dublin, but the work of BURKE was not done in Ireland. Now there is a panel in the church which records the undying affection in which the name of EDMUND BURKE, patriot, orator, statesman, who lived at Butler's Court, formerly Gregories, in the period from 1769 to 1797, is held in local memories.

BURKE'S life is part of the history of England, and the purity of his character was equal to his ability as an orator or a writer. The statesman whose vision reached not only over the globe, but likewise extended to the remote future, had the affection of a farmer for the land he cultivated. Like many an old warrior, his wish was to find repose in a simple parish church, and happily it was granted.

The charm of BURKE has not ceased, although there was no sculptor's memorial to record his generous efforts to benefit the oppressed and aid unlucky men of letters. Many writers were glad of the opportunity offered by the unveiling of the memorial on Saturday to pay once more a tribute to the patriot who described himself truly as having no arts but manly arts, and who in his first session as a member considered it his duty "to analyse the whole commercial, financial, constitutional and foreign interests of Great Britain," in order to prepare himself to be useful to his constituents. It is not permitted to us to recall BURKE'S political services. But as, unlike the statesmen of his time, he was inspired by a genuine love of art, although he was never sufficiently rich to become a collector, it may be allowed us to glance at one side of his character which is generally overlooked.

His name alone indicates that BURKE was an Irishman. He was born in Dublin in 1730. He was of mixed race, and through his mother he inherited the blood of EDMUND SPENSER the poet. His father was a wealthy attorney, and BURKE is supposed to have always possessed a competence derived from him or from his elder brother. But after receiving education in the Dublin University, when he came to London to study for the Bar he was willing to write for publishers, and that inclination rarely belongs to men who are at ease in money matters. BURKE also was, it is said, a candidate for a professorship of logic in the University of Glasgow. It is believed, too, that he had thoughts of emigrating to America. His early life in London corresponded with that of many a literary adventurer. But he was not disposed, as far as is known, to waste his strength in proving his versatility. His first known pamphlet was a "Vindication of Natural Society," in the manner of Lord BOLINGBROKE, in which we have the germs of the conservatism which marked BURKE'S later years. It excited much attention. It was immediately followed by the "Philosophical Inquiry into the Origin of our Ideas of the Sublime and Beautiful," which also showed speculative skill.

Two years after the publication of the "Inquiry" BURKE was introduced to "Single Speech HAMILTON," who was a *protégé* of Lord HALIFAX. Anyone who will have the courage to read HAMILTON'S "Parliamentary Logick" will be struck with the pains taken by the author to become an invincible debater. A successful career in the House of Commons appeared to him to consist in intellectual fencing, and he realised he could not find any one who was better adapted to practise with than EDMUND BURKE. When HAMILTON was appointed Chief Secretary for Ireland, he brought BURKE with him to Dublin as his private secretary. BURKE'S genius was at once manifested, and it was not long until he broke with his patron, who was disappointed when he found he was not to have a "ghost" who was to gain for him the credit of statesmanship, and also without any cost. The couple of years which BURKE lived in Dublin enabled him to become acquainted with JAMES BARRY. The painter exhibited a picture, *St. Patrick Baptizing the King of Cashel.* A royal baptism would not now be thought a novel subject, but what gave interest to the Irish incident was that the saint had placed his sharp-pointed pastoral staff on the king's foot, and as the neophyte imagined the infliction of pain was part of the ceremony he bore the transfixing with submission. To BURKE, who may have often thought about the neglect of Celtic legends by poets and artists, the picture appeared as marking the commencement of a new era in painting. He sought out BARRY, brought him to London, and from his scanty and precarious income supplied him with enough money to visit Italy. BARRY was the most wayward of young geniuses. His Hibernian pugnacity drove him into rebellion with everybody of influence in Rome, and he plagued BURKE with relations of the hourly martyrdom he was undergoing in the cause of high art. There are no wiser or more considerate letters in the language than those which BURKE sent in reply. In age there was only a difference of ten years between the two, but in the correspondence BURKE appears to be a sympathetic elder who endeavours to mollify a peevish boy. One passage is well known, but will bear repetition:—"Believe me, my dear BARRY, that the arms with which the ill dispositions of the world are to be combated, and the qualities by which it is to be reconciled to us, and we reconciled to it, are moderation, gentleness, a little indulgence to others, and a great deal of distrust of ourselves, which are not qualities of a mean spirit, as some may probably think them, but virtues of a great and noble kind, and such as dignify our nature as much as they contribute to our repose and fortune, for nothing can be so unworthy of a well-composed soul as to pass away life in bickerings and litigations, in snarling and scuffling with every one about us."

BURKE could be satisfied that he had enabled a painter with great natural gifts to overcome many of the obstacles which were in the way of the builder's son, but in spite of the epistles which were those of a wise elder brother, BARRY never attained moderation and gentleness, nor ceased from bickering and scuffling. The painter's life continued to be a combat in London as in Rome. BURKE was, however, spared the pain of witnessing BARRY'S removal from the professorship of painting and expulsion from the Royal Academy. BARRY was not ungrateful to his friend; his proud nature prevented him from public acknowledgments of his indebtedness to BURKE, but it would have been easy to express obligations to his friend's intellect, although he might be silent about banker's drafts.

BURKE was one of those men from whose simplest talk something could be gained by a listener, and BARRY must have profited by many a discourse for his benefit. Dr. JOHNSON said that to stand under an archway during a shower of rain if BURKE were there would be an opportunity for improving the mind. He appeared also to be indifferent about the value of his thoughts. O'CONNELL used to maintain that BURKE must have been "Junius," for he alone would not care to claim the renown which was given to the anonymous letters. That conclusion was probably erroneous, but it was a shrewd appreciation of one of BURKE'S qualities. Those among his contemporaries who knew him best believed he was capable of accomplishing any feat he cared to undertake in literature, and success would be to him of no more value than a glass of good wine. Hence he was credited with the authorship of REYNOLDS'S Discourses. There is no doubt he helped the President of the Academy to attain the *art de bien penser.* NORTHCOTE does not hesitate to say that REYNOLDS was at one time grossly illiterate, and he deserves credit for profiting by the companionship of JOHNSON and BURKE. Of his two mentors he preferred the latter. According to FARINGTON, "Of all the distinguished men with whom Sir JOSHUA was acquainted, Mr. BURKE stood highest in his estimation of their mental powers. He thought Dr. JOHNSON possessed a wonderful strength of mind, but that Mr. BURKE had a more comprehensive capacity, a more exact judgment, and also that his knowledge was more extensive; with the most profound respect for the talents of both, he therefore decided that Mr. BURKE was the superior character."

It would be impolitic on the part of REYNOLDS if he failed to submit the scheme of the successive Discourses to the friend that was valued so highly, and whose reticence was one of his remarkable qualities. The Discourses were experimental, and the success of the Academy was supposed to depend in some measure on their favourable reception. Can we imagine that the counsel of so far-seeing a statesman as BURKE would be unsought? The

Discourses reveal a loftiness of thought, a method in arrangement, a subserviency of parts to an end which are not found in REYNOLDS's contributions to the *Idler* (a couple of essays that inflicted a vertigo on the author), or in his other acknowledged writings. The omission of any reference to BURKE except the footnote in the Eighth Discourse, "This was inadvertently said: I did not recollect the admirable treatise 'On the Sublime and Beautiful,'" is just the kind of remark that would be put in to turn aside attention from the true author. It also deserves to be noted that BURKE in his eulogium on REYNOLDS carefully avoids a reference to the late President's literary efforts or knowledge—the subject on which he might be considered the most competent judge. All he says is that REYNOLDS possessed the theory as perfectly as the practice of his art, and that his talents were not meanly cultivated by letters. Compare those guarded words with the generous fluency with which BURKE described REYNOLDS as a portraitist. "In taste, in grace, in facility, in happy invention, and in the richness and harmony of colouring, he was equal to the great masters of the renowned ages. In portrait he went beyond them; for he communicated to that description of art, in which English artists are the most engaged, a variety, a fancy and a dignity derived from the higher branches, which even those who professed them in a superior manner did not always preserve when they delineated individual nature. His portraits remind the spectator of the invention of history and the amenity of landscape. In painting portraits he appeared not to be raised upon that platform, but to descend to it from a higher spirit." Why was BURKE so eloquent in speaking of REYNOLDS's portraits and so silent about the Discourses? Was it not likely that he refrained from eulogising them because they were his own work, and he was too honest a man to descend to that depth, although he could without any thought of self-sacrifice leave any credit which they might gain to the friend whose experience was embodied in them? There is much in the Discourses which was beyond BURKE's knowledge, for he was no traveller, and he could not speak with confidence about the malpractices of contemporary artists abroad. But about the grand style, general ideas, nature and fashion, mixed passions, standards of taste, &c., there was no more competent authority in those days than EDMUND BURKE.

It is commonly supposed that BURKE could not write a book for artists or aid in its production because he was the author of the "Philosophical Inquiry into the Origin of our Ideas of the Sublime and Beautiful." It appeared in 1756, but BURKE is believed to have composed the greater part when he was a youth of nineteen. The essay was a daring effort. Art and poetry were supposed to be connected with pleasure. BURKE argued that terror was the source of the sublime, while from love (which does not invariably bring pleasure) the effect of the beautiful was derived. Of late years people have become sceptical about the creation of anything sublime in poetry or art. TURNER found it necessary to represent the python which APOLLO slays as extending many a rood, and as tearing up trees and unloosening hills in its death throes. In the drawing in the Water-Colour Society's exhibition the late BURNE-JONES also acknowledged his incompetence to excite terror, unless he was allowed to show the sea monster that was to attack the *petite* ANDROMEDA as an ocean telegraph roll or a piece of vulcanised tubing of countless folds. Visitors look on both works without fear, and naturally conclude that, with the utmost latitude about "greatness of dimensions," nothing terrible can be represented, and of course there can be no sublimity. TURNER's attempt is undoubtedly impressive, but the later artist's is ridiculous.

What has caused the neglect of BURKE's essay is, however, that psychologists of all schools in the eighteenth century arose against him for maintaining that differences of taste are only apparent, and that all men in effect perceive nearly in the same manner, and that therefore the principles of taste are entirely uniform, although men possess them in very different degrees. If that were true there would be no need to have discussions about a standard of taste, and as regards æsthetics, at least, the psychologist's occupation would be gone. BURKE was therefore treated as a man who took up a subject with which he was unacquainted, and it required some courage to notice his attempt to explain the sublime and beautiful.

But foreigners have hesitated about accepting so summary a conclusion. THÉODORE JOUFFROY, who has the most likelihood of becoming the representative of French æsthetics in the nineteenth century, has shown extraordinary respect for BURKE's system. He considers that BURKE's theory of a dilatation or contraction of the nerves, according as a sublime or beautiful object comes in contact with them, is not exact, and would reduce æsthetic emotions into physical sensations. He also declines to agree with BURKE's democratic belief in the universality of taste. But he says what BURKE established about sensible causes for æsthetic emotions is true; that the sublime is the result of one effect and the beautiful of another. As to BURKE's expression about our love for the beautiful, JOUFFROY says there is no better manner of expressing what we feel before a beautiful flower, bird, or tree, whereas for a sublime thing we cannot say "Je l'aime," although it is doubtful whether BURKE was altogether correct when he said there was something of fear and of sorrow in the feeling of sublimity. Throughout his reasoning JOUFFROY is as respectful towards BURKE as towards KANT, and it is with pride he acknowledges whenever the Irishman's and his own theories are in agreement.

Great artists are not to be made by theories of the sublime and beautiful, although they may prevent occasional errors. They begin with words, and commonly never pass beyond the verbal condition. BURKE was of too expansive a nature to be a great artist, but he was a master of language, and could use it as if he were a giant. Reading one of BURKE's speeches or pamphlets has an effect not unlike what is produced by considering a cast of one of MICHEL ANGELO's figures. In both there is a departure from the Attic spirit, but their power is irresistible. In one as in the other there are defects, but that weakness shows they are more akin to modern mortals than are the old Greeks. BURKE served art in other ways besides talking with REYNOLDS and BARRY and writing an inquiry about the sublime. He was the first of our statesmen to demonstrate that the expenditure of public money on art was the duty of a nation. There was no stricter economist than the Paymaster-General, but he held that wealth should be the obedient slave of virtue and public honour, and as such should be used to embellish a country with noble works. He believed that as architecture impresses, by the laws of nature and of reason it should become the statesman's care. If in those days a Minister of Fine Arts was considered a necessity, there could be discovered no more fitting man for the office than EDMUND BURKE.

THE GREEK STAGE.

THE eagerness not only of the official German archæologists, but of a large number of ordinary students, to examine if not to share in the explorations in Greece appears surprising to many people in this country. As yet classical archæology cannot be said to be popularised among us. For a long period the Universities were satisfied with sending out a travelling student, or, it may be, two, and the representatives were generally allowed to follow their own inclinations. As a rule, they went wherever the discomforts were least and information on what was to be seen was most abundant. With the Germans, on the contrary, a sort of archæological world is first worked out from books, which is more or less accurate; but the ambition of every student is to verify his own speculations. Hence it is that each year excursions are arranged for students to those parts of Greece where excavations are in progress, and there are usually far more applicants from the German universities than can be accommodated. Many of them are disappointed, but what they endure is not identical with the grief which comes to the respectable excursionists from this country. Our representatives are annoyed at allowing themselves to be "taken in;" the German student commonly is sorrowful because the pictures he painted of antiquity with the aid of imagination are found to be delusions. He returns a sadder but a wiser man, and henceforth is competent to make the deductions from the descriptions of classic authors which are always necessary

to those who are eager to arrive at the truth. His companions are like himself, and hence there is now arising in Germany a class of scholars who are less disposed than their predecessors to accept old-fashioned information, no matter what reverend authorities may certify it, unless it can withstand all the scepticism which comes from a scrutiny of actual remains.

At the present time the ancient theatre is the subject which is undergoing critical examination. It would be more exact to say it is the ancient stage. All of us have been puzzled in our school days by what we were told about the performance of a Greek play. It was easy to understand that the theatre resembled an old quarry, that tiers of seats were excavated, and that the plan was semi-circular. The approaches or climakes were few, and if a man were late he found it difficult to find a seat, and hence the impressive story of the Spartans all rising to facilitate the old fellow who was allowed to stumble among the Athenians, and his exclamation that some races talked about courtesy, but the Spartans practised it. Other legends also arise which were dear to youth, for they partly compensated for the dreaded consequences of an imperfect understanding of the plan. The fact was, the plan of the Greek theatre could not be made to agree with any of the buildings which were visited, as a matter of course, during Christmas holidays and furtively on other occasions. What became of the pit? You might come into the hands of one master who informed you it was entirely occupied by the orchestra, in which supernumeraries such as singers, musicians and dancers appeared, and sometimes the oracular chorus. But another master would say the orchestra was only a strip of space corresponding with the modern well for musicians, while in front of it, but several feet higher, was the forward stage or proscenium. The grave and reverend chorus would therefore have to tuck up their skirts and ascend a steep approach to the stage, a journey which would appear to affect their dignity and respectable appearance.

About the year 1841 an attempt was made by order of the then scholarly and mystic King of PRUSSIA to have the problem solved in the theatre of what is called the "Marble Palace" at Potsdam. The whole pit was treated as the orchestra. The chorus displayed their wisdom in it until the time came for their appearance on the stage, which they ascended in sight of the audience and afterwards descended by the same steps. The play selected was the "Antigone," and in Dublin the Potsdam example was soon afterwards imitated, and a worthy representative of the heroine was found in the present Lady THEODORE MARTIN, but we believe the pit was not sacrificed in order to give a semblance of antiquity to the performance. In Edinburgh the drama was also revived, but was confined to the stage. Acting on the advice of scholars, MURRAY, the manager, brought the painted scene close to the footlights. DE QUINCEY, who was present, wrote some severe remarks on the absurdity. Instead of in a hall at Thebes, the action appeared, he said, to take place in the boudoir of ANTIGONE. Another feature in the Potsdam revival was the letting down instead of raising of the curtain, and the novelty excited surprise. But the palace curtain was of no great width, whilst a curtain on the Greek stage would have to be sometimes 200 feet across. That was not the only part of the arrangements which was inconsistent with the antique practice, and for our part we have never witnessed a revival of a Greek play which appeared to be convincing about the similarity to the original representation.

For several years WILHELM DÖRPFELD, the German architect, has been pondering over the mystery of the orchestra among the ruins of Athens and of other Greek cities. He has come to the startling conclusion that there was neither skene nor paraskenion at a higher level than the orchestra. His theory is that the *dramatis personæ*, as well as the chorus, appeared on the orchestra level. A Greek play would therefore have some affinity to the "scenes in the circus" which are familiar to visitors to foreign hippodromes. Anyone who has witnessed such a drama as "Nero" and others of its class abroad will allow that as much dignity and tragic seriousness are attainable as would be needed for the production of a Greek play. According to the plans usually given, the Greek stage was a mere strip of platform before a wall, a small segment of the circle which bounded the orchestra. Some authorities say there was an altar in the centre of the stage, which would diminish the space available for actors and chorus. We may grant that the Greeks did not need for their tragedies such an area as is required in every modern theatre. But, on the other hand, space is an element in effect. It is impossible for modern actors to be pathetic when they are cabined, cribbed and confined, and dare not shrink backwards through fear of collision with a canvas. The late CHARLES MATHEWS made one or two experiments of carrying on the action of a little comedy by appearing before the curtain, but with all his delightful jauntiness the innovation did not succeed. Imagine a Greek tragedy

> In sceptred pall come sweeping by,
> Presenting Thebes' or Pelops' line,
> Or the tale of Troy divine,

under similar conditions of space, and it is difficult to understand how men's souls could be harrowed up with the spectacle. We can realise that a skilful burlesque writer like ARISTOPHANES could use the narrowest proskenion with advantage, but his plays are not the most typical examples of the Greek drama.*

Ordinary playgoers will, of course, agree with Herr DÖRPFELD, and although the pit will not appear equal to a modern stage for dramatic representations, yet of two evils they will take the lesser, and prefer a pit to a stage that, at its best, could not have surpassed the outer platform of a show at a fair. But German scholars of the old school cannot easily be persuaded to surrender the antiquated conclusions. The subject is one which rewards research, and countless quotations have been brought forward during the last couple of years to overcome the architect. It has to be admitted, however, that the original conditions of the Greek theatre did not comprise a dual stage at different levels. The waggon of THESPIS was of simple construction. The dances and hymns in connection with religious festivals were gone through on the ground around a temple or on the platform. When in the course of time people were attracted by dancing and singing, as if they were something else besides aids to devotion, the seats were arranged around the chosen spot for the performances. As long as dancers and singers remained in the inner circle or pit, and there was, it is believed, an altar or stand (thumele) in its midst, near which actors would congregate, all the spectators could see and hear. But with such a stage as appears in books about Greek theatres many of the people present who were seated at the sides were unable to see the actors, and those in the middle blocks must have found a difficulty in hearing, unless the masks produced the same sonorous effect as the sailor's speaking trumpet. Let the Greek theatre be considered as resembling the modern hippodrome, with rows of seats gradually ascending, and the pit used for performers, then many of the difficulties to an appreciation of the ancient drama would be removed. The skene and paraskenion could be reserved for gods and goddesses whenever they were introduced. We remember once at a performance of "Macbeth" seeing the three witches in a gallery of the hall of Glamis Castle as soon as the Thane appeared after murdering DUNCAN, and although not authorised by the text, the novel and impressive effect almost excused the innovation. In the Greek theatre there would be more of a warrant for having divine beings apart from mortals.

It may be objected that what is said by VITRUVIUS about the construction of the Greek theatre is evidence of the existence of an elevated stage. But we must remember that VITRUVIUS was likely to be better acquainted with Roman than with Greek theatres. Moreover, in his time the drama had to subject itself to the universal law of development, and differed much from the plays which were witnessed by free Athenians. The stage that is required for a comic opera in Paris when a division of the French army is welcomed by the crowds of an Italian city, would have to be diminished to a fifth or sixth of its depth to allow "Berenice" to be performed in a suitable manner.

* In *The Architect*, May 22, 1896, a small reproduction is given of the *plafond* in the Court Theatre, Vienna, which has for subject the performance of an antique play on an elevated platform in a Greek theatre, but under ideal conditions. The painting demonstrates that the actors dare not move backwards or forwards. They could only "close up" right or left on the same plane, or stand in one position as if representing a relief with coloured figures.

To describe the stage in RACINE'S day as necessarily corresponding with the stage of the Châtelet would, therefore, be absurd. PLINY is puzzling when he writes about theatres and other buildings, but he is exceeded by VITRUVIUS, who will never be comprehended until a special glossary is compiled for his architectural treatises. As to ruins, there is not one of a skene which dates from the time when the Greek drama was a sort of living force; and WILHELM DÖRPFELD, although he has considered the adverse arguments, need not fear he will be refuted by any masons' work now known to archæologists.

There is another argument in favour of his conclusion, which, as far as we know, has not been sufficiently utilised. What was the use of the cothurnus? To give height to the actors, it will be said. With an elevated stage the actors did not need to be stilted. But in the orchestrion it was an advantage to be slightly raised, for even an inch counts with a pittite when seen from above.

The great objection to Herr DÖRPFELD'S theory is that in the Greek drama the chorus is often supposed to be invisible, and the effect was aided by keeping the performers apart from the chorus. But it is impossible to respect that principle on all occasions. In the Parthenon frieze a part consists of gods and goddesses, who are believed to be those who looked down on the Athenian youths and maidens with affection. But they are not placed at a higher level, as if they were on Olympus. To the Greeks it did not matter that the gods seemed amongst the processionists. They accepted the limitations of the sculptor's art. The spectators of a drama were not likely to be less imaginative. With all our scientific realism, modern theatre-goers can be trusted to accept as a fact that the guests of MACBETH do not see the substantial figure of BANQUO, who is seated amongst them, or that GERTRUDE OF DENMARK is blind to her first husband, although he wears shining armour. If the chorus kept to the sides of the orchestra or ranged themselves around the outer circumference, the central space could then be occupied by actors who would easily be imagined to have eyes which did not see when the occasion required.

It would be folly to deny the existence of skene and paraskenia in the antique theatres. Any one who has been fortunate enough to see the massive wall at Orange can have no doubt on the subject. At all times it was necessary to have enclosures for the preparation of performances. Mr. PUNCH himself, with all his modernity, has to conceal himself and his victims for a time from his admirers. A circular theatre also becomes tiresome, for the eyes of the spectators cannot be always going round and round; they require a termination. That was supplied by the proscenium wall, and as it could be hung with tapestry or other drapery the vision would be gratified by resting on it. PLINY speaks of the scena in one place as if it were only a gallery for the exhibition of sculpture. In the theatre of SCAURUS at Rome there were, according to him, 300 columns and 3,000 statues on the skena. The actors were not to be envied who had to mix with so many figures, but so large a collection would have an attraction for spectators. What PLINY also records about glass or mosaic forming part of the proscenium wall is also evidence—although weak enough on account of the authority—about that part being an architectural background. As we have said, the elevated platform might be reserved for a peculiar class of characters. There must, we suppose, be always doubts on so important a subject, but Herr DÖRPFELD'S theory helps to remove some of those which are hindrances to the study of the Greek drama, and for so much he is deserving of the thanks of architects. Moreover, if we believe that tradition is in error in what is handed down about theatres, we may also become doubtful of similar statements about other varieties of buildings. In fact, it is always prudent when studying architecture to be doubtful about authority and to trust to the evidence of our own eyes.

The Plans of the new police station and sheriff court-house, which are to be erected at the corner of Church Street and George Street, Dunoon, have been passed. The buildings are in a free treatment of the Renaissance, and when completed will form a handsome addition to the town. The architect is Mr. William Fraser, Dunoon and Glasgow.

THE WEALD OF ESSEX.

PRIOR to the Christian era tradition tells us that Essex was peopled by the Euskardians, and then by the Celts. In the year 55 B.C. it was occupied by the Belgic tribe of the Trinovantes, and it was at the suggestion of Mandrubatius, a prince of the Trinovantes, that Cæsar invaded the country. For a time the Britons merely paid tribute to Cæsar, but a fresh invasion under Claudius took place A.D. 43, and the Britons were entirely routed. With the subdivision of Britain by the Romans, Essex was included in Flavia Cæsariensis, and contained five principal stations—Durolitum, Cæsaromagus, Canonium, Camulodunum and Ad Ansam. Camden fixed the site of Cæsaromagus in the neighbourhood of Brentwood, but it is generally supposed to have been near Chelmsford. The single-ditched circular camp of seven acres, of which faint traces can be seen at the south-west verge of Weald Hall Park, is regarded as a summer camp or Castra Exploratum of the Romans. With the exception of two Lares or household gods dug up at Shenfield, scarcely any Roman remains have been found in the district. The kingdom of East Seaxa was established about 527. In 870 the Danes first penetrated into Essex, and Saxons, Danes and Celts in turn held sway. In 1041 Edward the Confessor restored the Saxon supremacy. He died in 1066, and Harold, son of Earl Godwin and Governor of Essex, took possession of the throne. Four years previously Harold had founded a college for a dean and twelve secular canons at Waltham, and in due time he endowed it with South Weald, Brentwood and other manors. The Duke of Normandy, whom it is stated Edward had nominated his successor, landed at Pevensey, killed Harold at the Battle of Hastings, and ere he fully asserted his authority as King of England resided for a brief term at Barking Abbey. The manors William had seized he distributed among his followers, and Brentwood became the property of the De Wochendons. In 1120 Richard Bedumes, Bishop of London, founded an abbey at Chiche for twenty Augustine canons. It was dedicated in honour of St. Peter, St. Paul and St. Osyth, and endowed by William de Wochendon with the Manor of Brentwood. In 1221 David, Abbot of St. Osyth, having regard for the souls of his tenants at Brentwood, obtained the approval of Eustace de Fauconberge, Bishop of London, and the permission of Robert Parsons, vicar of Welda, to construct a small chapel at Brentwood, which was dedicated to St. Thomas à Becket, who had been murdered in 1170. No baptisms or burials were to take place there; no Mass was to be said on Sundays, and nothing was to be done to injure the mother church, to which two pounds of wax was to be given yearly as tribute. Roger of Wendover, in his "Flowers of History," tells how Hubert de Burgh, the favourite minister of Henry III., having evoked the King's displeasure, fled in fear to Brentwood, and sought sanctuary in the little chapel. By order of the King, the Sheriff of Essex blockaded the chapel, and in due time De Burgh was starved out and taken in triumph to the Tower. He eventually made his peace with the King, and died a natural death. Thirty years ago the chapel was standing; it was constructed of flint and pebbles, was partly Early English, but mainly Perpendicular. It consisted of a nave and chancel, with tower and spire at the north-west angle and a north porch. There was a double piscina on the south side of the chancel and a single one on the south side of the nave. For a time it was used as the boys' national school; to-day a truncated tower and arch is all that remains. The new Gothic church of St. Thomas the Martyr is of white brick and was built in 1835. The apsidal chancel is a later addition; it contains a small brass to John Parker, 1672, and two pieces of heraldic glass removed from the old chapel.

In the great Forest of Essex clearings were made by fire and other means, and gradually villages and towns were formed. Welda, the wood, was one of these now known as South Weald to distinguish it from North or Bassett Weald in the same county. Another was Brentwood, still locally known as Burntwood, and mentioned in ancient documents as Boscus Arsus and Bois Ars. Shenfield was another, and here we notice how, lacking stone, of which the county is remarkably deficient, wood was used in the construction of churches. At Greenstead is the little church with the wooden walls where the body of St. Edmund rested in 1013; at the beautiful church at Saffron Walden a wooden aisle was destroyed by fire in recent times; at Shenfield are a wooden aisle and tower almost intact, and at Blackmore, Margaretting and Stock the wooden towers of the churches still remain. Although Shenfield may have had a little wooden church as far back as the days of the Confessor, the clustered columns of the oaken piers only take us back to the fifteenth century, and the embattled brick doorway at the west end of the north wall is obviously of Tudor date. The register commences in 1538 and the marble altar tomb with effigy of Elizabeth Robinson, of Gwersilt, Denbigh, is dated 1652. The pseudo-restorer came in 1853 and ten years later, and in the dark grey rough-cast coating of the church and in the rechiselled mouldings and window tracery his hand is seen.

Adjoining the churchyard on the north is the gabled Elizabethan manor house. In the fourteenth century it belonged to Thomas of Woodstock, the sixth son of Edward III. In the next century it was owned by Humphrey, Duke of Buckingham, who lost his life at the battle of Northampton. It was then seized by Edward IV. and settled on his Queen, Elizabeth. It ultimately passed to the Lucas family and gave title to Baron Lucas of Shenfield. By the marriage of his daughter it passed to the Duke of Kent, and in the eighteenth century it was conveyed by marriage to the Earl of Hardwick. The present proprietor is the Countess Cowper.

South Weald, or Southwold Church, dedicated to St. Peter, is unique in Essex as being the church furthest from the sea that has a ragstone tower. The tower was erected about 1485, but only the lower portion remains; the upper part with some other interesting features of the building were swept away some thirty years ago, when the church was rebuilt by Mr. Teulon, but it is satisfactory to note that the Early English arcade and the Norman doorway, with its chevron mouldings and reticulated pediment, were re-erected in their original places. The font dates from 1662, and a small brass of 1567 bears an inscription to Sir Anthony Browne, of Weald Hall. The hall is interesting as having been for some time the residence of Queen Mary, when Princess. The present owner is Mr. C. J. H. Tower. In the adjoining estate of Rochetts, in a little chapel since converted into a gardener's lodge, it is stated that Mary attended Mass. Rochetts was the favourite residence of Earl St. Vincent, who died there in 1823.

Sir William Petre, Knight, LL.D., was one of the principal Secretaries of State in the reigns of Henry VIII., Edward VI, Mary and Elizabeth. It has been stated that in Henry's time he observed the King's humour, in Mary's time he minded State affairs, and in Elizabeth's he was religious. At the dissolution he devoted his wealth to the purchase of monastic lands, and from Pope Paul he obtained a grant to secure them to his heirs for ever. His son John was elevated to the peerage as Baron Petre of Writtle on July 21, 1603.

Among the estates which Sir William acquired was Thorndon Hall, which he purchased of Sir John Mordaunt. A century before it belonged to the family of FitzLewis, and John, the last of the line, had married the daughter of Sir Robert Lovel. Great were the rejoicings on the wedding day, but in the stillness of the night a fire destroyed the old hall, and bride and bridegroom perished in the flames. The present white brick mansion was built by James Paine about 1770. The hall consists of a large block and two wings, connected by semicircular corridors. The style is Classical, in vogue during the last century. The roof of the hall, some 40 feet square, was supported on eighteen scagliola columns; the saloon was 60 feet by 30, and the drawing-room 38 by 26. George III. and Queen Caroline stayed there in 1778 on their way to the great review on Warley Common. The visit was used by Gilray for the subject of one of his most popular caricatures. History repeats itself; and in March 1878 a fire broke out in the hall, and only the right wing was saved. The shell, however, has been carefully preserved, and every one must congratulate Lord Petre on having now commenced its restoration. In the right wing is the private chapel with David's *Nativity* above the altar, and in the gallery, among other pictures, are portraits of Sir William Petre and the Duke of Norfolk, by Holbein; and Mrs. Onslow, by Cosway. There is also a portrait and some relics of Lord Derwentwater, busts of Fox and Lord Petre, and some valuable illuminated manuscripts. The park is two miles long, is the largest and most beautiful in Essex, and is well stocked with deer. On the edge of the wood is the Gothic mortuary chapel, built of white stone, carved and embroidered. The present owner of Thorndon Park is Bernard Henry Philip Petre, fourteenth Baron, formerly lieutenant of the 1st battalion of the Lincolnshire Regiment; he is co-heir to the Baronies of Howard and Greystone.

The Reformers had made their mark at Brentwood, and firm in the Protestant faith was a family named Hunter. The one son, Robert, remained at home with his father; the other one, William, was apprenticed to Thomas Taylor, a silk weaver in the City. With the crowning of Mary the doctrine of Transubstantiation was enforced, and the parish priest of St. Katherine Colman commanded William to attend the Easter Mass. William refused, and his master dreading the consequences of harbouring a heretic, commanded him to return to his father. In the little chapel at Brentwood he was found by Father Atwell committing the grave offence of reading the Bible. The Vicar of Southwell, as Foxe spells South Weald, was fetched, and William was taken before Justice Browne, who sent him to Bishop Bonner. For two days and nights he was kept in the stocks, he was loaded with irons and cast into prison, where he remained nine months. Bonner had promised him the freedom of the City and forty pounds to set him up in business, and had even offered to make him his house-steward, but nothing would induce him to recant. He was duly tried, imprisoned in Newgate, conveyed to Brentwood, and there, at the age of nineteen, was burnt under the Martyr's Tree on March 26, 1555, in the presence of good Sir Anthony Browne, the justice. Two years later Sir Anthony built and endowed the Grammar School at Brentwood, and by purchase from Sir Brian Tuke, of Layer Marney, he became lord of the manor of South Weald, where he erected some almshouses. In 1558 he was appointed Lord Chief Justice of the Common Pleas, and Elizabeth permitted him to hold the office of puisne judge. He died in 1567, and in the parish church an altar tomb was raised to his memory. In 1588, on her way to Tilbury Fort to deliver her Armada speech, good Queen Bess rode through Brentwood, and as the people shouted and waved their hats, how many of them thought of the boy martyr who perished under the elm by which she passed? In the good old days, forty coaches passed daily through Brentwood, then the assize town; but the Crown Inn, of which Salmon wrote, has disappeared, and the White Hart, with its galleried courtyard dating from the fifteenth century, is without a horse in the stable. The clatter of the coach has given place to the bell of the bicycle, and the cheering sound of the post-horn is succeeded by the din of the Salvation Army drum. So fades the glory of the Weald.

ARTISTS' COPYRIGHT.

THE following evidence was given on the 7th inst. before the Select Committee of the House of Lords appointed to consider the law of copyright.

Mr. H. T. Wells, R.A., said that after the report of the Royal Commission in 1878 the Royal Academy drew up a memorial with regard to copyright in works of art. He took a large share in drawing up that memorial, a copy of which was sent to the Prime Minister, to the Queen, and to every artist who could be reached. There was absolutely no dissension among artists as to the contentions of the memorial. He had had nothing to do with the preparation of the Artistic Copyright Bill (1898) presented by Mr. Bale, but he thought it was based on the suggestions made by the Royal Academy and would meet their wishes. The view of the Academy was that the common law right of the artist in his works should be embodied in an Act of Parliament, and should in some respects be strengthened. Artists desired that the copyright in their work should date from production and not from publication. Moreover, it would be absurd to make any restriction as to the place of an artistic production by a British subject or one domiciled in the British dominions. As to the duration of copyright, the Academy accepted the period suggested in the report of the Commission, namely, thirty years after the death of the author of the artistic work. With regard to registration, he was strongly of opinion that there should be no registration unless there had been an assignment of the copyright.

By Lord Monkswell: He would be extremely astonished if artists objected to exhibition constituting publication, if copyright were only to be obtained after publication. The great difficulty was that the majority of pictures were never published, and would therefore be cut off from copyright. He very much preferred clause 2 of the Artistic Copyright Bill to that of Lord Herschell's Bill. The Royal Commission reported against the expedient of drawing any distinction between portraits and other pictures, and it would certainly be an odd thing in England to put this disability on portrait-painters, having regard to the position which English portraiture had taken in the word.

Lord Knutsford: But if a man commissions an artist to paint his portrait and pays him for it, why should the artist have the copyright?—If the picture had been a landscape the artist would have the copyright, why not when he paints a portrait? All the Bills which had been drawn gave the copyright in a picture to the artist, unless the picture was a portrait.

Lord Thring: Do you mean to say that at common law the purchaser of a picture does not acquire copyright?—Certainly not.

Lord Monkswell: You would rather that there was no copyright in a picture, and that every one, including the artist, should have power to reproduce it, rather than that the right of reproduction should be confined to the purchaser of the picture?—Yes, especially with regard to portraits.

By Lord Crewe: The owner of a picture ought to be protected against replicas of the same size and in the same material as the original. When an artist produced illustrations for a book, he ought not to be allowed to reproduce them in the same form separately and in rivalry with the book; but there should be nothing to restrain him from developing the idea.

Lord Knutsford: Should living pictures be an infringement of copyright?—Yes, I am very decided as to that.

Mr. Briton Riviere, R.A., said he was one of the representatives whom the Royal Academy wished to give evidence upon the question of copyright in artistic productions. The Royal Academy had nothing to do with the Artistic Copyright Bill

of the present session, but they approved generally of its provisions. As to copyrights dating from publication, the whole artistic profession felt very strongly that copyright should date from the act of creation. The definition of publication as "public exhibition for reward or the first offering for sale or hire" would not only present great difficulties to men in the ordinary groove of artistic work, but would be absolutely fatal to some outside that groove. Some eminent artists would never get copyright at all. For example, Rossetti never exhibited in public; Sir E. Burne-Jones, before the Grosvenor Gallery was opened, confined his works to his studio; and Turner, in regard to the works which he intended to leave to the nation, refused altogether to offer them for sale. He would not deprive a man of copyright because he published first outside the Queen's dominions. Subsection 2 of Clause 19 (which gives the exclusive right "to publicly exhibit the work or any copy thereof, or any representation thereof, or of any part thereof") would bring divided interests under one head and make the ownership of a picture a very uncertain thing indeed. Many exhibitions would be impossible under this clause. For instance, Sir Henry Tate's gallery would certainly not be able to remain open, because he was probably not the owner of any of the copyrights in the pictures contained therein. The owner of a picture would be compelled to confine that picture to his own house. The copyright in a picture was valuable to somebody who had nothing to do with the picture itself, simply for purposes of reproduction.

Lord Thring: I am a governor of Holloway College, where we have a very splendid collection, especially for educational purposes. If this clause passed, we would not be able to keep it open?—That is so. As to clause 20 (title to copyright in artistic works made on commission), witness said it was of vital importance to artists, and upon grounds which everyone acquainted with the methods of reproduction must accept. In any form of reproduction the artist's reputation was at stake from beginning to end, and he alone could tell how the thing should be done. He ought to be the one to choose who should be the engraver and what should be the process. Even at the hands of an eminent engraver, without constant advice and sympathetic supervision by the artist, a work could not be rendered in an absolutely satisfactory manner. The late Lord Leighton took a great interest in this question, and drew up a clause to protect the rights of the owner of a portrait, for it was only in portraiture that there could be a question of other interests being at stake than those of the artist. Lord Leighton suggested that no copies or engravings from a portrait should be sold or exhibited without the sanction of the person who ordered such portrait. Such a clause the whole profession would accept. But he would not say that the copyright of a portrait should vest in the person who gave the commission to paint it. Some of the greatest engravings which we had in this country, which continued to increase in value, were from portraits, and the engravers could never have carried their work out if the copyright had not from the first been under the control and supervision of the artist. In regard to all subject pictures, this was of such importance that no more alarming proposal could be made than that copyright should go haphazard into the hands of the owner of the picture. The word "commission" was very difficult to define in the artistic profession, but the man who gave a commission for the sake of acquiring a copyright could always guard himself at the time, and the artist could always guard himself; but if the mere giving of a commission were to confer the copyright the quality of engraving and reproduction would be placed in a very dangerous position. He had never had any difficulty himself with the owner of a picture, and practically the owner had the right of veto on reproduction, because he could refuse access to the picture. But of course the development of photography had made the owner's veto in that respect less absolutely effective. In no circumstances should an artist be allowed to produce a replica of the picture he had sold of the same size and in the same material as the original. The etiquette of the profession would forbid that already, but it might be done under the law. The words "main design" were only acceptable to the artist because they implied that the constituents of the picture were not to be put together again so as to reproduce the original motive. As to clause 22, dealing with the illustration of books, it should be provided that the publisher should not be allowed to reproduce them apart from the context for which they were designed, except in case of special agreement. The artist, moreover, should not be able to reproduce the illustrations in the same size and form as in the book.

Lord Thring: Could not the clause be cut out and all these things be left to private arrangement?—There would be no objection to that.

Witness added that he felt very strongly that a clause should be inserted to protect the artist from a change in the title of his work. The artist usually took great care in the selection of the name of his picture, so that it should express just enough to make the purpose of the picture clear. The work might fall into the hand of someone who was insensible to the artist's intention, and by a change of the title adapt it to some other purpose. That change ought to be an infringement of copyright. For example, a stupid person might get hold of Millais's "Huguenots," and by calling it "The Lovers" destroy the whole sentiment of the picture. The artist's name should not be put to a subject which was not his own.

Lord Monkswell: In the case put, the artist has parted with his copyright, and therefore the remedy would lie outside the copyright law.

Lord Thring: You might get an injunction, but it would not be under the copyright law.

Mr. Bulmer Howell, representing the Photographic Copyright Union, gave evidence on Monday in support of the clauses dealing with copyright in artistic productions. With regard to the question of title to copyright in artistic works made on commission, the sub-committee which drafted the Bill thought it fair that the person who gave the commission should in the first instance be the owner of the copyright. In this respect they differed from Mr. Briton Riviere's evidence. He should have thought that Mr. Briton Riviere's objection would be met by the fact that it was always competent to the artist to insist upon an agreement in writing which would give him copyright in his work. In the committee he did not hear strong objection taken to the clause, although artists were present; and, indeed, he had been under the impression that the clause was not objected to by any member of Mr. Murray's committee. With regard to photographs, the clause was intended to cover the case where a photograph was taken by an employé of a firm like the Stereoscopic Company, it being provided that in such cases the copyright in the photograph should belong not to the employé but to the company which employed him. The Photographic Copyright Union were most anxious not to impinge on the rights of artists; on the contrary, they were interested in preserving them as far as possible. Asked by Lord Thring as to who was really the author of a photograph, the person who arranged the camera and the sitter, the person who took off the cap, or the person who printed, the witness replied that he should designate the author to be the man who posed the sitter and took the most active and artistic part in the operation. He mentioned one curious anomaly, which he hoped might be removed, namely, that while books were protected in every colony artistic works were protected in none.

The committee adjourned.

STRATFORD-ON-AVON CHURCH.

THE church of Stratford-on-Avon—Shakespeare's church—has been reopened after being closed for six months. The committee, under the advice of Mr. Bodley, started with the intention of improving the organ, renovating the interior of the nave and rebuilding the old vestry. It was computed that this would cost 5,000*l.*, viz. 800*l.* for the organ, 1,000*l.* for the vestry and the rest for the nave. The last, as the most extensive, was to include a new warming apparatus, a new floor, new oak benches, a new pulpit and electric lighting. The committee began with the impression on their minds that there would be no difficulty in raising money for Shakespeare's church. But they were soon undeceived. Money has not come in, and the result is that not only has a good deal of the work contemplated not been begun, but also that a rather formidable debt remains on what has been done. What has been completed is as follows:—The organ has been greatly improved, an excellent warming apparatus has been introduced, the floor has been entirely relaid, partly with stone, partly with oak blocks, and half the oak benches needed have been provided.

The cost of these improvements has been, in round numbers, 3,000*l.*, and towards defraying it the committee have received a little over 1,200*l.* Of this only 296*l.* has come from outside the parish, and much of this from immediate neighbours. The committee have been disappointed of any help from America.

The result is that the church now has only half its seats provided, it is without a pulpit and without a vestry.

The Nurses' Home, Ashton-on-Mersey, near Manchester, which has been erected from the designs of Messrs. Whitelegg & Whittaker, architects, of Brazennose Street, Manchester, at a cost of about 1,000*l.*, was formally opened on the 9th inst. by Mrs. Coningsby Disraeli. This institute contains two wards (each for two patients) on the first floor and an accident ward on the ground floor, with accommodation for the nurses. It is built in the half-timber style with tiled roof, and immediately adjoins the St. Mary's schools, which were designed by the same architects, and opened a short time ago. Mr. John E. Dean, of Ashton-on-Mersey, was the builder.

NOTES AND COMMENTS.

THE concession of a colonial penny postage suggests that the authorities of the Post Office are gradually learning that something else is expected from them than a balance sheet showing a profit. At present there are apprehensions of interference which are fatal to improvements in envelopes and post cards such as are common in other countries. Some of the foreign post-cards may be called works of art, and they have to be prepared by young artists or photographers, who may be considered as artists. But English stationers say that similar productions would not be considered as complying with the official regulations in this country, and they will not make the experiment of competing with foreign manufacturers. The British Consul in Frankfort says that the pictorial post-cards posted from spots frequented by visitors is enormous. In a single season there were 148,000 from the Kyfhäuser monument, 128,000 from the national monument on the Niederwald, 36,000 from Heidelberg Castle, while the cards posted from the Berlin Trade and Industrial Exhibition were over a million, and from the Hamburg Floricultural Exhibition 572,000. This new trade not only affects the Post Office, but also the paper industry and those concerned in illustrating, as well as various branches of the stationer's trade. Elegant albums are made for collecting these souvenir cards, and are favourite presentation articles. Quite recently the Government of Saxony offered a prize for the best series of about twenty souvenir post-cards with views of Saxony, and German manufacturers have assisted the fashion by producing handsome cards in the greatest possible variety. The Consul-General fears that German exporters will monopolise the manufacture and sale of these cards in Great Britain unless British manufacturers take up the matter promptly. The trade in illustrated memorials is proportionately as great in Holland. But if British manufacturers hesitate it is owing mainly to the wide-spread conviction that the Post Office will not tolerate anything on a card but a few lines in type or writing. A scrap from a newspaper pasted on a card as a substitute for writing will not be passed, and naturally it is concluded that a miniature photograph is also illegal.

THE part of the esplanade of the Invalides, in Paris, which will be occupied by the four palaces assigned to various industries and decoration for the Exhibition of 1900 is now surrounded by a hoarding. The architects who were fortunate in obtaining the commissions for the buildings are MM. TROPEY-BAILLY, TOUDOIRE, ESQUIÉ and LARCHE. The first is the oldest, but he is only fifty-two. Hitherto he was not engaged as architect in public buildings. He is one of M. VAUDREMER's pupils. M. TOUDOIRE, who is six years younger, is architect to the Lyons Railway Company. He is a pupil of M. QUESTEL. M. ESQUIÉ, a pupil of M. DAUMET, is forty-five, and has charge of the Arc de Triomphe and the Vendôme Column. He is also a professor of architecture, and designed some large buildings in the provinces and abroad. M. LARCHE is forty-three, and a pupil of M. GUADET. He has had the novel experience of obtaining second prizes in five competitions—among them were the Sorbonne and the Opéra Comique—before he was successful in the competition for 1900. He has co-operated in the erection of the Hôtel des Postes and the Monte Carlo Casino.

IT is expected that the report of the select committee on the museums of the Science and Art Department will contain a recommendation that the duties of the "art director" should be greatly restricted. In the former inquiry it was shown there was much indefiniteness about the arrangements for the purchase of objects for the South Kensington and other departmental museums. Hardly two of the witnesses agreed about the extent of their powers or their responsibility. The art director, who was supposed by one theory to be the ultimate referee on all questions of buying works of art, was also expected to control the teaching in the art classes. It is now suggested that the museum director should be entrusted with the purchases on behalf of the Museum, but he is to consult in every case with whatever keeper possesses the expert knowledge that will secure the Department against the skilful forgery and sophistication of art objects. The director for art will consequently be concerned solely with the supervision of the art schools and classes. Some arrangement of the kind is demanded, for it cannot be said that either the additions to the Museum or the improvements in the schools are as satisfactory as from the outlay on them would be expected.

THE novelty of having two salons which could be visited for the franc which in other years was paid for admission to one of them naturally attracted this year large crowds to the Champ de Mars. The amount received during the two months the exhibition was open was 348,000 frs., or, in round numbers, 14,000*l.* Strange to say, the Sundays were most profitable, although they were free in the afternoon. As many as 30,000 visitors passed through the turnstiles on one Sunday. The receipts will be divided in the proportion of two-thirds to the older salon and one-third to the new. That the usual visitors were exhausted is evident when it is said that on the last day only 3,000 francs were received, although it was known the money was to be applied towards the purchase of examples for the Louvre collections.

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: EAST END. TRIFORIUM.

MORLEY HOUSE, ST. MARGARET'S BAY, DOVER.

THE stonework shown in the illustration of the above, together with the copings and pier-caps to boundary walls and carriage entrances, was executed in patent Victoria stone of a colour equal to the best yellow Mansfield, and the work has an appearance of the natural stone itself. The spandrels and panels were carved as natural stone, and have a very sharp appearance, as can be seen by the illustration. This material has been proved to successfully withstand the strong sea-air of our coasts, hence its application here. Mr. G. D. STEVENSON is the architect.

PROPOSED MEMORIAL SCHOOLS, ST. MARY OF THE SEA, HASTINGS

THESE schools are to be built as a memorial to the late Dr. FAA DI BRUNO, author of "Catholic Belief," the present schools, which are in the crypt of the church, being inadequate for their purpose. Accommodation will be provided for eighty infants on ground floor and eighty girls and eighty boys on first floor. An assembly hall is on ground floor with platform and retiring-room for performers, with cloakrooms and lavatories leading from staircase landing. The external walls are of hollow brick with Bath-stone dressings and mouldings, with hard York for copings, crosses, &c. Westmoreland green slates are used for roof. Inside the classrooms will have glazed brick dadoes and walls above plastered. Ground floor classrooms and assembly hall 1½-inch wood-block flooring. The cost is estimated at about 2,600*l.* The architect is Mr. J. H. EASTWOOD, A.R.I.B.A., 42 Cheniston Gardens, Kensington, W.

PROPOSED NEW ROOF AND DECORATION TO THE GUARDIAN ANGELS' CHURCH, MILE END.

THE nave of this church is at present 36 feet wide, 24 feet high and 63 feet long, with a flat ceiling over same. Consequently the interior presents a poor appearance. It is also badly constructed, insufficiently lighted and ventilated. The illustration shows a new roof, the construction of which is formed of four arched steel lattice ribs secured to eight steel stanchions, dividing the nave into five bays, reducing the width to 23 feet 9 inches and raising the height to 33 feet, and forming aisles on each side. The lattice ribs and stanchions will be cased in fibrous plaster slabs and decorated.

The effect will be to produce an interior of better proportion, well lighted and ventilated by a row of clerestory windows on each side.

It is also proposed to build a new front towards the Mile End Road, lengthening the church by about 10 feet, and increasing the accommodation of sittings.

The cost of both above works is estimated at about 2,000*l.* The architect is Mr. J. H. EASTWOOD, A.R.I.B.A., 42 Cheniston Gardens, Kensington, W.

THE HIGH BUILDINGS OF THE ANCIENTS.

TO Professor Lanciani is due the credit of the discovery that there were building laws in Rome long before the Christian era. As the price of urban property increased the landlords were forced to build high, and 200 years before the time of Christ the height of Roman tenements became alarming to those having the care of the public safety.

There are frequent allusions among the Roman historians, orators and poets to the enormous height of the tenement buildings of Rome, but no definite figures are given until the days of Augustus, when a law was promulgated by the Senate which fixed the height of new structures at 60 feet on the street front, without making any allusion to the height of the rear. It is, however, known that in the rear these tenement buildings rose often several storeys higher than in the front, so that from a distant height, as from the top of a temple which commanded an extensive view, a row of tenement buildings in Rome presented the appearance of a terrace—highest in the rear and descending by storeys toward the front. This law of Augustus applied to new buildings, respect, then as now, being shown for investments already made. The number of storeys on the street front of these Roman buildings was generally ten to twelve, with fourteen or fifteen in the rear. The lowest storeys were 8 or 10 feet in height, but, from accounts given by the writers of that time, the storeys appear to have gradually diminished as their height above the ground increased, so that the topmost tenants lived in quarters where very often they could not stand erect. That the storeys were sometimes much less than 5 feet is shown by the discoveries in Pompeii, where in a house inhabited, presumably, by poor tenants, a storey of 4 feet 3 inches has been discovered. This was a living room, too, for in it were found all the articles which pertained to Roman housekeeping—cooking utensils, beds, stools, mirrors, combs, brushes and other things which, with the bones of the family, furnished indisputable evidence that the rooms had been occupied. It is quite likely that there were thousands of rooms in the tenement districts of Rome that were no higher than this Pompeiian tenement, and, indeed, more than one Roman poet alludes to the lodgings into which he must "creep," the word, perhaps, indicating not a figurative but a literal method of entrance. That the tenement houses of Rome towered at least 100 feet above the street in front, and probably 125 to 130 feet in the rear is certain, for the promulgation of an edict limiting the height to 60 feet in front indicates that this height had been so greatly exceeded in so many cases that the public safety was believed to be imperilled. How many storeys were contained in these tenements is conjectural, but if the upper storeys were no higher than that of the house in Pompeii, the Roman tenements may have contained as many or more storeys than the modern office building.

The height of these Roman buildings was entirely irrespective of the width of the street. Modern building laws have more or less reference to the width of the streets on which the building faces, and to the isolation of the structure or its proximity to other buildings. The Berlin Building Act admits in residence buildings a maximum height of 36 feet if the street is of that width, and a greater height if the street is broader; the Building Act of Vienna allows 45 feet if the street is that wide; while the building laws of Paris permit a height in residence buildings of 63½ feet, provided the street is of that width. The Roman building law, however, had no reference whatever to the width of the street, and as most of the Roman streets were very narrow, the city, looked at from a height, strongly resembled a mass of houses with narrow trenches between. Many important thoroughfares did not exceed 10 feet in width; the widest streets in Rome were not more than 100 feet, while the side streets were often mere passageways, from 5 to 6 feet in width. With streets no wider than this, and with houses of which the upper storeys projected farther than the lower, it was quite possible for the inhabitants of the topmost tenements to shake hands across the streets, if the custom of shaking hands had been as much in vogue then as now. That the situation was greatly to the advantage of thieves, marauders and night prowlers is evident from the frequent allusions to the depredations of burglars, and the ease with which a passage could be effected from roof to roof, even across the street. While providing an escape for night-hawks, the narrow streets proved also the salvation of tenement residents in case of fire. A city in which the houses were so closely packed together was extremely liable to extensive conflagrations, but when a tenement house took fire below the population simply climbed the stairs to the roof, and, with such of their goods and chattels as could be easily transported, escaped to the roofs of adjoining tenements or across the streets to houses not affected by the conflagration.

The extreme height and overhanging storeys of the Roman buildings were a source of danger to the citizens in more ways than one. There were many important thoroughfares in Rome that were always in the shade; only at high noon did a streak of sunlight find its way between the buildings to the pavement. The streets were thus always damp, for, although Rome was sewered and there was a penalty against throwing slops into the street, the city was none too cleanly, and there were frequent humorous allusions, among the poets and writers of odds and ends, to the misfortunes sustained by pedestrians, who, while passing along the street, were deluged by buckets of slops carelessly thrown from upper windows. Pliny mentions a wedding which ended in a riot on account of the leading participants being thus besprinkled with filth—not of design, but through the carelessness of a housewife who lived in the eighth or tenth storey, and had no desire to work overtime in walking up and downstairs with her bucket. The narrowness and dirtiness of the streets explain the frequent visits of various forms of pestilence, which from time to time devastated the city; the black death, the plague, the mysterious visitations of unknown diseases, which from their symptoms seem to have been akin to cholera, yellow fever and diphtheria—all these were indirectly chargeable to the high buildings and the damp streets.

There was another danger hardly less serious. Queer as it may seem to us in these days of gas and electricity, the streets of a city which certainly contained 2,000,000, and may have had 4,000,000 of population, were at night in the darkness of Egypt. Such a state of things presented singular facilities for the operations of footpads and highwaymen, and the frequency with which their operations were attended by murder is shown by the numerous epitaphs that have been discovered intimating that he whose ashes lay beneath was killed by robbers. Every householder, every tenant in a tenement house, had to look after his own security, and accordingly the doors of residences at dark were barred, every window was secured by a strong iron lattice, and in tenement houses the street doors were fastened and a common fund, raised by the tenants, was provided to secure the services of a watchman to look after the building. In the tenement structures which had a respectable class of tenants the watchman went his rounds through the building at regular intervals, but in the better class of houses there were generally two or more watchmen, and the one at the front door was chained so that he at least would give proper attention to business through the night.

Little heed seems to have been paid by the Roman builders to the edict of Augustus, and from all accounts the houses in the tenement district rose higher and higher, for in the next forty or fifty years half a dozen edicts were promulgated on the subject, which would not have been the case had the first been obeyed. Nero did more for Rome than any monarch before or after his day. Nero has probably been the most abused individual of ancient times, and his wanton cruelties, the barbarity with which he persecuted not only the Christians but all opponents, political or religious, his nameless vices, the murders of his relatives, chargeable to his account—all have combined to render him an object of detestation to succeeding ages. But, probably on the principle of "giving the devil his due," Professor Lanciani has shown that the merit of remodelling Rome was due to this monster in human form. If Lanciani is to be believed, the great conflagration which destroyed Rome in A.D. 64 was the work of Nero's agents, and if the latest researches are to be credited, the work was done with such effectiveness that of the fourteen wards three were completely burned, seven were almost totally destroyed, and the other four were more or less damaged. There seems, however, to have been method in the madness of the emperor, for some historians assert that in spite of the extent of the conflagration not a single life was lost, while others, admitting there were casualties, declare them to be very few.

However this may have been, it is certain that as soon as the ruins had grown cold the entire working population of the city was given employment in clearing off the *débris*, transporting it to the Tiber and erecting new structures. The imperial architects went to work and reconstructed the entire plan of the city. Without paying the slightest regard to previous lines, new structures were laid out as nearly straight as the nature of the ground would permit. Public squares, breathing spots, were located at convenient places in the tenement district, and a law was promulgated that no residence house should be higher than twice the width of the street. This seems to be the first reference among the Roman building laws to any proportion between the height of the house and the street. The changes proposed by Nero, had they all been carried out, would have made Rome a city which for comfort, convenience and safety was unequalled in ancient times, and not easily surpassed by modern cities. Every tenement house or residence building was to be isolated from its neighbours; wooden ceilings in the two or three lower storeys were prohibited, the ceilings rested on stone or brick arches, wood being permitted only in the upper storeys. Every householder was ordered to erect a wooden portico in front of his building that passers-by might have shelter from sun and rain, while the width of the streets and the isolation of the buildings furnished a reasonable guarantee against future extensive disasters by fire.

Very soon after the promulgation of this law Nero left Rome on his musical tour of Greece and the provinces, and his death in A.D. 68 put an end to the reforms which he projected. They were partially carried out, but his memory was so detestable to the Romans that even the excellent plans which his architects drew up for the reconstruction of the city were thrown aside because they were connected with the name of the most hateful tyrant who had ever occupied the throne of Rome. The old abuses returned, public squares were sold to speculators, tall tenements with narrow streets again came into fashion, and such was the height of the buildings that one Roman poet mentions a friend who had to climb 200 steps every night to get to his lodgings, while another alludes to a fire in a tenement which had reached the third storey before the dwellers in the upper portions of the building became aware of its presence.

The next building law in Rome was promulgated by Trajan, and without respect to the width of the street. It forbade a height in new buildings of more than 70 feet on the street front, like the other building laws, making no allusion to the rear storeys. The tenement evil in Rome was thus on the increase, and an explanation is found in the fact that in those days men were obliged to live close to their work. There was no rapid transportation which enabled the workman to live miles away from the factory, and to travel back and forth to his home morning and evening. The workman must live within an easy walk of the place of his toil, so the tenement districts of Rome were all located in the manufacturing quarters, and, to state the case in a modern way, all the tenement region of Rome was one vast sweating-shop.

Rome was not the only ancient city with building laws; Constantinople had them also. When the Emperor Constantine determined to erect his capital on the Golden Horn, the peninsula was separated from the mainland by a wall, and thus the limits of the city were defined by the imperial orders so that all might understand whether city taxes or country taxes were to be paid on property in the vicinity, for the difference between urban and suburban real estate was then as closely defined as now. As soon as the Emperor's intention became known there was a rush of speculators from all parts of the empire to purchase property in Constantinople and vicinity, and within a year after the imperial proclamation setting apart the peninsula as the chief city the property had gone up 300 per cent. All the real estate within the wall which Constantine had erected as the limit of the capital was held by speculators and capitalists, who invested hoping to realise a very large profit. Their expectations were not disappointed, but the change of capital from Rome to the East produced a result which was not anticipated.

The price of land rose so high that sufficient rentals could not be realised from the buildings already standing, and capitalists sent to Rome for architects to erect tenement buildings. They came, and if any judgment can be formed from the results of their labours, they must have come in considerable numbers, for in less than ten years after the announcement of Constantinople as the capital city the tenements of Byzantium rivalled the tenements of Rome. Constantine had fixed upon the top of the hill, the highest point of the peninsula, for his palace, but to the intense disgust of the royal occupant, it was discovered that before the splendid residence of the Emperor was fairly finished his view of the sea was cut off by the innumerable tenements which, standing on much lower ground, still rose high enough to impair the prospect from the royal palace. Constantine was not the man to put up with this sort of thing. He had spent too much money on his house to move, so a building edict was promulgated forbidding any tenement higher than 100 feet to be constructed, and also ordering those which exceeded that height to be reduced to the proper limit. Great was the outcry among investors and speculators, for it is said that from one block of buildings four storeys had to come down. How high these storeys were we have no means of knowing, but supposing them to have been only 9 feet, there must have been tenement buildings in Constantinople that exceeded 136 feet in height. Various emperors after Constantine endeavoured to restrict the construction of high buildings, in order to retain a view of the sea from the imperial residence, but all in vain; the architects persisted in carrying the houses up to the legal limit, and whenever it was possible to disregard the statute it was disobeyed.

One curious case is recorded of evasion, showing that men in those days were as sharp as they are now in ignoring the spirit, while pretending to comply with the letter, of the law. Apothagos, a Constantinopolitan, erected a row of tenements about halfway between the Golden Horn and the royal palace. The houses were of stone and brick up to the legal limit of 100 feet; above this there was erected a shanty structure of wood, three storeys in height. The imperial building commissioners objected and ordered Apothagos to pull down his superstructure, but he refused, alleging that the law applied to permanent, not to temporary, buildings; that the wooden superstructure was only temporary, designed for the use of his workmen until the interior of the house should have been fully completed. The commissioners persisted in their order for the removal of the wooden storeys, when the stubborn Apothagos went to law and applied to the imperial court for a writ commanding the commissioners to abstain from disturbing his peace and damaging his property. Law then was what it is now, and as Apothagos secured good lawyers to plead his case, on one technicality or another the matter was kept in litigation for years, meantime the structure continuing an eyesore to the Emperor and court. The matter was finally decided by the courts ten years after litigation had begun, and Apothagos was ordered to remove his wooden structure. But in the interval the Emperor Leo II. died, and his successor, paying little attention to such matters, and the building law having been disregarded in many quarters, the wily Apothagos obeyed by tearing down the wooden storeys and putting a brick and stone superstructure in their stead.

The Emperor Zeno, directly after his accession in A.D. 474, undertook to reform the Constantinople buildings, and promulgated a building edict limiting all future tenement structures to 100 feet in height, provided the street in front was 100 feet feet wide. Constantinople then suffered as much from fire as it has done under the rule of the Turks, and it was after one of these great periodic conflagrations that the reform of Zeno was begun. The burned district lay to the north of the peninsula, and Zeno's architects, following the example set by Nero, disregarded all former streets and boundaries, and laid out new avenues straight from the top of the hill to the water, crossed at right angles by streets running parallel with the shore. The streets from the hill to the water were 100 feet in width, while the avenues crossing them were 60 feet, and just in front of the imperial palace a grand avenue 150 feet in width, leading straight to the water from the central palace gate, was projected. This portion of Constantinople was thus made regular, and it is the only part of the city that now has wide streets and avenues crossing at right angles, for ere Zeno could carry out his plan for rebuilding the entire city he died, and the scheme was given up by his successors.

There is abundant evidence that high buildings, or at least buildings of a height that the ancients were not supposed capable of reaching, were to be found in almost every large city of antiquity. It is said by Herodotus that there were houses in Babylon of four storeys in height, while the Carthage houses often exceeded six storeys. The city of Tyre was limited to an island where the circumscribed area made property expensive, and consequently high houses were the rule at Tyre, as in Constantinople and Rome. Houses of ten storeys were mentioned by several Greek historians as being numerous in Tyre and other seaside cities of the East. We know that the tenement houses of Jerusalem must have been very high buildings, as eight and ten storeys are mentioned, and one rabbi speaks of having to climb over 100 feet in the air before he could reach his room. Athens had a building law limiting the height of structures for residence purposes to ten storeys, though the height of these storeys is not mentioned.

The walled cities of the Middle Ages rendered land valuable for building, and consequently, to secure proper returns, capitalists were forced to erect high structures. On the other hand, therefore, the legal authorities were obliged to enact binding laws to prevent these buildings being so lofty as to endanger the public safety. The islands on which Venice was built were limited in area, and property was very valuable, so much so, in fact, that the Council was compelled to pass a building law limiting the height of buildings to 70 feet. In Florence, so long as the city was confined by walls, the limit was 100 feet; in Paris 60, in Toledo 75 feet. Rheims had a curious building law, forbidding any structure for residence purposes to be erected higher than the eaves of the cathedral, and it is recorded that whenever a building was going up the sexton was enjoined to look out daily from the portholes in the eaves and see that the walls of no structure rose higher than the level of his eyes. The burghers of Amsterdam probably borrowed the idea from the Council of Rheims, and ordered that no tenement or residence house should be higher than the third storey of the Rathhaus, this building being the pride of the city, being thus jealously preserved in its pre-eminence over all others.

The building laws of both ancient, Mediæval and modern times have not generally applied to structures other than residences and office property, and it is marvellous to what an extent the architects of ancient and Mediæval days succeeded in rearing strong, stable and lofty buildings. The Birs Nimroud, or Tower of Babel, now only a mound, has been partially excavated, and from the portions that have been uncovered it is estimated that this tower or temple must have had sixty storeys and been from 500 to 800 feet in height. The Pyramids of Egypt, among the earliest human monuments, are also the most stupendous. The base of the Great Pyramid covers 13 acres of ground, and the height is slightly above 500 feet. In other words, the great pyramid of Cheops is almost exactly

the dimensions of Pilot Knob in the southern part of Missouri and this huge pile is of solid cut-stone throughout. Giant structures are not confined to Egypt or Europe, for the temples in India rival in extent and magnificence those of the most cultured nations of the West. Nor has even the Old World a monopoly of tall buildings, for the Mexican pyramids, erected at an unknown period, rival in size and dimensions the second-class pyramids of Egypt.

In comfort and convenience no dwellings of any age can compare with those of our own day, but so far as solidity of construction is concerned the ancients built as substantially as the moderns, and in even the great tenement buildings of Rome, Constantinople, Tyre and Jerusalem the quality of the materials employed and the close inspection of government officials rendered these structures so substantial that the falling of a house from any cause, save by fire, was a comparatively rare occurrence.

WATER-SUPPLY OF FLORENCE.

IN the year 1896 the total consumption of water in Florence amounted to 874,748,380 gallons. The total number of concessions granted for domestic use was 4,834. Nearly every house is provided with a well, of which about 13,000 exist in Florence. Well-water generally rises from a depth of 29½ to 36 feet from the surface of the soil, its temperature being from 57 degs. 2 mins. to 60 degs. 8 mins. Fahr. Of late years a few of these, being reputed unwholesome, were closed by the municipality. The quality of the public water is satisfactory under ordinary circumstances, but is said by hygienists to be liable to become contaminated and consequently a source of public infection. It is also held to be decidedly scarce in quantity greatly to the detriment of the public services, especially watering of the streets, boulevards, &c., this scarcity being also an obstacle to the general suppression of private wells which might eventually become a cause of infection.

A scheme to provide water from the Sieve was sanctioned by the Grand Ducal Government as early as 1857, but the commune was obliged to give it up on account of the great cost of the enterprise. In 1867 the municipality bought some springs at Rignalla with a view to bringing their water into the town, but even in this instance the project was abandoned on account of the scarcity of water available therefrom. Two years later a municipal commission appointed for the purpose fully reported on the matter, but nothing was done until 1870, when the Montereggi aqueduct was transferred to the commune and improved.

In 1872 the scheme for the present system (Anconella tunnel) was brought forward and met with the approval of the commune; the works were speedily commenced and completed in 1877, their rapid completion being due, as in the case of other great public works, to the energy and good offices of Commendatore Ubaldino Peruzzi, at that time Syndic of Florence. The supply so obtained was, however, not found in course of time very satisfactory either as to quality or quantity, and a competent commission appointed in 1886, after careful chemical and bacteriological analysis, reported it to be "fairly good but liable to contamination." The matter was therefore brought again into discussion and a new commission appointed.

The latter presented in 1893 an elaborated scheme for bringing the water from the "Garfagnana" by an aqueduct sixty-four miles in length at an expense of about 800,000*l.* The project was, however, objected to and abandoned. The commune decided, therefore, to entrust the study of the question and of further schemes to the permanent municipal commission of works, who having examined eight new projects, reported upon them on May 14, 1895. Of these, three only were found worthy of serious consideration.

1. Messrs. Luciani Brothers' project to obtain the water from the Monte Amiata by an aqueduct 72½ miles in length at an expense of 640,000*l.*, giving 5,280,000 gallons per diem (24 hours). The board rejected it on the ground that there was no guarantee that the water was good, and that the estimated cost was too much under the mark, calculating that it might exceed 920,000*l.*

2. Project of Engineer V. Bibolini—source, Pistoja Apennines; output, 6,600,000 gallons per diem (24 hours); cost, 320,000*l.* Objected to for technical reasons.

3. Messrs. Vestrini & Bibolini's project for an aqueduct to bring the water from the Gangheri and Chiesaccia (Garfagnana); length, 62 miles; output, 6,600,000 gallons; to be constructed at their risk for 440,000*l.* This was preferred to the others by the board, with some modifications. The board, however, advised the Giunta to have tenders for the grant of the concession on the main lines of the above project, but under conditions fixed by the commune and suggested by said board. This project was analogous as far as the source of supply is concerned to that proposed by the commission of 1893 and rejected by the commune.

A new proposal, which was said to be very advantageous for the commune, was at this time submitted by another company (Del Poggetto's project) on the lines of that suggested by Engineer V. Bibolini, for obtaining the water from the Pistoja Apennines. Obstacles, however, arose on account of the important mills existing in that district, especially at San Marcello, where hydraulic power is used up to 300 horse-power and which would have been deprived of the same, and above all on account of the practical difficulties to collect together the water of the numerous small springs in that district. For this and other reasons this project failed and gave way to that of Messrs. Boggio & De Niccolo, by whom at last a preliminary agreement was prepared and sanctioned both by the commune and prefecture on July 9, 1897.

The detailed technical project has not as yet been published nor the contract signed. It is, however, held in official quarters that the company, a solid and reliable one, will be but too ready to undertake the enterprise about which they have already incurred some expenses for preliminary studies, &c. The company will bind themselves to bring into Florence every twenty-four hours 6,600,000 gallons of drinking-water of excellent quality, to be derived either from the springs of the Pistoja Apennines or from the Turrita di Galliano (from the spring called "dei Gangheri") in the "Garfagnana," will provide the springs (except that of the Gangheri which already belongs to the commune), will make the necessary expropriations to construct the aqueduct and reservoirs, lay the mains, pipes, services, &c., all on account of the commune, which will immediately become proprietor of the plant. The company will have the right to exploit the aqueduct on their own account for fifty years.

The commune guarantees the sale of 1,100,000 gallons of water per diem after three years of exploitation and 1,320,000 gallons after five years. This guarantee will not be binding in case of wars fought in Italy, epidemics or other public calamities. It will completely cease when the sale of water for domestic use shall have reached 1,320,000 gallons per diem. The company will have to submit to the commune within a year from the date of the notification of the provisional concession from the superior authorities a complete plan of the plant. On receiving said concession, they will have to pay to the commune as a security 150*l.* of Five per Cent. Italian Rente.

Before the definitive project is approved, the water to be brought into the aqueduct will have to be carefully analysed by a special commission appointed by the commune in order to ascertain that the same is of the best quality and from natural springs. The supply may be effected in two distinct periods. In the first not less than 4,400,000 gallons per 24 hours will have to be provided within 30 months after the date of the definitive contract; in the subsequent period the supply will have to reach 6,600,000 gallons per 24 hours, as soon as the total consumption will be of 4,180,000 gallons per diem. In this case the works will have to be completed in eighteen months. Under any circumstances the same will have to be completed within thirty years from the date of the contract.

As an indemnity for all expenses incurred by the commune from January 1, 1897, up to the date of the execution of said contract, for laying new pipes and other unavoidable works to the mains, the company will have to pay a sum not exceeding 6,000*l.* The commune will grant the company during the concession the free use of the water of the spring of the Gangheri, that of the reservoirs of the Carraia, Pellegrino and Querce, and the whole plant underground. The company, with the consent of the commune, will, if necessary, modify this plant at their own expense.

Whenever required at the request of the committee, the company will construct at their own expense a reservoir of the minimum capacity of 880,000 gallons, near the one existing at the Querce, according to the exact plan approved by the commune. The commune will have the right of free use for all municipal requirements of 2,200,000 gallons of water per twenty-four hours. When the quantity of water sold for private use shall have reached 1,320,000 gallons per diem, the company will have a right to use within the communal territory, but outside the gates, and exclusively for the watering of the streets, squares and other public purposes, the water of the well of the Campo di Marte, which will be placed at the disposal of the company just as it is, together with the accessory buildings and machinery. In this case the company will construct at their expense the necessary conduits, reservoirs, &c., in such a way, however, as to be entirely separate and independent from the other system, and always subject to the approval of the communal council, and under the strict surveillance of the same. The company will be exempt from all direct communal taxes for the construction as well as for the exploitation of the aqueduct, and from octroi duty on the pipes, &c., but not from any other tax. The commune will be entitled to use the water obtained through special pipes laid at its expense from the tunnel of the Anconella or from any other old aqueduct or spring, excepting that of the Campo di Marte, for the purpose of cleansing public drains, watering streets, public gardens, &c., but in no case shall this water be

introduced in the mains and reservoirs used for drinking water. As soon as the consumption has reached 1,320,000 gallons per day, the company will be bound to pay the commune an annual sum of 324*l.* for every additional 44,000 gallons of water sold per diem.

The duration of the exploitation on the part of the company fixed at fifty years will commence from the day on which the distribution of the water into the town for public and private use actually takes place.

The aqueduct shall be constructed of metallic pipes of Italian manufacture. The project which has been at last selected appears to be very satisfactory in all respects. The water of the Garfagnana is of excellent quality from deep-lying springs. Moreover, the contract will finally insure a daily supply of 6,600,000 gallons (33 gallons per head), so that even calculating at 2,200,000 gallons per diem the water required for watering the streets and squares of the city (total area, 2,509,708 square yards), as well as for the fountains and other services, there will still remain an abundant quantity for domestic use (22 gallons per head per diem). The city will thus enjoy a larger water supply than the cities of Bradford (24 gallons), Nottingham (18⅓ gallons), Manchester (21 gallons), Burton-on-Trent (9⅛ gallons), Leeds (24 gallons), Birmingham (21 gallons), Liverpool (22⅕ gallons), and not much inferior to Edinburgh (39 gallons), and Dublin (36⅓ gallons).

The cost of the aqueduct is calculated at 440,000*l.*

INDIAN AND CHINESE INDUSTRIES.

A PAPER by Mr. W. C. Wood, M.I.M.E., late examiner to the Victoria Technical Institute, Bombay, published in the *Journal of the Society of Arts*, describes the "Effect of the Cotton Spinning Industry in China upon the kindred Industry in India." But the manner of conducting business in India and China is similar in all departments of industry. The following extracts from Mr. Wood's paper will have interest in other towns besides those of Lancashire :—

During the last ten years the cotton industry in Bombay has progressed by leaps and bounds. To an outsider it would indeed appear as if the trade were in a most prosperous condition. On giving the matter a moment's reflection, however, one is tempted to ask oneself this question, Are these new mills the result of *bona fide* prosperity in trade, or are they floated as pure speculations?

Now in India there is a very peculiar way of doing business. Suppose, for instance, three or four persons possessing a few thousand pounds between them desire to float a cotton-spinning concern, what do they do? Well, they get together a board of directors, register the company, elect themselves as agents or managing directors. In their articles of association they take very great care to insert a clause empowering them to charge a quarter of an anna commission on every pound of yarn spun or of cloth manufactured. This commission is paid to them whether the mill works at a profit or a loss.

Then, again, it often happens that the directors and agents are unable to raise sufficient capital to pay for the buildings and machinery and to work the concerns. In this case debenture shares are created, and loans are raised at a high rate of interest, with the result that what profit the mill had made goes to the agents in shape of commissions and in interest to loan capital. The writer calls to mind a case in which one lac of rupees annually was swallowed up in this manner, whilst the poor shareholders got nothing.

In addition to the agents making princely incomes from these concerns, many of their relations or friends manage to come in for some remarkably good pickings. It is really surprising what a number of separate and distinct businesses can be created, hanging on to and living upon the mills. You have, for instance, the cotton selector, the cotton broker, the muccadum or man who carts the cotton from the market to the mill, a man who makes a very respectable fortune in a very few years. Then there is the coal broker, the coal watcher, the coal muccadum—in fact, where a department can be created it is, and the happy possessor of that plum soon becomes rich and happy.

As to the mills and machinery, they are fitted with the latest improvements in engines, boilers and machinery in general. No expense is spared to equip them with the most modern appliances. They can fully bear the closest comparison with the most up-to-date concerns at home. The workpeople are skilled and attentive, and use the machinery well. In most concerns there is a European manager, who acts as a sort of supervisor. It is a surprising fact that although the natives have been familiar, and have become expert, in the use of cotton spinning machinery for over thirty years, they have practically done nothing themselves in making improvements. They accept and appreciate new ideas as they are brought out, yet they seem incapable of originating anything themselves—an Oriental trait. They are wonderful copyists, but poor originators.

The oldest cotton spinning mill in China has not been erected more than about nine years. It is true that a large mill was erected by Li Hung Chang, in Shanghai, a few years before then, but this mill was unfortunately burned.

Since 1891 great progress has been made. In Shanghai alone there are no less than eleven cotton mills. In the first six months of 1897 five new concerns commenced working, whilst up country several mills are already working, and there are numerous inquiries from projected new companies. So that it seems as if this industry had now established itself on a firm basis.

Naturally the first concerns were founded and worked by Chinese, with European supervision over the machinery. They themselves superintended the commercial department, so far with anything but satisfactory results.

In his own opinion, John Chinaman is a wonderful man, even if he does most things in exactly the opposite way to what he should. He has neither the faintest idea of taking stock nor of balancing his books at the end of the year as he ought to do.

The Chinese have only one holiday in the year, and that is at their new year, which date is movable, but generally falls some time in February. This is the time they square up everything and pay off all their debts. Anyone not being able to pay all his accounts and to start the new year with a clean sheet is posted as a defaulter, and is looked upon with suspicion by everyone. It is considered a family disgrace not to pay everyone up at that time. Naturally the people are preparing some weeks beforehand to arrange their business, so that they can clear off all outstanding accounts and be in a position to start *de novo*. From what one can see, this is the time John can tell whether he has made a profit or a loss in his business during the past year. He pays all his debts, and then sees how much money he has left, and so estimates his gains or losses. As we before remarked, the cotton spinning industry has not turned out a very profitable speculation when under exclusive Chinese management. The fact is, John tried to run before he had learned to walk. He was certain he knew how to manage a large concern, though he had had no previous training, and, in fact, knew far better than the Europeans he had specially engaged to teach him. The only natural results followed : he lost money and gained sense, with the result that most of the mills owned by Chinese in Shanghai either have been, or are, now in process of being transferred to European companies, to be worked and managed on exclusive European lines. One thing John intensely dislikes, and indeed seems utterly unable to do—that is, to look after "little things." He has only one spot where he can be touched, and that is—his pocket. He has a decided objection to spend money, and an all-consuming desire to make it. In furtherance of this weakness, he makes up his mind he will not pay high wages—and he does not. He engages numbers of what we should call "look-see" men, that is, gentlemen who are employed in walking round the mills to "look-see" if others are attending to their work. From a close and careful observation of these men, their commercial value would not be one dollar per dozen. "Eyes they have, but see not ; ears they have, but hear not." The wages of these gentlemen vary from 20 dols. per month down to 6 dols. Average them at 10 dols. ; the value of the dollar to-day is 2*s.*, which gives them some 5*s.* per week of wages. It must be borne in mind that they are married men, and have to support families on this small sum. When one looks at the gorgeous silks and satins in which they are arrayed, one is tempted to ask one's self, How do they manage to dress and live on such pay? To an outsider this would be a subject for anxious inquiry, but to one who knows the answer is given in one word, "Squeeze," with a big capital "S."

Yes. Squeeze is the beginning and the ending of all business in China. It is the life thought of the proprietor's servant, who receives some 6 dollars a month as pay, and who somehow or other manages to keep a wife and family in good condition, can dress in "crushed strawberry" silk breeches, and a gorgeous lavender-coloured satin coat. You may rack your brains in trying to elucidate the problem as to how it is done and find no answer. Perhaps, however, during the process of investigation you may want to see his master on business. He cannot be approached, for he is a mandarin of sorts, without being announced by his servant. Having sent in your card with a request that you wish to see him on a matter of important business, the servant returns and says he is very sorry, his master is asleep and cannot be awakened, or he is sick and cannot be seen. You return next day, when the same or other plausible answer is given, and so on till you wake up to the truth and pay. Then you can understand the silks and satins and other trifles, which were a mystery before.

And so it is in all grades, from the highest to the lowest, and from the richest to the poorest the great problem is, How can we get a squeeze? Everything has to be paid for. It is a game of chance ; you approach the official, whoever he may be, and intimate to him you are wishful for service, and what you are prepared to pay. It is a case of cash down; you have

to part there and then, and on the strength of this "comshaw," or squeeze, he approaches the principal and represents your case to him. If he is eloquent, or has sufficient influence with his master, you obtain employment; if, on the other hand, he fails you have paid your squeeze and lost. You have had your chance and missed. One thing, however, remains—the squeeze is never returned.

Not only upon men is there a squeeze, but upon everything that is bought. Only the other day, having occasion to check eight large rolls of leather belting which had been purchased from a Chinese store, each roll was found to be 40 feet short in length—in all 320 feet. On referring to the storekeeper's books everything was found to have been checked and entered as correct. But where were the 320 feet? There is only one answer—they had gone in squeeze.

The first thing which would strike an outsider on walking through one of the mills under Chinese management is the excessive dirtiness around him. It is a fact that a Chinaman cannot see dirt. He will actually fall down through slipping on a dirty, greasy floor, and next day repeat the process, without it ever striking him to remove the cause. They are dirty, filthy, alike from the highest to the lowest. Dirt and disorder is the last thing they can or will see. Their houses are never cleaned, they have no comforts, and not many wants.

That nation which has the most wants or desires is the most civilised. China has very few. Her great desire is to be left alone in her dirt and squalor, and to be allowed to go on as she has gone on for centuries past. She cannot bear the poking up she is now receiving at the hand of the foreigners. When, however, John has been thoroughly aroused and brought into line he is anything but a fool.

In making a comparison between the workpeople, a wonderful difference is at once noticed between the Hindoos and Chinese. The customs, habits and manner of living at once declare themselves in the different races. Naturally India to-day has by far the most skilled workers, but I am most decidedly of opinion that in a few years' time the Chinese will be equal to them in every respect. The present state of efficiency in the operations at home was not arrived at in a day or even a year. They owe their foremost position as expert workmen to being trained from early childhood. China, in this respect, will be placed at a greater advantage than India, because the Hindoos only come to Bombay for a time, and then return to their native country to retire upon the money they may have saved. On the other hand, Chinese labour is recruited from the immediate districts in which the mills have been erected. The result of this is that several members of the same family find employment in the same concern as at home.

So great has been the demand for labour of late through such a number of new concerns having been started, that fully grown and old people have been engaged. Naturally, these people are too old to become expert and quick, and fail to give proper results. It is to the children who are now learning their business we have to look; and we may say that the greatest and most important work those Europeans have who are in charge of the mills in China is to break in this raw material, and to reduce it from its original condition of dirt and disorder to system and order.

Then, again, there is no Factory Act in China, nor any factory inspection to put a limit to the number of hours the people work, or to the age at which they commence to work. The writer has known many cases where children of not more than ten years of age have worked sixteen hours at one spell, with not more than two stoppages of fifteen minutes each during that time. In some of the mills the engines work 22½ hours out of the 24. Work is carried on night and day, with two shifts of hands. Those on day duty begin at 6.30 in the morning and work till 6 P.M. On Sunday, those hands who have worked all Saturday night have to clean the machinery, which takes till 10 or 11 o'clock, so that they have a long spell of work of something like 16 hours.

With regard to the raw material, the cotton, the condition in which it is bought and delivered to the mills is very different in each country. In India you can go to the cotton market, select your purchase, and have it delivered to the mills in a condition freed from seed and leaf, and pressed in bales, just as you can do in Liverpool. In China there are no presses worth speaking of. You can buy cotton in Shanghai which has been ginned at some of the mills (that is, it has been freed from seed and leaf), but the greater proportion comes down from the grower up country in bags made of rushes, exactly in the state it has been plucked from the plants. Many of the mills employ agents to buy direct from the farmers, who ship it to Shanghai in boats *via* the canals, creeks and rivers, which are the great means of communication.

A few remarks on the cultivation of Indian cotton may not be uninteresting. It is a fact that Indian grown cotton does not improve in quality, in cleanliness, and in staple, or in yield per acre, as one would naturally expect. There does not appear to be any attempt made to improve its cultivation by selecting the best seeds or by fertilising the land. Why? The answer is very short and very simple. The land belongs to the ryots, and has most likely been in their families for generations. Now, everyone knows that the poor ryot is a man who cannot make both ends meet, and mortgages his crops long before they are ripe. In case of sickness or of famine, or when there is a wedding in his family, he needs ready cash, and consequently goes to the marwarri, or moneylender, who kindly obliges him, and soon loads the original amount with interest and compound interest to such an extent that the poor ryot can never get free from him. Nominally the owner of the land, he is in reality nothing more than the servant of the moneylender. He lives from day to day—a never-ending round of toil; his hours of work are from sunrise to sunset; he has no aspirations, nor any desire to free himself and to get on; he is just as his father was, and his children will have no other ambition than to be just as he is. And thus it is, year in and year out, the same round of toil and of labour and of hopeless debt ever hangs over him, and a life is lived with no incentive to better himself by improving either the quality or the yield of his crops.

The ground is tilled with the same rude, wooden ploughs, shod with a tip of iron; and the seed is taken from the previous year's cotton, whether it was of good or of bad quality matters not, in exactly the same way it was centuries ago.

In China you can depend upon getting the pure and unadulterated article you purchase, because it undergoes all its processes under your own observation. On the other hand, in India the natives are rather more astute. They have arrived at the knowledge of the truth that it is easier and more profitable to grow sand than cotton, and if they can mix a poor with a better grade along with a sprinkling of sand, why a good day's work has been done. As regards the future outlook of this new industry in China and the effect of its competing with India, the case appears almost parallel to that of Lancashire and Bombay some years ago. Lancashire lost her trade in low numbers in the East for the simple reason that she could not compete with Bombay with its cotton grown on the spot and its cheap labour. It seems very probable that Bombay will just take the place Lancashire did, and she will have to do what her old rival did—she will have to find new markets. With a population of over 280,000,000 at her doors it does not seem unreasonable to think that she could easily find an outlet for her manufactures in supplying yarn for the clothing of her teeming millions.

Ought we not to look upon this development with feelings of pleasure, and not with feelings of antagonism? For is not each new mill or manufactory which is erected a great civiliser and a great teacher, and will not these new industries play a very important part in the awakening of China? A remark made to me by a mandarin, as he was inspecting a large cotton mill, shows that these industrial concerns do arouse within them feelings of sorrow for their country. "Ah," said he in a tone of sadness, "this is the work of foreigners; we could not do these things." If high officials begin to think thus, and can see how backward they are among nations, it is certain then that every new mill erected will play some part in helping on the time when China shall become awakened from the great sleep which has overcome her.

PUEBLO MASONRY.*

THE ancient pueblo builder, like his modern successor, was so closely in touch with nature, so dependent on his immediate physical surroundings, that variations in some at least of his arts are more natural and to be expected than uniformity. Especially is this true of the art of construction, and variations in masonry are more often than not the result of variations in the material employed, which is nearly always that most convenient to hand. Yet there were other conditions that necessarily influenced it, such, for example, as the character of the structure to be erected, whether permanent or temporary.

The highest type of masonry in the pueblo system of architecture consists of small blocks of stone of nearly uniform size, dressed and laid in courses, and rubbed down *in situ*. No attempt was made to break joints. This system requires the careful preparation of the material beforehand. As a variant we have walls composed of stones of fairly uniform size, laid with the best face out and with the interstices chinked with small spalls. Chinking is carried to such an extent in some places that the walls present the effect of a mosaic composed of small spalls. Chinking is almost a universal practice, and in some localities had passed, or was passing, from a mere constructive to a real decorative feature. Here we have the beginning of that architecture which has been defined by Fergusson as "ornamental and ornamented construction"—in other words, of architecture as an art rather than as a craft.

* A paper by Mr. Cosmos Mindeleff in the sixteenth annual report of the Bureau of American Ethnology.

The use of an exterior finish of plaster was conducive to poor masonry. Such plastering is found throughout the region, but it is much more abundant in the modern than in the ancient work. Perhaps we may find in this a suggestion of relative age, not in the use of plastering, but in its prevalence.

Pueblo masonry is composed of very small units, and the results obtained testify to the patience and industry of the builders rather than to their knowledge and skill. In fact, their knowledge of construction was far more limited than would at first sight be supposed. The marked tabular character of the stone used rendered but a small amount of preparation necessary for even the best masonry. For over 90 per cent. of it there was no preparation other than the selection of material. The walls and buildings were always modified to suit the ground, never the reverse, and instances in which the site was prepared are very rare, if not indeed unknown.

Chinking was sometimes done, not with slips of stone driven in with a hammer, after the usual style, but with bits of mud pressed in with the fingers. The mud was used when about the consistency of modelling clay, and bears the imprints of the fingers that applied it; even the skin markings show clearly and distinctly. From this use of mud to its use as an exterior plaster there is but a short step. In plastered walls the process was carried a step further, and the surface was finished by the application of a final coat of mud made quite liquid. The interior plastering of kivas was always much more carefully done than that of any other walls. Owing to blackening by smoke and recoating, the thickness of the plastering in kivas can easily be made out. Often it is as thin as ordinary paper.

It seems probable that the application of plaster as a finish grew out of the use of stone spalls for chinking, and its prevalence in modern as compared with old structures is suggestive. Surface-finishing in mud plaster is the prevailing method at the present day, and well-executed masonry of stone carefully chinked is almost invariably ancient. The use of surface-plaster is largely responsible for the deterioration of stonework that has taken place since the beginning of the historic period. The modern village of Zuñi, which dates from the beginning of the eighteenth century, although built on the site of an older village, is essentially a stone-built village, though that fact would never appear from a cursory examination, so completely is the stonework covered by surface plaster.

In Tusayan (Moki) walls have been observed in progress of erection. The stones were laid up dry, and some time after, when the rains came and pools of water stood here and there in pockets on the mesa top, mud mortar was mixed and the interstices were filled. This method saved the transportation of water from the wells below up to the top of the mesa, a task entailing much labour.

It is probable that the practice of chinking grew up out of the scarcity of water, when walls were erected during the dry season and finished when the rains made the manufacture of mud mortar less of a task. Chinking, both with mud and with spalls, was extensively practised.

Although walls were often built on sloping rock, and the builders had experience, and at times disastrous experience, to guide them, the necessity for a flat and solid foundation was never appreciated. Walls were sometimes built on loose *débris*; even refuse which had been covered and formed an artificial soil was considered sufficient.

It is well known that sheep were introduced into this country by the Spaniards, and the presence in the ruins of sheep dung, or of a material closely resembling it, is important. Much of this is due to subsequent Navaho occupancy, and many ruins are used to-day by these Indians as sheepfolds. It is said, moreover, that at the time of the Navaho war, when the soldiers bayoneted all the sheep they could find, large flocks were driven up into some cliff ruins that are almost inaccessible and kept there for a time in security. But many instances are found where the walls rest directly upon layers of compacted dung.

It has been suggested that the compacted dung found in the ruins was the product not of sheep, but of some other domesticated animal which existed in this country at the time of the first Spanish invasion, but the evidence to support this hypothesis is so very slight that so far the suggestion is only a suggestion. Not the slightest trace of this animal has been found, although it is alleged that it was domesticated among the pueblos 350 years ago.

Although the idea of a strengthening or supporting buttress is thought to be a foreign introduction, a hypothesis that is strengthened by the occurrence of other features, the masonry is aboriginal in its principles, and probably also in execution. The conservatism of the Indian mind in such matters is well known. The Zuñi to-day use stone more than adobe, although for a hundred years or more there has been an adobe church in the midst of the village.

Adobe construction in this region is only partially successful. North of the Gila river, in the plateau country, the climate is not suited to it; the rains are too heavy, and the frosts are destructive. Constant vigilance and prompt repairs are necessary, and even then the adobe work is not satisfactory. Certainly in the northern part of the country the aborigines would not have developed this method of construction in the face of the difficulties with which it is surrounded. The fact that the only previously known examples of adobe work occur in ruins which are known to have been inhabited subsequent to the Spanish conquest, such as the ruin of Awatobi, in Tusayan, is suggestive. Moreover, adobe construction in this region belongs to a late period, for the walls are almost always very thin, usually 6 or 7 inches. The old type of massive walls, 2 or even 3 feet thick, are seldom or never found constructed of adobe, although such thickness is more necessary in this material than in stone.

There is another method of construction which, although not masonry, should be noticed here. This is the equivalent of the Mexican "jacal" construction, and consists of series of poles or logs planted vertically in the ground, close to each other, and plastered with mud either outside or on both sides Dr. W. R. Birdsall mentions walls in the Mesa Verde ruins which are "continued upward upon a few tiers of stone by wickerwork heavily plastered inside and outside," and Nordenskiold mentions a similar construction in the interior of a kiva

ROMAN VILLAS.

THE villa or country house of the Roman gentleman, properly so called, was often built near the sea, because, says Winckelmann, fevers or great heat were not experienced on the coast. The country house discovered at Herculaneum was situated on the edge of the sea, and a long causeway led from the garden to a circular summer-house, pierced with windows in every direction and situated in the sea itself. In short, the grand distinction from town houses consisted in the villas being insulated by a moat, single or double, with a wall between the two, or in their enclosing a piece of water. This last, like our modern public gardens, was surrounded with a piazza, divided by columns into boxes for conversation or bathing. Between the columns were placed busts and statues alternately. In general these houses had only one storey.

The country houses of Rome (properly defining the term) were villas of enormous magnificence and exquisite situation, but as the great public men could not be long absent from Rome, they had inferior and smaller residences in the outskirts of the city, which they called their gardens, and also villæ suburbanæ or suburbana. Of course those at Pompeii, being existing specimens, are the fittest to be considered.

These villas present nothing to the road but bare walls. The windows are all towards the garden like the houses of the East. In the centre of a square was a bath and ædiculum, the square formed by a piazza, the roof of which was a terrace, and at each of the hither corners at least was a summer-house. The plans were by no means uniform, and according to the Pompeian villas there is no important difference from the town house, except in the annexation of the garden, enclosed within a porticus or piazza.

The villa on the road, called of Herculaneum, was placed upon the edge of the declivity, which sloped towards the sea, and consisted partly of two storeys, the upper one being on the level of the street. It was spacious, and near the entrance was a bath, with all the necessary appendages. In the rear, the best rooms opened upon a terrace running the whole width of the house, and overlooking a garden or xystus, about 30 yards square. Under the terrace was a portico for exercise in shade or during rainy weather. At the further extremity a small temple, supported by six columns, projected towards the villa, and in its front a bath or basin occupied nearly the centre of the garden. The lower apartments, under the arcade, were paved with mosaic, coved and beautifully painted, as was also the greater part of the villa. One of the rooms had a large glazed bow window. The glass was very thick, and deeply tinged with green. It was set in lead, like a modern casement. In the cellars were many large earthen wine vases ranged in order against the walls. In that part of the lower storey which was removed from the covered portico the rooms, more simply finished, contained implements of husbandry. To this division of the house was a separate entrance.

The Roman villa was divided into three parts; the urbana, for the master and family, the rustica for the farmer and husbandmen, and the fructuaria, or storehouse for corn, wine and oil. The servants who were immediately attendant upon the master, and belonged to the villa urbana, were the atrienses, or what the Italians style the sala, in speaking of the livery servants collectively; the valets, cubicularii, who, it is presumed, were usually freedmen; the secretary, styled notarius; the gardeners for the pleasure garden, topiarii, and the musicians and comedians and persons for entertainment during repasts. This villa urbana, also denominated pseudo urbana, and prætorium from obvious distinction, had a peristyle or court, surrounded by a portico, at the further extremity of

which, opposite to the gate of entrance, was the atrium or hall, with a portico on each side, looking towards the place of exercise, as lawns, galleries for wrestling and other smaller buildings. The baths were also annexed to this part of the building, and were always so situated as to enjoy the winter's setting sun. Besides the sitting-rooms, chambers, library and dining-room—they would often have one of the latter kind, in the midst of the park, as we should call it—and sometimes a bedroom for the sake of quiet and retirement.

In the villa rustica or farmhouse, in apartments over the gateway, lived the procurator or steward, that he might know who went in or out; on one side of this, the villicus, bailiff or chief of the husbandmen, and near the fructuaria or storerooms, the villica or housekeeper, under whose order were the female servants employed in providing food and clothing for the family. The inferior slaves lodged in one great room, and the sick in an apartment called the valetudinarium. The lodgings of the freedmen had a southern aspect. The aviarius had the care of the poultry, and in considerable villas, far from a town, was a master of the workmen, ergastularius, with smiths and carpenters under him. Horses and mules were kept for the use of the master, and asses and oxen for that of the farm, which had yards much resembling the modern. Particular care was taken of the geese, hens, pigeons, peacocks and other birds, who had also separate dwellings assigned to them; and not only deer, hares and every kind of game was attended to, but there can scarcely be named an animal which was not kept by the more opulent Romans at their country seats.

The villa urbana or pseudo-urbana was also divided into a winter and summer house, because it had a suite of rooms adapted to either season. The parts which composed the summer residence were nearly the same as those of the town, except that the dwelling apartments, which did not commonly exceed one storey, were always surmounted by a tower, on the top of which was a room pierced with windows on every side, uniformly destined for meals, so that they could add to the pleasures of the table those of light and prospect. They nearly always built their villas along the high roads, for two reasons, one to get to them more easily, the other to place them more in sight. In the Pompeian paintings we have villas of this kind. One on the sea-shore, of two storeys, has trees planted on the roof. Winckelmann says that the architecture of the villas of Herculaneum is the same as that of the large houses of towns, so that the plan and elevation of the one is the same as that of the other.

TESSERÆ.

The Senses and the Arts.

OF the five senses which have been given to man, three—the taste, the smell and the touch—are incapable of awakening in us the sentiment of beauty. Joined to the other two they may contribute to extend this sentiment, but alone and by themselves they cannot produce it. Taste judges of the agreeable and not of the beautiful. No sense is so little allied to the soul and so much at the service of the body; it flatters and serves the grossest of all masters—the stomach. If the smell seems sometimes to participate in the sentiment of beauty, it is because the odour is exhaled from an object which is already beautiful in itself and beautiful in another way. Thus the rose is beautiful by its graceful outlines, and by the varied brilliancy of its colours; its odour is agreeable, it is not beautiful. Finally, it is not the touch alone which judges of the regularity of forms; it is the touch enlightened by the sight. There remains, therefore, only two senses to which all the world agrees in according the privilege of exciting in us the idea and sentiment of the beautiful. They seem more particularly at the service of the soul. The sensations which they give are purer, more intellectual. They are less indispensable to the mere physical preservation of the individual. They contribute to the embellishment rather than to the sustenance of life. They procure us pleasures in which we seem to have less a personal interest and more often forget ourselves. It is, therefore, to the sight and to the hearing that art must address itself, and address itself in order to penetrate to the soul. Hence the division of the arts into two great classes—arts of hearing and arts of vision. On the one hand, music and poetry; on the other, painting, with engraving, sculpture, architecture, and landscape gardening.

Vanbrugh and Blenheim.

In 1706 Parliament resolved to raise a public monument of glory and gratitude to the illustrious John Duke of Marlborough. They voted a splendid mansion without assigning funds to pay for it, but Queen Anne commanded the work to proceed, issued the money necessary for commencing it, and in compliance with the wishes of the Queen, of Sarah the Duchess, and the hero himself, Vanbrugh was named for architect. The design was made, the site, near Fair Rosamond's Well in Woodstock Park, selected, the foundations sunk and the first stone laid. Marlborough, after a series of splendid victories, when within one stride of France with his conquering army, was removed from his command and recalled, that in the insults of the court and the hisses of the people the world might see that England could be as ungrateful as any other country to the man who had saved her from destruction. Churchill was too proud to take much pleasure in a work voted for him by those who wronged him more now than they had honoured him before, and, moreover, he was too sensible of the value of money not to feel that as the Parliament had provided no fund for defraying the expense, any interference on his part might make him liable for the whole. These were no idle fears. During the life of Queen Anne the towers of Blenheim continued to rise; the workmen, though not regularly paid, seldom clamoured, as they believed the money to be safe; and the Duke himself, though he refused to give any directions, did not hesitate sometimes to pacify the masons and carpenters by paying their wages; believing, no doubt, that the Treasury would ultimately make good his advances. But Queen Anne died, the Treasury closed its doors, the Parliament eluded to fulfil their engagement, and the new king sat quietly down on his throne and allowed the hero, who had helped to establish it, to mourn his unfinished house and his ungrateful country. It will scarcely be credited, yet no fact is better established, than that the English Parliament ordered Blenheim to be erected—Queen Anne paid for what was built while she lived—the Duke paid a part—and Vanbrugh and his workmen did the rest at their own proper cost and charges. The situation of the architect was extremely embarrassing on the death of the Queen. He never had been rich and had laid out all the money he was master of on Blenheim. It would appear that he had obtained a warrant from Lord Godolphin giving him the power of making contracts on the part of the Duke of Marlborough, but the decision of the House of Commons that the mansion which they had voted was to be paid for by the Queen completely quashed this warrant, which Marlborough, moreover, refused to acknowledge, asserting that Godolphin was never empowered to act in his behalf, and that Blenhim was to be built for him and not by him. These difficulties, brought upon them by the shabby conduct of the Parliament, bred disunion between the architect and the termagant Sarah, and this soon extended to the Duke. A violent quarrel ensued. Vanbrugh declared that though he had always looked upon the Crown as engaged for the expense, the poor workmen considered the Duke of Marlborough as their paymaster, and that several contracts which he had made with them were with the concurrence of his Grace. Marlborough admits that he had occasionally advanced money to the men and that he had been cognisant of some of these contracts, but adds that he never for a moment conceived that the workmen were employed on his account. "If at last," says one who drew up the Duke's statement of the case, "the charge run into by order of the Crown must be upon the Duke, yet the infamy of it must be upon another, who was, perhaps, the only architect in the world capable of building such a house, and the only friend in the world capable of contriving to lay the debt upon one to whom he was so highly obliged." That Vanbrugh rated those high obligations very low may be gathered from the letters which he wrote at that period. In his view, if we may trust his language thoughout, he had done his duty and asked only what he was entitled to.

Selection of Subjects in Painting.

It is a matter of great judgment to know what subjects are or are not fit for painting. It is true that they ought to be such as are often prescribed, full of grace and majesty; but it is not every such subject that will answer to the painter. The painter's theme is generally supplied by the poet or historian; but as the painter speaks to the eye, a story in which fine feeling and curious sentiment is predominant, rather than palpable situation, gross interest and distinct passion, is not suited to his purpose. It should be likewise a story generally known; for the painter, representing one point of time only, cannot inform the spectator what preceded the event, however necessary in order to judge of the propriety and truth of the expression and character of the actors. It may be remarked that action is the principal requisite in a subject for history-painting, and that there are many subjects which, though very interesting to the reader, would make no figure in representation. Such are those subjects which consist in any long series of action, the parts of which have very much dependency each on the other, or where any remarkable point or turn of verbal expression makes a part of the excellence of the story, or where it has its effect from allusion to circumstances not actually present. For instance, a subject which was recommended to a painter by a very distinguished person, but who, as it appears, was but little conversant with the art; it was what passed between James II. and the old Earl of Bedford in the Council which was held just before the Revolution. This is a very striking piece of history, but so far from being a proper subject, that it unluckily possesses no one requisite

necessary for a picture; it has a retrospect to other circumstances of history of a very complicated nature; it marks no general or intelligible action or passion; and it is necessarily deficient in that variety of heads, forms, ages, sexes and draperies which sometimes by good management supply, by picturesque effect, the want of real interest in a history.

The Antique Tripod.

To the poet and the artist, the most interesting recollections and associations connected with tripods arise from the circumstances peculiar to the establishment of the oracle of Delphi. The first discovery of this oracle is said to have been occasioned by some goats which were feeding on Mount Parnassus, near a deep and large cavern with a narrow mouth. The goats were observed by a goatherd, called by Plutarch Coretas, to frisk and leap strangely, and to utter unusual sounds on approaching this cavern, upon which he had the curiosity to examine it, and found himself seized with the like fit of madness, skipping, dancing and foretelling things to come. At the news of this discovery multitudes flocked thither, and the surprising place was soon covered with a kind of roof originally made of laurel boughs, but finally converted into a temple. Such indeed was its reputation, and such the multitudes who came from all parts to consult the oracle, that the riches brought into the temple and city became comparable to those of the Persian kings. At first, the whole mystery requisite for obtaining the prophetic gift was to approach the cavern and inhale the vapour issuing therefrom; but at length several enthusiasts, in the excess of their frenzy, having cast themselves headlong into the chasm, it was thought expedient, by way of prevention, to place over the hole whence the vapour issued a machine which they called a "tripod," because it had three feet. Upon this chair a woman was seated, imbibing the vapour without danger, the three feet of the machine standing firmly on the rock. This priestess was named Pythia, the Greek etymology of which word is "to inquire." The oracle could only be consulted on certain days, and, excepting on these, the priestess was forbidden, under pain of death, to go into the sanctuary to consult Apollo. Alexander, before his expedition into Asia, came to Delphi on one of the forbidden days, and entreated Pythia to mount the tripod, which she steadily refused. The impetuous prince, not brooking opposition, drew her by force from her cell, and on their way to the temple she took occasion to exclaim, "My son, thou art invincible." As soon as these words were pronounced, Alexander cried out that he was satisfied, and would have no other oracle. Strange and ghastly contortions were said to have agitated the priestesses on ascending the tripod. They attempted to escape from the priests, who detained them by force. At length, yielding to the impulse of the god, they gave forth some unconnected words, which were put into wretched verse by the poets who attended, giving occasion to the raillery that Apollo, the prince of the muses, was the worst of poets. This oracle was, like all others, obscure and ambiguous, and its retailers not inaccessible to the temptations of corruption. Its priestesses were remarkable for the pallid horror of their visages, and the resistance made by them no doubt resulted from the anguish of convulsed and shattered nerves. Montfaucon has published several ancient tripods, among which we find one which was discovered in 1629, near Frejus, and which furnished to Peiresc the subject of his "Dissertation sur un Trépied ancien." The greater part of these tripods have a solid base; but two of them are disposed in such a manner as to be able to receive, at their upper part, a vase greater or less in diameter.

New Styles.

As regards the attempt to invent or introduce new styles, whether in architecture or in any of the arts, in painting, in sculpture, in poetry, in costume or in gardening, we must ever bear in mind that there are many persons, and those of great taste and extensive cultivation, who make a point of deciding on the beauty and real merit of every style, and indeed of every new production, not by its own intrinsic excellence and accordance with taste, but solely by its accordance with what has been produced before, and by its correspondence with already approved models. If it coincides with them, however indifferent it may be in itself, its excellence is undisputed and is deemed indisputable. If it varies from them, however beautiful or tasteful in its design, it is declared to be intolerable, because at variance with the orthodox standard. Such a mode of deciding upon the merit of an artistical performance is, of course, fatal to originality, and, if consistently carried out, to all advancement and improvement whatsoever. The only sound and correct mode of determining the claim of any new effort in all these cases must necessarily be by ascertaining whether it is in accordance with taste and with the real principles of art and nature, the sole criterion by which the merit of every work of art, of whatever kind and whatever period, must be decided. Nevertheless in the effort to invent new styles in architecture, or indeed in costume or any other art, the greatest care must be taken that our originality does not lead us into extravagance, and that deformity instead of beauty is not the result. In all these cases invention requires, not indeed to be checked, but to be controlled and kept in order by the reason. Invention equally with taste and imagination needs discipline and training and correction to prevent it from running wild, and from becoming barren and bearing no fruit, and the more vigorous and more extensive is the inventive power the more essentially does it stand in need of this supervision.

English Gardens.

It is stated by Fitzstephen that in the time of Henry II. the citizens of London had large and beautiful gardens attached to their villas. In the reign of Edward I. it may be collected from Hollinshed's "Chronicle" that the cultivation of the garden was extended to the more curious and delicate productions; but the wars of York and Lancaster destroyed all these occupations, and gardens in general ceased to be more than pleasure-grounds or kitchen-gardens of the rudest kind until the time of Queen Elizabeth. King James I. of Scotland describes the garden at Windsor Castle, where he was confined by Henry V., as a place set thick with trees and alleys of hawthorn, with an arbour in each corner. Much later, in the year 1512, the great Earl of Northumberland, whose household consisted of 160 persons, "had but one gardener, who attended hourly in the garden for setting of erbis, and clipping of knottes, and sweeping the said garden clean." In the gardens of Nonsuch, the palace of Henry VIII., constructed about the year 1540, we hear of shady walks, columns and pyramids of marble, "fountains that spout water one round the other like a pyramid, upon which are perched small birds that stream water out of their bills," and of similar objects, but nothing of the more essential part of a garden—its plants. Pleasure-grounds of this description, indeed, have existed in England ever since the Conquest.

GENERAL.

The Comte de Castellane has purchased the portrait of *Nicolaes Rueto* by Rembrandt, which is one of the most admired works of the master.

Bernini's Bust of Cromwell, which Mr. Charles Wertheimer has presented, is to be placed in the lower waiting-hall of the Houses of Parliament, in such a position that it will be visible to all approaching the Central Hall from St. Stephen's Porch.

M. Valabrègue, the French writer on art, has been sent to Germany by the Minister of Fine Arts in order to study the works by Chardin the painter and Houdon the sculptor, which are found in some of the museums in that country.

Messrs. Field & Co. have served a writ on the Brighton Town Council in connection with their claim for 3,215*l.* on account of the contract for erection of the technical school. The town clerk was at the last meeting instructed to defend the action.

Lord Leighton's House, in Kensington, is open to the public on the Wednesdays and Saturdays of the present month, from eleven until seven o'clock. No less than 500 pictures have recently been added to the collection upon the walls.

The Celtic Goldsmiths' Work lately acquired by the British Museum from the North of Ireland, and consisting of a torc, a boat, a cup and several chains, is likely to be transferred to the Museum of the Science and Art Department in Dublin.

A Statue of Prince Bismarck erected by voluntary subscriptions collected since his eightieth birthday, April 1, 1895, was unveiled at Altona on Saturday amid a scene of considerable enthusiasm. The venerable ex-Chancellor telegraphed to the burgomaster from Friedrichsruh to express his gratification and thanks.

Sir William Fraser, Deputy-Keeper of the Records of Scotland, who died on June 15 last, leaving personal estate worth 104,728*l.*, bequeathed 25,000*l.* for the foundation and endowment of homes for the poor in the city or county of Edinburgh, especially for authors and artists who may from no fault of their own have fallen into distress, and 25,000*l.* to found and endow in the University of Edinburgh a Professorship of Ancient History with special reference to the records and charters of royal, noble and baronial families, to be called "The Sir William Fraser Professorship," and 10,000*l.* for the library of the University, to be applied as to two-thirds of the income in increasing the salaries of the librarians and other officers, and he left the residue of his property to be applied for the general purposes of the University of Edinburgh and to the Royal Infirmary. Sir William Fraser also authorised the publication, at an expense not exceeding 3,000*l.*, of such documents as the trustees may think proper for illustrating the history of the antiquities of Scotland.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

GLASGOW.—Aug. 15.—Designs are invited for the exhibition buildings to be erected on sites in the Kelvingrove Park and Bunhouse Ground. A premium of 200*l.* will be awarded to the author of the design considered first in merit, second and third premiums of 150*l.* and 100*l.* respectively. Mr. H. A. Hedley, general manager and secretary, 141 Buchanan Street, Glasgow.

ROTHERHAM.—Plans are invited for proposed extensions of the Baptist schoolroom, Westgate, Rotherham, at a cost of about 600*l.* Mr. A. Crowcroft, Clifton Crescent South, Rotherham.

SALFORD.—Aug. 16.—Designs for three chapels, offices, lodge, entrance gates and boundary walls at proposed cemetery in Langley Road and Agecroft Road, Pendlebury. Premiums of 50*l.*, 30*l.* and 20*l.* respectively. Borough Engineer, Town Hall, Salford.

STOCKHOLM.—Aug. 31.—Designs for railway station Particulars from the Offices of the Consulate, 27 Great Winchester Street, London.

CONTRACTS OPEN.

ABINGDON.—July 18.—For erection of a block of three houses in the Albert Park. Mr. J. G. T. West, architect, The Knowl, Abingdon.

ACCRINGTON.—July 26.—For excavation and ballasting for sidings, construction of bridges and retaining walls and erection of new engine-shed, for the Lancashire and Yorkshire Railway Company. Mr. C. W. Bayley, secretary, Hunt's Bank, Manchester.

ALTRINCHAM.—July 25.—For alterations and additions to the hospital, Market Street. Mr. John Macnamara Bancroft, architect, Hale Road, Altrincham.

ANGLESEY.—July 25.—For re-erection of Groeslon inn, Brynsiencyn. Mr. Richard Davies, architect, Bangor.

ATHERTON.—July 18.—For alterations to a gasholder tank (at present 52 feet in diameter and 18 feet deep) on gasworks. Messrs. Thomas Newbigging & Son, engineers, 5 Norfolk Street, Manchester.

AYLESBURY.—July 25.—For erection of a block of workshops at the asylum, Stone, near Aylesbury. Mr. R. J. Thomas, county surveyor, County Hall, Aylesbury.

BACUP.—July 23.—For erection of four houses in South Street. Mr. Eyre, The Poplars, Churchtown, Southport.

BANFFSHIRE.—July 19.—For erection of a large bonded warehouse at Knockdhu Distillery, Banffshire. Mr. W. Monro MacBey, Elgin.

BARRHILL.—July 21.—For erection of a cottage. Mr. H. V. Eaglesham, architect, Ayr.

BARROW.—July 23.—For erection of new medical wing to Barrow Hospital. Messrs. Austin & Paley, architects, Castle Hill, Lancaster.

BARTON STACEY.—July 18.—For erection of block of three cottages. Messrs. Westbury & Son, land agents, Andover.

BELFAST.—July 18.—For erection of a Presbyterian church at Cushendall. Mr. William J. Fennell, architect, 11 Chichester Street, Belfast.

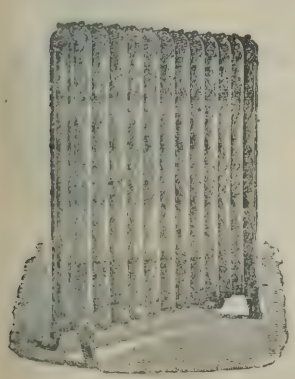
BLACKBURN.—July 18.—For erection of a shop at the corner of King William Street and Lord Street. Mr. William Stubbs, engineer, Blackburn.

BOWNESS.—July 23.—For alterations and additions to premises. Mr. Robert Walker, architect, Windermere.

BRAINTREE.—For erection of a dwelling-house and two cottages. Mr. J. W. Clark, architect, Coggeshall.

BRIGHOUSE.—July 21.—For alterations at the Wyke stores of the Brighouse District Industrial Society, Limited. Mr. Arthur George Dalzell, architect, 15 Commercial Street, Halifax.

BRIGHTON.—July 19.—For alteration and improvement of the Richmond Street infants' school, and for the provision of



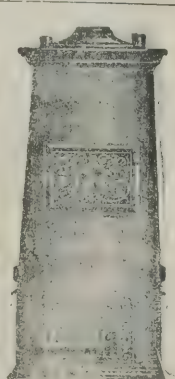
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additional classroom accommodation for the infants' department of the Preston Road school. Messrs. T. Simpson & Son, 16 Ship Street, Brighton.

BRISTOL.—July 25.—For extension of Greenbank Board schools. Mr. F. Bligh Bond, architect, Alliance Chambers, Corn Street, Bristol.

BRISTOL.—Aug. 6.—For erection of a police-station at Staple Hill, near Bristol, for the Gloucestershire Standing Joint Committee. Mr. M. H. Medland, architect, 15 Clarence Street, Gloucester.

BRISTOL.—July 19.—For construction of a new goods shed, offices, &c., at Lawrence Hill, for the directors of the Great Western Railway. Mr. G. K. Mills, secretary, Paddington Station, London, W.

BURY.—July 28.—For erection of a manager's house at the sewage-disposal works at Livesey Fields. Mr. J. Cartwright, borough engineer, Corporation Offices, Bury.

CARDIFF.—July 23.—For additions to Board school. Mr. E. H. Bruton, architect, 15 Queen Street, Cardiff.

CHEPSTOW.—For erection of a range of seven cottages at Tutshill. Mr. J. P. Consterdine, 30 High Street, Chepstow.

CHESHUNT.—July 20.—For erection of a dwelling-house at Twinford. Mr. James Bunce, Turner's Hill, Cheshunt.

CLEATOR.—July 19.—For erection of a church room and caretaker's house. Mr. Wm. Dixon, Jacktrees Road, Cleator.

CLEATOR MOOR.—July 22.—For erection of two shops and dwelling-houses, High Street. Messrs. W. G. Scott & Co., architects, Victoria Buildings, Workington.

COLNE.—July 23.—For erection of technical schools and public library in Albert Road. Messrs. Woodhouse & Willoughby, architects, 100 King Street, Manchester.

CROYDON.—July 21.—For setting back and rebuilding the brick wall abutting upon the roadway at Waddon, near Waddon House. Mr. E. Mawdesley, Town Hall, Croydon.

CROYDON.—July 20.—For repairs and renovation at Christ Church National schools, Longley Road, West Croydon. Mr. Chas. A. Monday, architect, 9 St. Saviour's Road, Croydon.

CRUMLIN.—July 25.—For erection of an additional classroom to accommodate fifty children and other works at the Board schools. Messrs. Rosser & Roberts, architects, Abercarn.

CULLINGWORTH.—July 18.—For erection of a Baptist Sunday school. Messrs. John Judson & Moore, architects, Keighley.

DEVONPORT.—Aug. 4.—For erection of an additional storey to the workhouse infirmary, for the Guardians of Stoke Damerel. Mr. H. G. Luff, architect, 64 Chapel Street, Devonport.

DEWSBURY.—July 20.—For erection of twenty shops in an arcade. Messrs. John Kirk & Sons, architects, Dewsbury.

DUNMOW.—July 19.—For alterations and additions to the Sunday schools at the Congregational church. Mr. Charles Pertwee, Bank Chambers, Chelmsford.

DUNMOW.—For erection of stables, chaise-house, harness-house, granaries, waggon and cart sheds, at Roughie. Mr. J. W. Clark, architect, Coggeshall.

DURHAM.—For erection of two houses and shop, Oxhill Road, Stanley. Mr. William Forster, architect, 1 Clifford Road, Stanley.

ESSEX.—July 26.—For erection of twenty-nine houses for working classes at Hermit Road, Plaistow. Mr. Lewis Angell, borough engineer, Town Hall, Stratford, E.

GATESHEAD.—July 20.—For erection of laboratory and office at the locomotive works, for the North-Eastern Railway Company. Mr. William Bell, company's architect, Central Station, Newcastle-on-Tyne.

GLAMORGAN.—July 28.—For altering and repairing certain portions of the South Wales and Monmouthshire Truant School, Quaker's Yard. Mr. E. Stephens, secretary, at the School, Quaker's Yard, Treharris, R.S.O.

GLASGOW.—July 28.—For erection of stable, offices, &c., in the Queen's Park, and enclosure walls, &c., around the gardener's yard on Glasgow Green. Mr. J. D. Marwick, town clerk, City Chambers, Glasgow.

GLASSON.—July 22.—For erection of a barn, stable, loose-boxes and shippon at the Crook farm. Mr. J. Parkinson, architect, 67 Church Street, Lancaster.

GRANGE-OVER-SANDS.—July 21.—For erection of the new public hall and Urban District Council offices. Mr. John Hutton, architect, Kendal.

GRAVESEND.—July 21.—For erection of a caretaker's lodge and common-room at the junction of Old Road and Wrotham Road. Messrs. Farrow & Nisbett, architects, 7 New Court, Carey Street, W.C.

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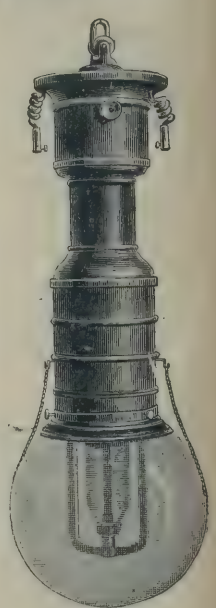
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HALIFAX.—July 18.—For erection of a detached villa residence on the Green Royd estate. Messrs. Geo. Buckley & Son, architects, Tower Chambers, Halifax.

HALIFAX.—July 18.—For erection of a villa at West End. Mr. H. Hatton, architect, Town Hall Chambers, Sowerby Bridge.

HALIFAX.—July 26.—For erection of workshops, sheds, offices, engine and boiler-houses, and chimneys for the premises to be erected near North Dean railway station, for Messrs. Lumby, Son & Wood, Limited, boiler makers, &c. Messrs. Horsfall & Son, 22A Commercial Street, Halifax.

HALIFAX.—July 18.—For erection of conveniences at Portland Road school. Mr. W. H. Ostler, clerk, 22 Union Street, Halifax.

HAMPTON WICK.—Aug. 3.—For repairs and painting offices and lamp standards generally, for the Hampton Wick Urban District Council. Mr. J. Nixon Horsfield, surveyor, Hampton Wick.

HENDREFORGAN.—July 19.—For erection of cottage at Gellyrhaidd crossing, near Hendreforgan station, for the Directors of the Great Western Railway. Mr. G. K. Mills, secretary, Paddington Station, London.

HORWICH.—For erection of a square brick chimney, 45 yards high, at Messrs. A. Mason & Son's Works, Horwich. Mr. Ernest W. Dyson, architect, 17 Lee Lane, Horwich.

HUDDERSFIELD.—July 19.—For alterations to the Old Co-operative Stores, Westgate. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

HUDDERSFIELD.—July 21.—For erection of proposed parochial hall, additional classroom and cloakroom to the Slaithwaite Church schools. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

HULL.—July 18.—For erection of a new boys' National school at Hessle. Messrs. Botterill, Son & Bilston, architects, 23 Parliament Street, Hull.

HULL.—July 18.—For alterations to 83 Charles Street. Mr. T. Brownlow Thompson, architect, 15 Parliament Street, Hull.

HULL.—July 20.—For erection of an engine shed for the standage of forty-eight engines, offices, fitters' shop, coaling-stage, ash-tip, &c., for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

IPSWICH.—July 21.—For alterations in the sanitary arrangements at St. John's Home. Mr. H. Cockrell, clerk of the works, the New Workhouse.

IRELAND.—July 19.—For improvements to Aughaclay Catholic chapel. Mr. J. P. M'Grath, architect, Commercial Buildings, Foyle Street, Londonderry.

IRELAND.—July 22.—For erection of two private houses. Mr. F. Everton, Trillick.

KILKENNY.—July 21.—For erection of a dormitory annexe and other works at the workhouse. Mr. James F. Reade, Kilkenny.

LEADEN ROOTHING.—July 18.—For erection of a bridge in the parish of Leaden Roothing, for the Essex County Council. Mr. Percy J. Sheldon, chief surveyor, County Offices, Chelmsford.

LEEDS.—July 25.—For rebuilding the Woolpacks inn in Towngate, Holbeck. Mr. Thomas Winn, architect, 92 Albion Street, Leeds.

LEIGH.—July 18.—For erection of new bank premises in Bridge Street. Mr. J. H. Stephen, architect, Leigh, Lancashire.

LIVERPOOL.—July 20.—For construction of an open-air bath on land situate at Mansfield Street. Mr. W. R. Court, Cornwallis Street Baths.

LONDON.—July 22.—For alterations and additions to and adjoining the Wesleyan Methodist chapel. Mr. Arthur Wakerley, architect, 14 Market Place, Leicester.

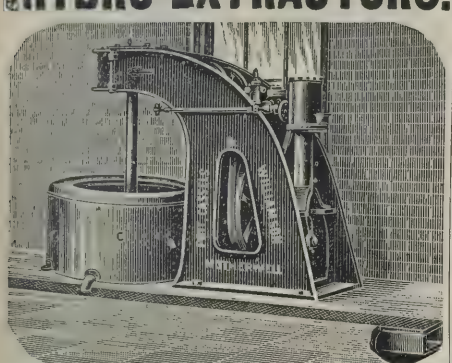
LONDON.—July 28.—For erection of head office buildings on a site at the corner of Carmelite Street and the Victoria Embankment for the Metropolitan Asylums Board. Mr. Edwin T. Hall, architect, 57 Moorgate Street, E.C.

LONDON.—July 19.—For erection of receiving wards at the workhouse, Silver Street, Upper Edmonton. Messrs. W. S. Cross & Kekwick, architects, 18 Outer Temple, Strand, W.C.

LONDON.—July 19.—For concreting and asphalting the arches beneath the Lambeth approach to Waterloo Bridge, for the London County Council. Specifications, form of tender, &c., at the Engineer's Department, County Hall, Spring Gardens, S.W.

LONDON.—July 19.—For construction of underground conveniences in Fenchurch Street. Town Clerk, Public Health Department, Guildhall.

HYDRO-EXTRACTORS.

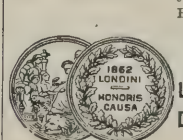


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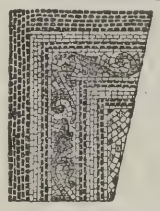

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LOUGHBOROUGH.—July 26.—For erection of new Golden Fleece Hotel, Cattle Market. Messrs. Barrowcliff & Allcock, architects, Mill Street, Loughborough.

LUTON.—July 19.—For repairing, painting and other works at the Corn Exchange. Mr. Geo. Sell, town clerk, Town Hall, Luton.

MALVERN.—July 19.—For erection of a Crown post-office. Mr. C. W. Stephenson, 38 Parliament Street, S.W.

MARKET HARBOROUGH.—For erection of factory. Mr. R. F. Beaumont, architect, Nutfield, Surrey.

NELSON.—July 21.—For erection of school-chapel, Every Street. Mr. Thos. Bell, architect, Market Street, Nelson.

NEWARK.—July 18.—For erection of out-offices and cloak-room at Christ Church schools. Messrs. Tallents & Co.'s offices, Carter Gate.

NEWHAVEN.—July 21.—For erection of kitchen, scullery and offices on land adjoining the union workhouse, and a connecting corridor to the infirmary and workhouse, and for alterations and additions to the workhouse. Messrs. Clayton & Black, architects, 152 North Street, Brighton.

NOTTINGHAM.—Aug. 5.—For erection of the superstructure of the workhouse, infirmary and appurtenant buildings for 1,600 inmates and staff at Bagthorpe. Mr. Arthur Marshall, King Street, Nottingham.

OLDBURY.—July 22.—For reseating church with oak seats and laying solid block floor, &c. Mr. J. T. Meredith, architect, Bank Buildings, Kidderminster.

PORTSMOUTH.—July 19.—For providing an additional staircase at the girls' department of the St. Mary's Road Board school. Mr. A. H. Bone, surveyor, School Board Offices, Town Hall, Portsmouth.

PORT TALBOT.—July 20.—For erection of caretaker's house at intermediate school. Mr. Frank B. Smith, architect, Port Talbot.

SALFORD.—July 19.—For alterations to playgrounds and boundary-walls at the Blackfriars Road Board schools. Mr. Saml. Brown, town clerk, Town Hall, Salford.

SCOTLAND.—Aug. 1.—For erection of a classroom to accommodate thirty scholars, to be built as an addition to the existing school buildings at Kilerivagh in Benbecula, for the South Uist School Board. Mr. Andrew M'Elfrish, clerk to the Board, Lochmaddy.

SCOTLAND.—July 21.—For making approaches to new stone bridge at Clova and alterations on roadway there. Mr. Ross, surveyor, Brechin Road, Kirriemuir.

SHEPTON MALLET.—July 18.—For erection of school and residence. Mr. William John Willcox, architect, 1 Belmont, Bath.

SWINDON.—July 19.—For enlargement of post office sorting-room at Swindon station, for Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

SWINDON.—July 25.—For erection of manual workshops (section B) at the rear of the technical schools, Victoria Road, New Swindon. Mr. H. J. Hamp, surveyor, Public Offices, Swindon.

SYDENHAM.—July 19.—For enlargement of the committee-room at the lodge in the recreation-ground. The Surveyor, Lewisham Town Hall, Catford.

TRURO.—July 23.—For erection of scullery at dwelling-house, new stable and converting present stable into a wain-house at Higher Trenoweth, Belowda, in parish of Roche. Mr. George Gow, Tregothnan Office, Truro.

ULVERSTON.—Aug. 3.—For erection of porter's lodge, receiving wards, &c. Messrs. J. W. Grundy & Son, architects, Ulverston.

WALES.—July 23.—For erection of a minister's house for the Baptist chapel building committee at Llangefni. Mr. E. Evans, architect, Carnarvon.

WALES.—July 25.—For erection of a chapel in the Llanstadwell cemetery. Mr. John Griffiths, clerk.

WALES.—July 18.—For erection of a mission church at Garn, Dolbenmaen. Mr. P. Shearson Gregory, architect, Bangor.

WAUN-LLWYDD.—For erection of an hotel at Waun-llwydd, Victoria, Mon. Messrs. Swalwell & Creighton, architects, Steam Packet Chambers, Dock Street, Newport.

WEST AUCKLAND.—July 21.—For erection of ten cottages. Mr. F. H. Livesey, architect, 7 Market Place, Bishop Auckland.

WEST HARTLEPOOL.—July 27.—For erection of an electric-light station in Burn Road. Mr. C. Stanley Peach, architect, West Hartlepool.

WHITEHAVEN.—July 18.—For alterations and additions to the Board schools at Arlecdon. Mr. J. S. Moffat, architect, 53 Church Street, Whitehaven.

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WICKLOW.—July 20.—For taking-down and rebuilding a portion of the old quay wall, for the Wicklow Harbour Commissioners. Mr. Francis W. MacPhail, secretary to the Harbour Commissioners, Wicklow.

WIGAN.—For enlargement of Coppull schools. Messrs. Heaton & Ralph, architects, King Street, Wigan.

WITHINGTON.—July 26.—For alterations to the schools and homes at Nell Lane. Mr. James B. Broadbent, 15 Cooper Street, Manchester.

TENDERS.

ASHFORD.

For erection of a water-tube boiler at the district school.
BABCOCK & WILCOX, LIMITED, Queen Victoria Street, E.C. (*accepted*).

ASTON MANOR.

For painting and decorating the Council offices and free library and repairs. Mr. H. RICHARDSON, surveyor.
W. COTTERELL, Aston Manor (*accepted*).

For alterations and additions to the administrative building at the infectious diseases hospital, Upper Witton. Mr. H. RICHARDSON, surveyor.

R. M. Hughes	£2,140 0 0
J. E. Moorhouse	2,062 0 0
W. & A. Heeps	1,968 0 0
Reeves & Son	1,910 0 0
W. HOPKINS, Birmingham (*accepted*)	1,833 0 0

BARKING.

For alterations, additions and fittings at the Britannia public-house, Church Road, for Mr. W. J. Kitson. Mr. FRED. A. ASHTON, architect, 177 Romford Road, Stratford, E.

	Alterations, &c.	Fittings.	Total.
H. Wall & Co.	£3,130	£1,120	£4,250
J. & H. Cocks	3,082	1,098	4,180
A. E. Symes	3,006	1,069	4,075
W. J. MADDISON (*accepted*)	2,914	1,075	3,989

BOOTLE.

For erection of an electric-light station in Pine Grove.
WALTER MUSKER, Bootle (*accepted*) £6,598 0 0

BRIGHTON.

For painting, distempering and decorating the Municipal School of Art, Grand Parade.

J. F. Holland	£375 0 0
W. Dudley	305 10 0
Barber & Oliver	291 4 6
GATES & SON, 1 North Road, Brighton (*accepted*)	225 0 0

BRIERFIELD.

For construction of an intercepting sewer, 600 yards in length, with manholes, &c. Mr. JAS. T. LANDLESS, engineer, Station Buildings, Nelson.

T. Reynoldson	£1,094 19 6
T. Horrocks	920 0 0
J. Miles	861 11 0
G. Hunter	820 8 0
J. & M. Hawley	636 14 0
J. WADGE, Burnley (*accepted*)	605 0 0

BURTON LATIMER.

For erection of Britannia club and institute, for building committee.

C. Lewis	£1,287 0 0
T. H. Dorman	1,249 0 0
Bradshaw & Cooper	1,224 0 0
F. Henson	1,220 0 0
A. J. Ball	1,190 0 0
A. Lewis	1,174 0 0
A. Traynar	1,169 0 0
R Marriott	1,165 0 0
WILSON & ALRIGHT, Northampton (*accepted*)	1,061 0 0

BURY.

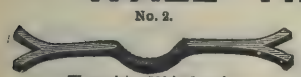
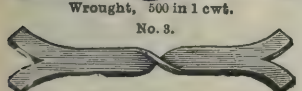
For forming, paving, flagging and kerbing certain streets or portions thereof.
E. ELLIS, Nelson (*accepted*).

CASTLEFORD.

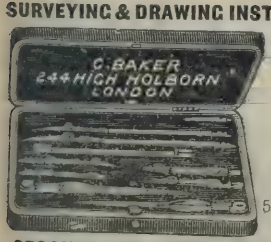
For colouring and cleaning the inside of the Whitwood Mere schools.

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J. Foster	16 10 0
J. H. Wilson & R. Green	15 0 0
J. H. WHEATLEY, Brotherton (*accepted*)	15 0 0

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CAERPHILLY.

For construction of 8,500 lineal yards of 15-inch, 18-inch and 21-inch stoneware and iron-pipe sewers (from Senghenydd to Gwaun-y-bara sewage farm), with manholes, flushing chambers, &c. Mr. A. O. HARPER, surveyor.

A. Harper & H. Agland	£16,520 18 9
Monk & Newell	15,933 18 0
G. Rutter	15,535 15 0
W. Jones	15,349 4 0
R. & J. Matthies	13,991 12 10
T. Taylor	13,991 11 9
W. E. Willis	13,894 6 1
E. Powell	13,797 18 10
J. Howell	12,472 0 0
A. S. Morgan & Co.	12,333 14 3
Barnes, Chaplin & Co.	12,245 9 10
Parfitt & Monk	11,993 0 0
T. Rossiter	11,758 18 10
E. Page	11,650 3 8
Surveyor's estimate	12,427 11 0

COCKERMOUTH.

For lowering of the hill near Gillyeat. Mr. J. B. WILSON, engineer, Cockermouth.

W. Thompson	£132 6 9
J. J. Graham	125 10 6
R. Walker	65 0 0
H. WALKER & SON, Cockermouth (*accepted*)	62 10 0

FULHAM.

For making-up and paving Narborough Street. Mr. CHARLES BOTTERILL, surveyor.

B. Nowell & Co.	£335 0 0
J. Mears	317 0 0
E. Parry	309 0 0
H. J. Greenham	275 0 0
York paving.	
B. Nowell & Co.	195 0 0
Victoria.	
Victoria Stone Co.	136 0 0
Imperial.	
Imperial Stone Co.	119 0 0

GIRSONFIELD.

For construction of a service reservoir, and laying 1,476 lineal yards of 3-inch, 2-inch, and 1½-inch cast-iron pipes and connections. Mr. EDWARD BROWN, engineer, 85 Clayton Street, Newcastle-on-Tyne.

D. Champney	£441 3 7
J. G. Kirtley	406 10 11
J. Carrick	383 1 2
G. Bailey	382 15 9
J. C. Archibald	370 2 6
E. DODSON, Morpeth, Northumberland (*accepted*)	345 13 9

HIGHBRIDGE.

For alterations and additions to the Coopers' Arms Hotel. Mr. JOSEPH SPIRE, architect, Glastonbury.

T. Dare & Son	£765 0 0
F. G. Read	697 0 0
F. L. Robert	649 0 0
R. C. COOK, Wells (*accepted*)	598 0 0
T. Stockham	575 0 0

HUNSLET.

For alterations to Papermakers' Arms, Church Street. Mr. WM. N. WYNN, architect, 10 Livingstone Street, Roundhay Road, Leeds.

Jackson & Monkman	£93 0 0
Turner	81 15 0
ABBOTT & Co., Melbourne Street (*accepted*)	81 15 0
Thame	79 15 0

ILKESTON.

For cleaning and painting part of the Chaucer Street school.

H. Tatham	£120 6 6
H. Clemerson	108 10 0
H. FLETCHER (*accepted*)	89 10 0

For erection of house and offices, Lord Haddon Road. Mr. W. DYMOCK PRATT, architect, Cauldon Place, Long Row, Nottingham.

F. Messom	£1,829 0 0
J. H. Vickers	1,810 0 0
W. E. Shaw	1,745 0 0
J. H. Williamson	1,730 0 0
Gilbert & Gabbitass	1,640 0 0
Donnelly & Sons	1,638 14 0
W. Savage	1,600 0 0
HANFORD & HOYES, 157 Great Alfred Street South (*accepted*)	1,575 0 0

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LONDON.

For erecting new premises on the sites of No. 2 Hamsell Street and 19 Jewin Street. Mr. DELISSA JOSEPH, architect, 17 and 18 Basinghall Street, E.C.

Shillitoe & Sons	£5,000 0 0
H. Lovatt	4,844 0 0
Brown, Son & Blomfield	4,660 0 0
Perry & Co.	4,339 0 0
Allen & Sons	4,292 0 0
Bywaters & Sons	3,990 0 0
MARK PATRICK & SON (*accepted*)	3,964 0 0

For decorative, heating and sanitary works, and general repairs at 29 Park Crescent. Mr. DELISSA JOSEPH, architect, 17 and 18 Basinghall Street, E.C.

	General Contract.	Extras.
Vare Bros.	£2,615 0 0	£330 4 0
W. Callingham	2,498 0 0	270 0 0
Bywaters & Sons	2,445 0 0	598 0 0
Maple, Limited	2,208 0 0	273 0 0
H. HANKS (*accepted*)	2,092 0 0	185 0 0

For alterations and decorations to St. Mary's Church, Bermondsey, for the rector. Mr. E. CROSSE, architect.

Higgs	£566 0 0
Chalkey	493 0 0
BARTLETT & CO. (*accepted*)	377 0 0

For decorative work to the Upton Baptist chapel, Lambeth Road, for the deacons.

Maxwell Bros.	£394 0 0
Bartlett & Co.	370 0 0
Sayer	345 0 0
Nightingale	330 0 0
FALKNER (*accepted*)	308 0 0

For decorative works to the School for the Indigent Blind. Messrs. ROUMIEU & AITCHISON, architects.

Bartlett & Co.	£395 0 0
T. J. Chesson	375 0 0
Dove Bros.	355 0 0
E. Jenner	329 0 0

For external repairs at 168 Clerkenwell Road.

Kiddle & Son	£248 0 0
Ashby Bros.	219 0 0
Hawtrey	198 0 0
J. W. Heeps	197 0 0

LONDON—*continued.*

For repairing two warehouses at Wool Quay, Lower Thames Street. Mr. C. THOMPSON, architect, 203 Graham Road, Hackney, N.E.

E. T. Folley	£1,220 0 0
W. & H. Castle	968 0 0
J. J. Weibking	930 0 0
W. E. Hill	751 10 0
Barlow & Roberts	750 0 0
F. Bull	648 10 0
S. Blow	625 0 0
F. W. Harris	597 0 0
H. Windsor & Co.	587 0 0
G. E. Hubble	575 0 0
G. MUNDAY & SONS, Trinity Square, E.C. (*accepted*)	546 0 0
D. Gibb & Co.	467 0 0
W. Coleman & Co.	460 0 0
H. Rogers	419 16 0
A. Eastwell	415 0 0

MAIDENHEAD.

For painting and restoring the Guildhall. Mr. PERCY JOHNS, borough surveyor.

E. Jelly	£79 5 6
F. W. Edwards	79 4 0
J. K. Bolton	71 0 0
G. WATSON, Maidenhead (*accepted*)	60 0 0

For painting, papering, &c., at the lodge at Grenfell Park Mr. PERCY JOHNS, borough surveyor.

W. C. Pearce	£34 12 0
F. W. Edwards	29 0 0
E. Jelly	26 10 0
J. K. Bolton	25 10 0
J. Gilroy	22 0 0
J. Leaver	18 10 0
W. Badcock	15 0 0
G. Watson	13 16 0
J. Cox, Maidenhead (*accepted*)	12 19 6

NEWPORT (MON.).

For erection of three houses and shops, Commercial Road. Messrs. WATKINS & BROWN, architects.
J. & I. DAVIES (*accepted*).

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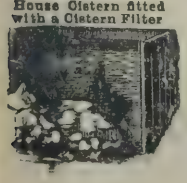
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NEWPORT (MON.)—*continued.*

For erection of two shops, houses, stores and workshops, Commercial Street. Messrs. WATKINS & BROWN, architects.

J. T. MORRIS (*accepted*).

For erection of schools, Malpas Road. Messrs. WATKINS & BROWN, architects.

J. MOORE (*accepted*).

For additions and alterations to the Alexandra Dock Hotel. Messrs. WATKINS & BROWN, architects.

J. PHILLIPS & SONS (*accepted*).

NELSON.

For erection of eight houses and four shops, Bankhouse Road. Mr. H. WHITAKER, architect, 21 Market Street, Nelson. Quantities by Mr. J. STONE, 52 King Street, Manchester.

Accepted tenders.

C. Metcalfe, excavating, draining, brickwork, concreting and masonry	£2,733 0 0
F. Sanders, carpenter and joiner	915 0 0
Co-operative Society, plumbing and glazing	273 0 0
A. Anderson, plasterer	157 0 0
S. & H. Heyes, painting	119 12 0

NEW TREDEGAR.

For erection of a chapel, schoolroom and classrooms. Mr. GEORGE KENSHOLE, architect, Duffryn House, Ystrad Mynach. Quantities by architect.

Davies Bros.	£1,713 0 0
Evans & Clayton	1,695 0 0
Thomas Bros.	1,657 12 0
WILLIAMS & SONS, New Tredegar (*accepted*)	1,485 0 0

RUSHDEN.

For alterations and additions to shoe factory, for Messrs. Green & Son.

F. Henson	£895 0 0
Hacksley Bros.	885 0 0
J. Fishburn	865 0 0
Whittington & Tomlin	861 0 0
R. Marriott	857 0 0
T. Willmott, jun.	854 0 0
G. F. SHARMAN, Northampton (*accepted*)	815 0 0

ROCESTER.

For extension of Abbotsholme School. Messrs. W. SUGDEN & SON, architects, Leek.

T. GODWIN, Hanley (*accepted*).

RUNCORN.

For extension of sewerage works in parish of Frodsham Lordship. Mr. WILLIAM DIGGLE, surveyor, Holly Bank, Frodsham.

Sagee & Randel	£1,819 0 0
Winnard & Weston	1,760 0 0
J. Taylor	1,076 0 0
T. Rowland	998 0 0
H. N. Davison	997 0 0
J. E. Jones	986 0 0
F. T. BENNIE, Warrington (*accepted*)	922 0 0

SHILLELAGH.

For construction of two new bathrooms and w.c.s for workhouse infirmary.

D. Brenan	£62 0 0
GRAY, co. Wicklow (*accepted*)	60 0 0

STOCKPORT.

For erection of a laundry and a new wing to the infirmary. Messrs. WOODHOUSE & WILLOUGHBY, architects, 100 King Street, Manchester.

Byron	£11,383 0 0
G. Macfarlane	11,290 0 0
J. Briggs	11,195 0 0
T. & W. MEADOWS, Heaton Norris (*accepted*)	10,803 0 0

For the enlargement of the infirmary by the addition of two new wards, nurses' quarters, new laundry, &c. Messrs. WOODHOUSE & WILLOUGHBY, architects, 100 King Street, Manchester.

MEADOWS, Heaton Norris (*accepted*) . . £10,083 0 0

TALYWAIN.

For additions and alterations to premises. Messrs. WATKINS & BROWN, architects, Newport.

W. & A. DAVIES, Abersychan (*accepted*).

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WILLASTON.

For alterations and additions to buildings, for the Willaston School Board.

A. P. Cotterill	£1,582 4 0
J. Williams	1,339 17 2
J. Harding	1,235 0 0
J. Matthews	1,188 0 0
S. Manley	1,150 0 0
Cox, Vaughan & Heywood	1,059 0 0
Jervis & Harrison	1,000 3 11
J. T. GRESTY, Willaston (*accepted*)	998 0 0

WOLVERHAMPTON.

For erection of a cookery-room and manual instruction workshop at Walsall Street school.

H. GOUGH, Wolverhampton (*accepted*) . . £2,025 0 0

WORKINGTON.

For alterations and additions to the board-room at the infirmary.

L. FERGUSON, Workington (*accepted*) . . £117 10 0

WREXHAM.

For erection of a chapel and schoolroom at Moss. Messrs. DAVIES & MOSS, architects, 11 Regent Street, Wrexham.

Turner Bros.	£986 0 0
R. S. Roberts	887 14 0
W. Owen	880 0 0
W. H. Wycherly & Co.*	786 0 0

* Accepted provisionally.

THE interesting old church of St. Mary of the Greeks, Hog Lane, Soho, is doomed. It was built in 1676 by Georgeirises, Archbishop of Samos, but was afterwards converted into a Huguenot chapel. Whilst it was thus occupied it was introduced by Hogarth in his famous picture *Noon*. This relic of Old London is now in course of demolition in order to make way for "modern improvements" sadly needed in its neighbourhood.

ELECTRIC NOTES.

ARRANGEMENTS are being made to drive the workshop machinery at Portsmouth dockyard by electricity. A generating station is to be built on the site of the old Portsea convict station, and the whole plant is estimated to cost half a million sterling.

THE results of the year's operations of the Edinburgh electric lighting from May 15, 1897, to May 15, 1898, have just been made up, and are eminently satisfactory. The total output has been :—For private lighting and power, 2,059,763 units —an increase over the previous year of nearly 90 per cent. The total units for public lighting has been 834,660, making a grand total of 2,894,423 Board of Trade units. The income from private lighting and power has been 30,024*l.* 4*s.* 2*d.*, and from public lighting 7,993*l.* 5*s.*, making in all 38,017*l.* 9*s.* 2*d.* The expenditure has been :—For generation of electricity, distribution, management, rates and taxes, upkeep of public lamps and all expenditure in connection with the undertaking, except interest and sinking fund, 16,744*l.* 15*s.* 4*d.* ; interest and sinking fund, 13,623*l.* 6*s.* 7*d.* ; making a total expenditure of 30,368*l.* 1*s.* 11*d.*, and leaving a net profit on the year's working of 7,649*l.* 7*s.* 3*d.* Of this sum, 4,000*l.* is to be put to reserve, leaving 3,649*l.* 7*s.* 3*d.* available as a contribution to the rates, or 1,649*l.* 7*s.* 3*d.* more than was estimated. This, however, is not all that the rates receive through the operations of the electric lighting, for the burgh assessments on the undertaking amount to 763*l.* 18*s.* 5*d.*, and the poor and school rates to 617*l.* 6*s.* 8*d.* Thus the rates benefit in all from the undertaking for the year just closed by no less a sum than 5,030*l.* 12*s.* 4*d.*, in addition to a charge of over 1,000*l.* for the town clerk, collector and Chamberlain's departments.

AT a meeting of the electricity committee of the Glasgow Corporation it was reported that the gross income, including receipts from private and public lighting for the year just ended, was 36,360*l.*, as compared with 30,474*l.*, being an increase of 5,886*l.* These results have been obtained notwithstanding the reduction made a year ago in the price of electricity, and after meeting the cost of production the balance is carried to depreciation and sinking funds. Owing to the expression of a good deal of dissatisfaction at the present method of charging, the committee is considering the advisableness of making a change.

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CORRECTION.

WITH our last issue were given two illustrations which showed the effect of the faïence work in the new branch of the National Provincial Bank of England in Piccadilly. In connection with these illustrations we said that the work had been supplied by Mr. Alfred Whitehead, of Prudential Buildings, Leeds, which statement was an accidental and regrettable error. The work was supplied by the Campbell Tile Company, of Stoke-on-Trent, and very beautiful work it is. Our illustrations showed this very clearly, but they did not and could not show the delicately subdued colours of the work, and the artistic and harmonious manner in which they are blended.

The erroneous attribution of the work was quite unnecessary, for Mr. Whitehead's productions in faïence and ceramic decoration are well known for their excellence. Specimens thereof are to be seen in the Grand Arcade in the Briggate, Leeds; the Oldham Joint Stock Bank; the new theatre at Morecambe and other important buildings.

SCHOOL OF MEDICINE FOR WOMEN.

BLOOMSBURY brightened up considerably in honour of the visit on Monday afternoon of the Prince and Princess of Wales, who came to open the new science laboratories in connection with the School of Medicine for Women. This important school having quite outgrown its old quarters, further accommodation had to be found, and the Council having obtained a long lease of the old site from the governors of the Foundling Hospital are rebuilding on a much larger scale. The new building, which will be erected in three separate stages, will consist of three blocks, which will be known as the Wakefield or Pfeiffer wing, the Handel Street and the Hunter Street wings. The want of laboratories has long been felt, and in order to facilitate the operations of the school, the first-named block has been taken in hand, and was yesterday opened by the Princess of Wales. Built at a cost of between 9,000*l.* and 10,000*l.*, this wing provides adequate rooms for the teaching of chemistry, physiology, anatomy and physics. It has been paid for partly by donations, by a loan from the general funds and by a sum of 4,000*l.* bequeathed to the school by the late Mrs. Pfeiffer, whose name the new block will bear. The remaining building will involve a further expenditure of 15,000*l.* The estimated cost of the second wing, which will contain two lecture-rooms and a corridor with a north light for microscopic work, is 5,000*l.* The construction of the third wing will not be embarked upon until the second block has been paid for.

TRADE NOTES.

THE Plasnewydd school, Maesteg, is being warmed and ventilated by means of Shorland's patent Manchester grates.

A LARGE clock, with two dials, chiming the quarters and striking the hours, has just been erected in the church at Cheveley, near Newmarket, by John Smith & Sons, Midland Clock Works, Derby.

THE whole of the work in connection with the restoration of the Catholic church of St. John the Evangelist, Easingwold, Yorks, including new roof, new stone buttresses, new porch to west entrance, &c., has been entrusted to Mr. Anthony Lyons, builder and contractor, of Norton, Malton.

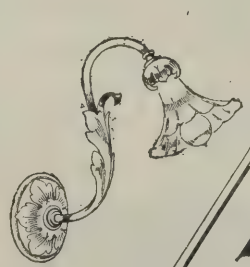
THE foundation-stone of a Roman Catholic church at Brockley was laid on the 9th inst. The new building will cost rather more than 3,000*l.*, and will have seating accommodation for 600 persons.

THE Rugby Portland Cement Company inform us that they have acquired the works hitherto belonging to the Rugby and Newbold Cement Company, and that, as from August 1, the business of that company will be amalgamated with theirs, and carried on by them under one management and under the style of the Rugby Portland Cement Company. They intend to make considerable additions and improvements to the works, and hope shortly to largely increase their output. The past history of the company may be regarded as a guar-

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antee of an exceptionally successful future, for which it certainly has our best wishes.

A LARGE-SIZED font was unveiled on the 7th inst. at All Saints Church, Southport. The bowl is octagon in shape and sculptured all round with a band of saints, and stands upon nine coloured marble columns; the centre octagon column is of Victoria red, while the smaller circular ones are of Numidian marble. The bowl, landing, caps and bases are of white Sicilian. The work has been executed by Mr. J. J. Millson, the architect being Mr. Henry Shelmerdine, both of Manchester.

ON the 9th inst. some 8,000 members of the Operative Bricklayers' Society from all parts of London and various counties of England commemorated its jubilee at the Crystal Palace. There were about twenty-six or twenty-eight banners, four bannerets and four brass bands. After luncheon in the saloon the members assembled at the end of the terrace, and formed with their bands and banners into a monster procession, which paraded along the front of the Palace to the rosary, where a meeting was held.

THE London staff of Mr. F. Bedford Pitcher, builder, decorator and sanitary engineer, 46 Fitzroy Street, Fitzroy Square, will join the Walton-on-Naze staff to-morrow (the 16th) for a wayzgoose. The Walton staff is covering an estate with residential villas, temperance hotel, &c., on a three-years' job, and they, with some of the London staff for the rebuilding of the Gordon Hospital, have arranged for a cricket match, *v.* the local Walton team, and some other outings, &c., and as Walton has an East Coast front and bracing atmosphere, they anticipate a very invigorating day.

MR. H. JACKSON, of 134 Westfield Road, Leeds, has sent us a price-list of his patent water boiler, in which the process of heating is effected as the water passes through the boiler, which means a saving in the consumption of gas, and, coupled with many other advantages, undoubtedly places the patent in a favourable position. The boilers are made entirely of copper, and include both gas and water taps fitted with loose unions for easy connection, and the burners are fitted with an improved safety pilot tap for lighting, thus avoiding risk of explosion. The boilers are entirely self-feeding and automatic.

MESSRS. HOBBS, HART & CO. have sent us on a letter which they have just received from Messrs. Slayden & Co., of Wolverhampton, recounting the gratifying result of an accident which befel one of their safes. We think the following paragraph of sufficient interest to deserve quotation :—"Some time ago we purchased a safe of your manufacture from a dealer in this town. It is an expensive one, double doors, we think quoted at 40*l.* on your list, say weight 15 cwt. We wished to move it from the ground floor to second storey, and on doing so, when it was between the second and third storey, the lashing chain gave way and it fell through to the cellar, alighting on its back on a brick floor (say from three storeys high). On applying the key it worked as freely as when it stood in its old position. If you consider the weight of safe and the distance it fell without injury, we think you will agree with us it says a lot for sound workmanship and good material. Not a dent, not a blemish; it simply jerked the knobs off and they broke where the neck screws go into the spindles." Messrs. Hobbs, Hart & Co. inform us that the safe in question was turned out of their works as long ago as 1869.

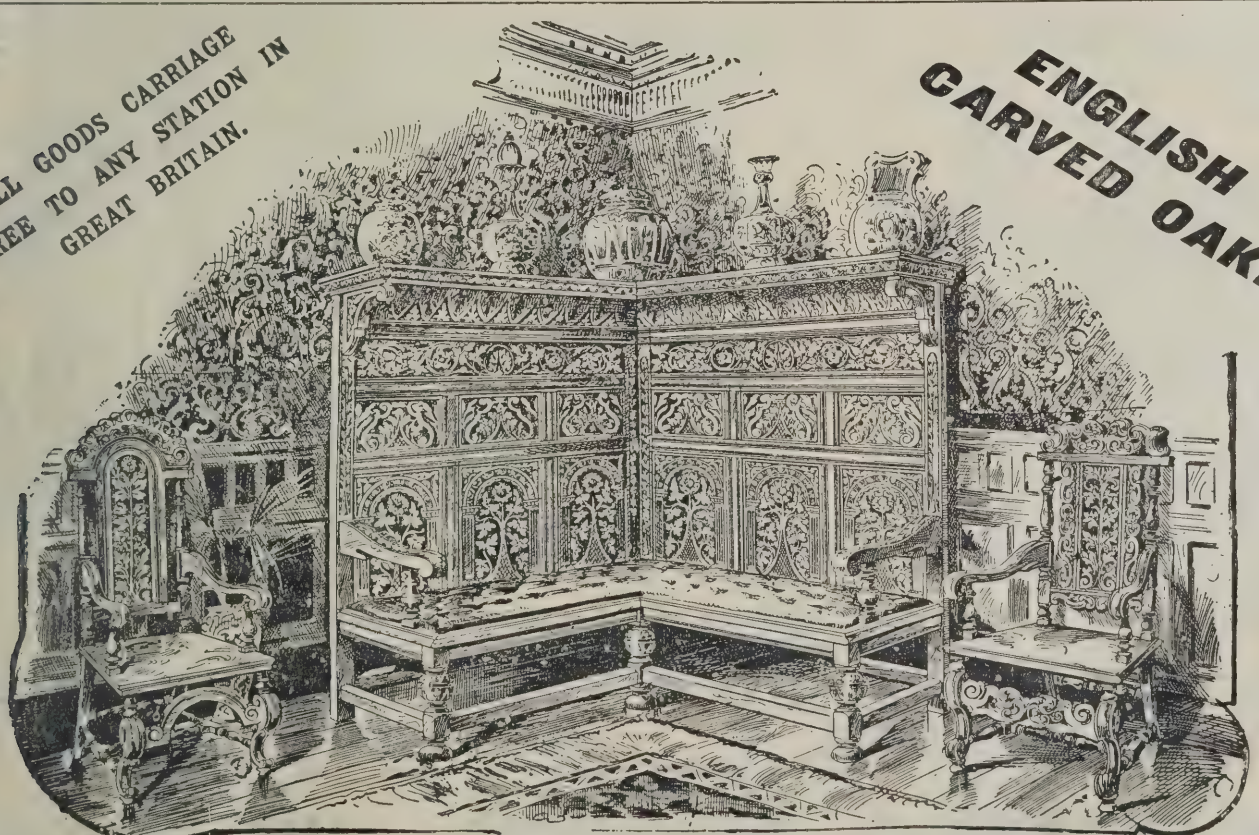
DANVILLE ASBESTIC plaster has been specified for the new warehouses for the Manchester Ship Canal Company, and the work is now in progress. All the ironwork (consisting of some thousands of girders and columns) is being encased with expanded metal lathing, and protected with Danville asbestic plaster.

THE pens manufactured by John Heath & Co., 70 George Street, Birmingham, of which they have sent us some samples, deserve a word of commendation on account of their agreeable qualities of smoothness and flexibility. They are cheap, too, varying in price from 1*s.* 4*d.* to 3*s.* 6*d.* per gross, and the wide range of shapes suits them to all purposes.

THE forty-seventh annual meeting of the Birkbeck Building Society was held recently at the offices, 29 and 30 Southampton Buildings, Chancery Lane. The report adopted states that during the financial year just closed the total receipts from all sources, taken with the disbursements, discloses the fact that the annual turnover has amounted to 37,488,736*l.*, being a daily average of upwards of 120,000*l* for every business day that the office has been opened throughout the year. The investments now exceed 10 millions—10,778,675*l.*—and the total liabilities on subscriptions and deposits also exceed 10 millions; whilst the balance of assets in excess of liabilities amounts to 441,984*l.* The amount received for subscriptions during the year has reached the sum of 266,511*l.* After allowing for withdrawals, the amount standing to the credit of investing members at the close of the year is

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888,896*l.*, and the balance of deposits to 9,457,794*l.*, amounting together to 10,346,691*l.*, an increase over the past year of 1,233,236*l.*

BUILDING AND BUILDERS.

PLANS are being prepared for the alteration and practical reconstruction of the Heckmondwike refuse destructor.

THE men at the Bangor slate yards have struck work through a dispute as to the working hours.

THE contracts for the proposed new Constitutional Club buildings at Farsley have been let, and secured by local contractors. The estimated cost of the building and site is upwards of 2,000*l.*

THE erection of a public slaughter-house in Leeds for the destruction of old horses and superfluous dogs, &c., has been suggested, and a sub-committee of the Leeds Corporation are contemplating taking a trip down south to acquire information on the subject.

THE Cromer Commissioners have decided to apply to Parliament to borrow 50,000*l.* for the purpose of erecting a pier and other works.

THE plans and works committee of Edinburgh Town Council yesterday recommended the acceptance of the offer of Messrs. Mackenzie Brothers, amounting to 1,358*l.*, for the engineering work in connection with the new Stockbridge baths.

THE foundation-stones were laid last week of the proposed new Wesleyan chapel and Sunday school at Cricklewood, close to the Edgware Road. The chapel, which will contain 745 worshippers, will cost, together with the schoolrooms adjoining, 7,300*l.*

AT a meeting of the Ayr Town Council further discussion took place regarding the question of a new town hall. It was ultimately agreed to ask an eminent architect to report as to the erection of a suitable hall.

THE intervention of the Board of Trade in the Bristol building trade dispute has been successful. Mr. Hudson, Q.C., who was sent down as conciliator, yesterday succeeded in effecting a compromise.

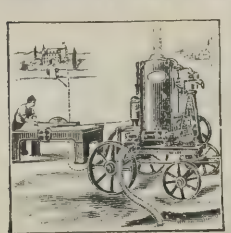
A SITE has been purchased at a cost of 400*l.* for a new church in the parish of Feniscliffe, Blackburn. This parish was formed out of the two adjacent parishes in 1893, when a new church was built and consecrated.

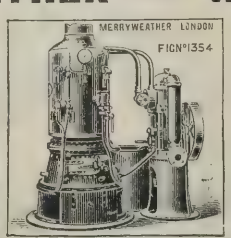
WHAT promises to be, if carried out, a very great improvement in Fenchurch Street is, says the *City Press*, being engineered by the astute deputy for the ward of Aldgate. A large piece of vacant land in Fenchurch Street is now about to be built upon, and the deputy's suggestion is that a fine block of premises should be erected upon it with a view to its forming the headquarters of the shipping and insurance interests in the eastern portion of the City. At present, as is well known, the Baltic, the Shipping Exchange, and various known undertakings are located in different thoroughfares, and, as a consequence, much inconvenience is occasioned. If steps can be taken to bring all these organisations into one building, not only will the public convenience be studied, but a great architectural improvement will be effected, and Aldgate will take another step forward in the direction of becoming one of the most important districts in the "one square mile."

A MOVEMENT has been started to place the parish church of Christ Church, Stafford, in a sound condition. Portions of the exterior, especially the top part of the tower and the guttering and spouting, are in a state of decay. This is the case also with several of the windows. The interior is throughout in a most unsatisfactory condition. The church has been minutely examined by a well-known county architect, and, acting upon his report, a committee of gentlemen have resolved that the work of renovation shall be proceeded with at the earliest date possible. The organ has also been carefully examined by an expert, and has been pronounced to be worn out in many portions and partially collapsed. It has been decided, therefore, that the organ shall be taken down and rebuilt with additions and improvements, so as to make it suitable to the size of the church. The total cost will be about 500*l.*

THE dispute in the building trade culminated on Saturday in a general lock-out throughout Lancashire. The difficulty originated in Bolton and other Lancashire towns. The operative masons asked for a reduction of working hours and for increased pay, and some of them also objected to working stone dressed abroad by foreign workmen and imported into this country. They served notices on the employers stating these terms. The result was that the masters retaliated by serving notices upon a portion of the men, intimating that their engagement under the existing conditions would terminate on Saturday. At first in Liverpool and district these notices were served upon a portion of the operative masons; the remainder

MERRYWEATHER on WATER SUPPLY TO COUNTRY MANSIONS, &c.

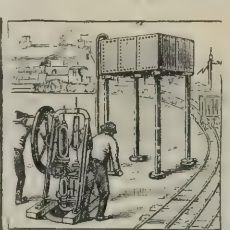

'Estate" Steam Pumping and Driving Engine.

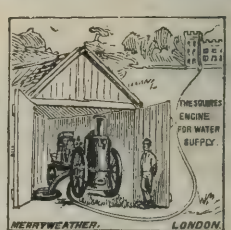


Light Pumping Engine and Boiler.

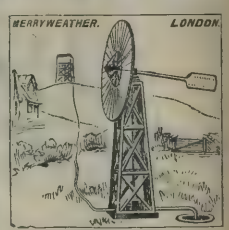


Water Wheel Pumps.

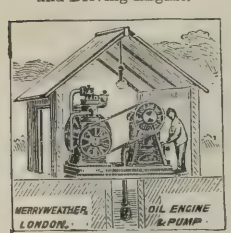

"India" Pattern Pumping Engine.



"Squire" Portable Fire Engine.



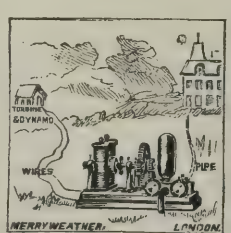
Windmill Pump.



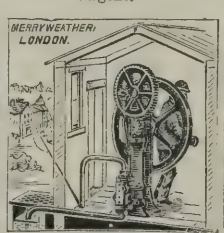
Oil Engine and Pump.



Estate Manual Force Pump.



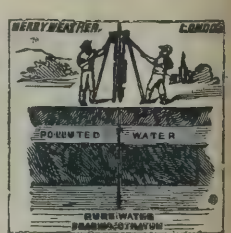
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of the men seemed to be content to stay at their work, no doubt intending to help those who were locked out. The masters, however, ultimately served notices of a lock-out upon all the working masons, expiring on Saturday. No settlement of the dispute has been arrived at, and the consequence is that all the operative masons throughout Lancashire have ceased work to-day. At present the building trade is brisk, and it is feared that this dispute will cause much inconvenience and hardship.

VARIETIES.

THE Royal Victoria Cottage Nursing Home at South Ascot was opened on Tuesday afternoon by the Duchess of Albany. The building is of red brick and has cost a little over 2,000*l.*

A STATEMENT has been submitted at the Ayr Town Council meeting as to the cost of the new Victoria Bridge over the river Ayr. The total cost of the bridge was 9,514*l.*

THE formal opening of the Diamond Jubilee organ erected in Ryde Town Hall at a cost of 1,000*l.*, took place on the 11th inst.

IN the building in course of erection on the Hanover Chape site, Regent Street, two small shops have, it is said, been let by Messrs. Knight, Frank & Rutley, of Conduit Street, together with a showroom, at a rental approaching 3,000*l.* per annum.

ON Monday, October 3, at 4 P.M., the Huxley lecture will be delivered by Professor Virchow, director of the Berlin Pathological Institute ; subject, "Recent Advances in Science and their Bearing on Medicine and Surgery." The lecture will be delivered at the Charing Cross Hospital Medical School.

A NEW mission church erected in the Marsh district of Lancaster, at a cost of 2,100*l.*, including site, which is large enough for an extended building if required, was opened on the 7th inst. The church provides accommodation for 300 worshippers and is dedicated to St. George.

INTIMATION was made at a meeting of the Glasgow Town Council of an offer to gift 12,000*l.* for the erection of public halls in the Springburn and Cowlairs districts of the city, provided that the Corporation agreed to spend 10,000*l.* in building a winter garden in Springburn Park.

MOST of the houses and offices of Manila have tiny panes of translucent oyster-shell for glass. An average window is 6 feet long by 4 feet wide, and contains 260 shell panes, which temper the heat of the sun and prevent blindness.

THE hospital recently erected in connection with the Hawkhead Asylum of the Govan District Lunacy Board was formally opened a few days ago. The site of the hospital is to the east of the asylum, and it includes sections for the treatment of recent and acute cases, infectious cases and sick and infirm cases. There are separate rooms for each patient, and accommodation is provided for 144 altogether. With the erection of the hospital the asylum buildings are now complete, the work of construction having been going on since 1891.

THE task of repairing the very extensive damage caused to Spurgeon's Tabernacle by the fire that occurred there on April 20 is in hand as far as the basement of the structure is concerned, and it is hoped that before the end of September this portion of the building, which suffered less than the part above the ground level, will have been reinstated, so that the ordinary services and meetings of various kinds in connection with the Tabernacle may be held there.

THE Midland Railway Company are sending out, free on application, an artistically covered and printed *brochure*, "Travel and Entertainment," which gives the tariffs of the hotels of the Midland Railway of England, together with useful information for all travellers on business or for amusement concerning hotels, refreshment-rooms, dining cars, trays of tea, luncheon baskets, grills, popular restaurants. It contains a list of places of interest in London ; maps of London, Liverpool, Bradford, Leeds, and picturesque views of the company's numerous hotels.

THE new infirmary buildings, which have been erected adjoining the present workhouse at Whiston, were opened on the 7th inst. The new buildings, which have cost about £20,000, have long been needed owing to the growing necessities of the union, and the old infirmary building will be taken up for general workhouse accommodation. The new buildings are of simple brick, and comprise two large blocks of three storeys and two blocks of two storeys each, and have all the most modern appliances, including fireproof floors throughout and fire-escape landings. There will be accommodation for about 300 beds—thirty on each of the ten floors. Mr. Brown was presented by the guardians with a silver-gilt key for the performance of the opening ceremony. The architect of the new

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infirmary was Mr. James Gandy, St. Helens, and the contractor Mr. Fred Brown, also of St. Helens.

AT Rotherham on the 7th inst. Lord Deasborough opened the new children's ward at the hospital—to be known as the Queen's Ward—erected in commemoration of Her Majesty's Jubilee. The Queen's Ward contains sixteen cots, and is a handsome addition to the hospital, combined with the improvement which has been effected in the laying out of the grounds. The bathrooms and sanitary blocks are fitted up with the most modern sanitary appliances, which have been supplied by Messrs. Dent & Hellyer, of London. In addition to the large ward, there is a small isolation ward for two beds, fitted with bathrooms. The cubic space allowed to each bed is about 1,200 feet. The walls of the wards are lined with Burmantofts faïence up to the height of 5 feet, and above that the walls are painted Parian cement. The effect of the scheme of colouring is extremely good. The large ward is heated by a central stove in addition to the hot-water pipes. In the small ward there is a fireplace and also pipes. The building has been erected and arranged in consonance with the most modern and advanced ideas of hospital construction. The lighting arrangements are of the best, and the general effect of the rooms is one of breeziness and space. The floors are all laid with tazzo, a species of Italian mosaic. Mr. J. D. Webster, of Sheffield, has been the architect, and Messrs. Chadwick & Co., Rotherham, the contractors.

THE ancient church of St. Kentigern at Irthington, near Carlisle, having undergone a careful and complete restoration, was reopened on the 28th inst., on which occasion the new tower and some additional burying-ground were also consecrated. The tower was built from designs from Mr. T. Taylor Scott, architect, Carlisle, at a cost of 1,100*l*. It is a massive red stone structure, with stepped buttresses on all the faces adjoining each angle, and the west side has been very effectively relieved by forming the structure around the stone spiral staircase into an architectural feature with loophole lights. This front has a moulded and pointed arched doorway and massive oak door. At a height of about 30 feet the three principal fronts have been pierced with circular openings about 4 feet in diameter for the clock faces, and on each side of the upper part of the tower there are large double openings filled in with louvres for the belfry. The total height of the tower is about 60 feet, the foundation being at a depth of 7 feet below the church floor. The flag-pole rises to a height of about 25 feet above the centre of the roof.

GUILDHALL SCHOOL OF MUSIC.

THE Lord Mayor, accompanied by the Lady Mayoress, the sheriffs, Mr. Alderman Green, Mr. J. Dewar and the chief officials of the Corporation, went in state on Monday afternoon to the Guildhall School of Music with the object of opening the newly-erected extension thereof. The new building, of which the site measures 72 feet by 51 feet, has been erected from plans prepared by Mr. Andrew Murray, the City surveyor, and provides a theatre 47 feet wide, 55 feet long and 30 feet high, fitted at the northern end with a stage (possessing an asbestos fireproof curtain and all necessary appliances); there is also a large gallery at the opposite end of the auditorium. Entrances to the theatre are provided from the old school, and in addition to these there are six emergency exit doors, four to John Carpenter Street, two to the City of London School for Girls in the rear. In the basement are dressing-rooms, green-room, &c., all in direct communication with the stage and the older building. Above the theatre are three floors, divided into thirty classrooms by double partitions; each partition is formed of hollow blocks, which arrangement is intended to prevent the passage of sound from the various rooms. For a similar reason the floors are framed independently of walls, partitions and ceilings. The constructional portions of the floors are of iron and concrete. The warming is effected entirely by hot-water radiators, which are also utilised for the introduction of fresh air. The vitiated air is withdrawn by means of extractor trunks connected with the upcast shaft from the furnace.

THE RENEWAL OF ELECTRIC LAMPS.

By F. J. WARDEN-STEVENS, A.M.I.E.E., &c.

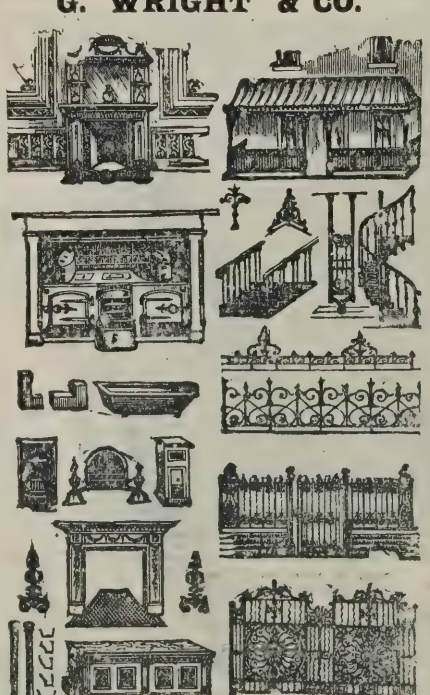
IN this article I propose to deal only with incandescent lamps, viz. those used mostly for interior lighting. Incandescent electric lamps, unlike gas burners, are made in so many different forms that it is essential something should be known about them.

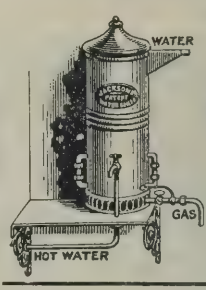
Now with an ordinary gas burner, all we want to know is the light it is to give, which depends roughly on the number of cubic feet it passes per hour. With an electric lamp we want to know what pressure circuit it is to be used on, what is to be its efficiency and what its candle-power. A gas burner is fitted and little more is thought of it until perhaps it is found to be corroded or blocked with dust, and then it is renewed. With

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an electric lamp it is generally used until either the filament or bulb breaks.

I propose here to point out the advisability of a little further consideration of the matter. I will not go into the question of the manufacture of an electric lamp; suffice to say that it consists essentially of a carbonised cotton filament enclosed within an airtight glass bulb. As before mentioned, electric lamps are made for use on circuits of different pressure; this is owing to there being no fixed standard pressure of supply, consequently we have current supplied in different districts at 100, 102, 105, 110, 115, 150, 200, 210, 220, 230, &c. volts pressure. The higher the pressure used the lower is the current required and therefore the size of the filament.

Now, with regard to the efficiency of a lamp, one taking less current and giving the same illumination is certainly more economical as regards the lighting bill, but we have another fact to consider, and that is the life or length of time the lamp will last. A lamp consuming less current than another with the same quality filament must have a thinner filament if giving the same candle-power at the same pressure, and this filament must be at a higher temperature. If we were certain of the pressure always being constant, the life of the lamps would be considerably prolonged; but, unfortunately, this is not so, although the Board of Trade, according to their regulations, limit the variation to 4 per cent. either way. If we are using a high efficiency lamp and the pressure is increased, this means still further increasing the temperature of the filament, and such strains reduce the life in a greater proportion than with a lower efficiency lamp. But for the variation of pressure high efficiency lamps would be used to a far greater extent.

Coming to the question of the amount of illumination given by the lamps, few lamps give exactly their rated candle-power even when first used, and they gradually fall off with use from several causes. The blackening of the bulb few have failed to notice. This blackening and therefore decrease in illumination is due to the disintegration of the carbon filament which coats the interior of the bulb with the carbon dust. The disintegration causes a pitting or unevenness of the filament which increases the area, and therefore decreases the temperature and light still further. The light is also again further decreased, due to the temperature being again decreased by the increase in resistance of the filament. The variation in pressure before mentioned as affecting the life also affects the candle-power of the lamp, but the candle-power varies in far greater proportion than does the pressure. I think, however, that the actual candle-power is of no great moment to users as long as they are getting sufficient illumination.

Reverting to the question of length or use of a lamp. It has been proved from exhaustive tests that electric lamps have many peculiarities. For instance, some have a high efficiency at first, but this falls off quickly with use, as also does the candle-power. Some last for about 1,000 hours, whereas others only last 500. Yet others maintain a fairly constant light throughout their life. Going into the consideration of actual practice we find that little thought is given to the purchase of electric lamps, those which last a long time being preferred. This, however, has been proved to be false economy, as the consumption of electricity and the blackening increase with the life of the lamp, and, therefore, if the cost of electricity is high it is better to renew a lamp before it breaks.

The cost of electric lighting is proportional to the cost of electricity, plus the cost of renewing the lamps. Now to insure a minimum it is necessary for the lamps to be tested, which the user is unable to do. A company has, however, come forward with a system which, I think, will be admitted is a great benefit. This company not only guarantees the life of the lamp but the economy also.

It may be as well to briefly mention the system adopted. The lamps are ordered to a strict specification, and no special make of lamps is used; when received they are placed into the store in racks, from there they are passed to the testing-room, where they are examined individually for external soundness as regards bulb, socket and filament.

A proportion of the lamps then go through an "ageing" test, which is intended to show the lasting qualities of the lamps. These are first carefully tested for candle-power and efficiency at the normal pressure, and the pressure applied to the lamp terminals is then gradually increased to a certain percentage, varing from 25 to 100 per cent., with different lamps above the normal. They are then re-tested for candle-power and efficiency, which must not be less by more than a certain percentage. If they are, the whole batch of lamps are rejected. If they pass this test, then each lamp must be up to a certain standard of candle-power and efficiency; all that do not pass this test are rejected, and new ones must be supplied by the makers. Those which pass these tests are stamped with the company's mark and are placed in stock.

By this means it will be seen that this company is able to supply lamps which are certain to give satisfaction and to be

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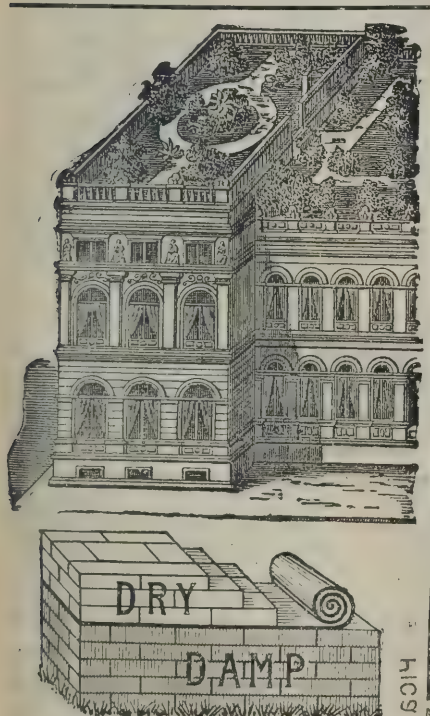
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economical. To prove that these lamps are better than those supplied in the ordinary way, it may be said that nearly all the manufacturers tendered for the first batch of lamps to pass the company's tests at a price considerably above the ordinary trade price, although a large quantity were purchased.

From stock the lamps are placed in special baskets, and are delivered to the clients of the company, each client having a special box in which to keep the lamps. If a lamp fails a new one may be taken from the box, the old one taking its place, the stock being renewed periodically. A charge is made for the lamps on the following basis.

Every lamp is supposed to last 500 hours before its candle-power decreases and the efficiency becomes less than a certain amount. The average hours of use is arrived at by an inspection of the meter book and the maximum current the lamps take when all are in use together. One lamp per 500 hours is charged for, and all that are required are supplied without any extra charge.

Periodically all the lamps on the premises are re-tested, and all not up to standard replaced. It may be of interest to state that by means of this company's system a saving of from 10 per cent., and even more, can be effected in the cost of electric lighting. The secret of the whole system is that a large buyer can insist on having what is required, and, if tests are carried out, obtains it. A small buyer must have what is given him, and in the case of lamps has no means of testing them. The result is that he obtains low efficiency lamps, which are easier to make, or lamps of very uneven quality.

It may be said that the makers test all lamps, but it is a fact that only a few are really tested properly. A photometer is an instrument which enables the ratio of the candle-power of a lamp to be arrived at. At the same time the power taken by the lamp is measured. Now, in most factories only a few lamps are tested on the photometer, the rest are compared with these by eye, and as a result they are uneven; some are bright and others dull when on the circuit.

The company above-mentioned have fitted up a laboratory in which no expense has been spared to enable lamps to be accurately tested. The current is supplied from a battery of accumulators charged from the public supply mains. Any pressure can be taken from this battery at will. The photometer is of a type which is peculiarly adapted for rapid and correct testing, and all the measuring instruments are of the best.

The standard of light used is the Vernon-Harcourt Pentane giving 1 candle-power, but it is not used except to occasionally standardise an electric lamp of approximately the same candle-power as those on test. It is found to be more convenient and to a great extent more accurate to very carefully standardise an electric lamp than to use the 1 candle-power standard always, it being easier to compare, say, a 16 candle-power standard with another 16 candle-power than with a smaller unit, and also any variation in pressure on the testing circuit will affect both the standard and the lamp being tested, preventing the error which would arise if one were electric and the other an oil standard.

This company is also prepared to supply tested lamps with a certificate of their quality to contractors, builders, architects and others who might not care to adopt the guarantee system. This plan should replace the present practice of buying lamps, as the certificate of the company is a guarantee and the convenience apparent. Also, if purchasers of lamps require their lamps tested, the company undertake this at a small charge and gives a certificate of the result.

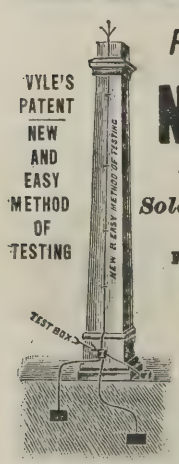
I think that this company will be of great use to architects, builders and others who have to consider electric lighting, and they will be certain to effect a saving in cost by adopting one or other of the alternatives offered.

Those desiring further information on the matter will no doubt have all inquiries answered addressed to the Secretary, Electric Lamp Contract Renewal Company, 15 Victoria Street, Westminster, S.W.

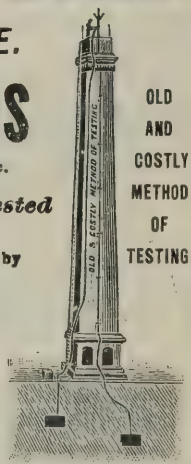
BUILDING SITES IN JAPAN.

A MEMORIAL signed almost unanimously by the British residents at Kobe and Nagasaki has been addressed to Lord Salisbury, directing attention to the disabilities and dangers to which they state they will be exposed under the treaty with Japan which is to come into operation on July 16, 1899. The advantages which were supposed to have been gained for British subjects in return for the surrender of extra-territoriality are, it is urged, nullified by the defects of the new arrangement. Thus in the matter of land tenure, no British subject or other foreigner resident in Japan may buy or own a single rood of Japanese soil, and although it is provided that British subjects may lease land for residential and commercial purposes the period of such leases is limited in the new code to twenty years. The absurdity is pointed out of supposing that British subjects will build workshops or other premises which at the

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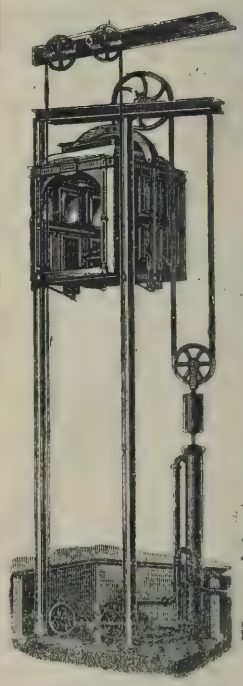
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expiration of so short a term of years may pass out of their hands or be subjected to an impossible rent, especially in view of the fact that the standard of commercial morality in Japan is not such as to afford very satisfactory assurances as to the policy likely to become prevalent among Japanese landowners in such circumstances.

WATER GAS.

THE public control committee of the London County Council have received a letter from the departmental committee of the Home Office, which is considering the questions of the manufacture and supply of water gas, asking for the opinion of the Council on the subject. The public control committee now report that, having carefully considered the matter, they have come to the following conclusions, which they have communicated to the departmental committee:—(1) That considerable danger arises from the introduction of water gas in the process of the enrichment of coal gas; (2) that non-carburetted and non-odorised water gas should not be allowed to be used under any conditions, since it is devoid of smell, which would give warning of any escape of the gas; (3) that 25 per cent. should be the maximum amount of water gas allowed to be introduced in the enrichment of coal gas, the proportion of water gas being ascertained by determining the amount of carbonic oxide in the enriched coal gas (coal gas enriched to this extent would correspond in poisonous character to the Dowson gas, which is already in use for heating purposes and for gas engines, and would exclude the use of carburetted water gas); (4) that when it is proposed to supply poisonous enriched gas to houses and the interior of buildings a proper inspection be made of the service pipes by a responsible officer appointed by the local or other suitable authority, who should certify that the pipes are in a sound condition and that there is no escape of gas, and that the cost of such inspection be borne by the gas company.

LONDON AS IT IS.

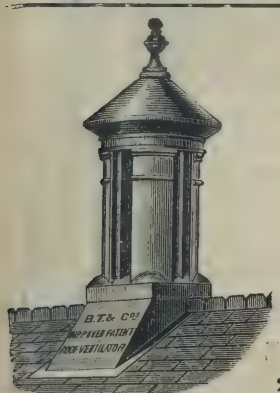
IN an article in the *Contemporary* on "Ideal London," Mr. Frederic Harrison says:—It is the weak side of modern civilisation that it has failed to carry on some of the fine elements of city life as known to the ancient and Mediæval world, and of all Europeans, we English of to-day take the least pride in our cities and receive from them the least of inspiration and culture. The historic cities of the world—Jerusalem, Athens, Rome, Byzantium—sum up entire epochs of civilisation in themselves. To the ancients the very idea of a nation, with a national system of life, implied a mother-city as its home and type. And in the modern world the citizens of Florence, Venice, Paris, Seville, Bern, Nuremberg, Bologne and Ghent have all had far deeper sympathy with their native cities than the Londoner has with his city, at least within the last two or three centuries of its life. This is a definite loss to London and to England. For if we truly estimate the indispensable need to a nation of a great capital worthy of itself, as a seat of its highest culture, energy, organisation, we shall see that England and the British race are all the poorer in that London fails to inspire the Englishman with that sense of sympathy, pride and example which Rome gave to the Roman world and which Paris gives to the French and the whole Latin race.

To the poor countryman London is too often a place where he may get busy life, variety and cheap amusement. To the rich countryman it is a place where he goes to buy all things that money can furnish; where Vanity Fair lasts for some three months, and from which he rushes off when his purchases are made and when the fair is over. To the dull provincial it is a place where he hopes to pick up "the last thing out"—in the peculiar vernacular he affects. To the ambitious man of business and the aspiring professional it is a place where toil and energy and skill may enable him to make a fortune, and in old age to retire to a rural retreat with an adequate "pile." And the city suffers, both within and without, from these unworthy aims, and it has the aspect of a place which is valued mainly as a market, an exchange, a warehouse, an office and a playground. It was not thus that Athens, Rome, Florence and Venice were looked on by their citizens, nor was London so looked on in the age of Norman and Plantagenet, of Tudors and Stuarts.

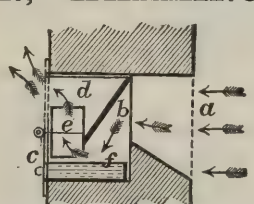
PHILIPPINE HOUSES.

ACCORDING to Professor Steere, earthquakes, the usual accompaniment of volcanic activity, are too common in the Philippines to be remarkable, unless they tumble one's house about his ears. The light, basketlike dwellings of the natives, perched

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upon posts, sway about like cradles during these strange movements of the earth, and are often thrown out of perpendicular, but are rarely destroyed.

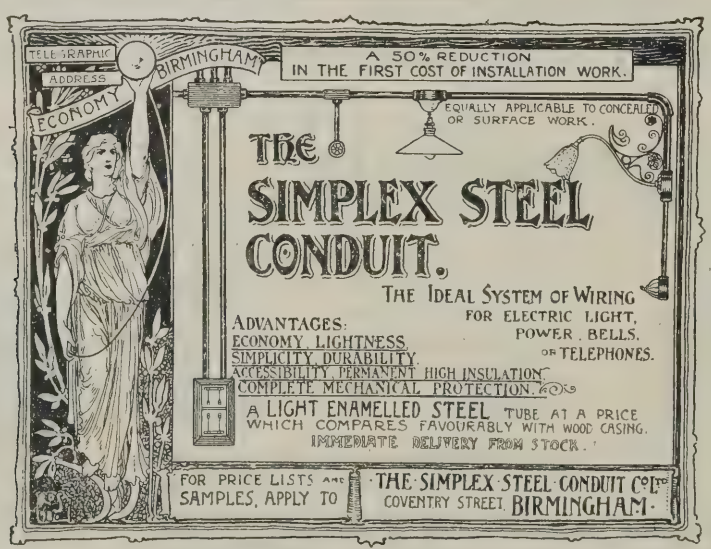
The stone buildings of the Spanish, though usually built of light volcanic rock or of coral, and with thick walls and low storeys and projecting buttresses to protect them from earthquakes, are frequently thrown down. Spanish Manila, the old walled town, the only city in the archipelago built of stone, has suffered most, and some of the streets are still blocked by the ruins of the great earthquake of 1880. In 1863 the city was nearly destroyed, and at frequent intervals since its foundation it has suffered loss of life and property.

In the provinces buildings of stone are rarely found, those existing being generally the churches and conventos, or priests' houses. These have been built by the untrained natives and with no other architects than the priests themselves, but are strongly built and rarely fall. Several times, while being entertained by these hospitable priests, we have been startled by the cry of "Temblor!" when all would rush out of doors, to be out of the way of falling walls, and, after a few minutes' waiting, would return to take up our dinner or conversation where we had left it.

THE WATERLOO AND CITY ELECTRIC RAILWAY.

THE new Waterloo and City line was opened for traffic on Monday. It is one of the smallest but most interesting of railway enterprises. It is about a mile and a half long. It runs from the Mansion House along Victoria Street, plunges down under the Thames at Blackfriars, comes up on the other side, runs along Stamford Street, across beneath the Waterloo Road into the York Road, and terminates right down in the roots of the great Waterloo station. There are two separate tunnels practically the whole way. They and the two terminal stations have taken about three years and a half to construct, and the cost—apart from equipment—has been, says the *Daily News*, something over half a million of money. No small portion of this sum must have been expended on the works underneath Waterloo. The building of the station here looks as though it must have been a far more serious undertaking than the straightforward job of pushing the two lines through the solid London clay beneath the river bed. Carried out on the Greathead shield system, that has been a tolerably safe and easy process. The queer, subterranean station at Waterloo looks to have been a perilous and gigantic task, and it has been even more gigantic than it looks, for a vast amount of the work here has consisted in the "underpinning" of the supports upon which the great station, with its trains and engines and crowded platforms, have rested.

The station thus constructed seems, with its approaches, to stretch out to as great an extent as that of the South-Western overhead. Long white-glazed brick galleries stretch away from the busy upper world of smoke and sunshine down into this nether world of electricity and the dull thunders of the traffic overhead. The white-walled, electrically-lighted passages referred to lead in by easy downward slopes from the roadways north and south and from the platforms of the upper station. There will be no booking-offices and no day tickets, though season tickets will be issued. Passengers will pass down the inclines, pay their fares, and pass through a turnstile, just as they do on the City and South London. From this it will be inferred that, also like the City and South London, there will be but one class. The trains, however, will be very different. Each will consist of four coaches. There will be no engines in the ordinary sense of the word. Each end coach will have an electric motor constituting part of it, the foremost and the hindmost seat in the train being raised up above the electric mechanism. Each train will thus be self-contained and complete without the appendage of any locomotive. This obviously will simplify the management of the traffic very greatly, as there will be no detaching engines from one end of the train and shunting them for attachment at the other. The coaches will be entered by gangways somewhat after the manner of the South London electric line, but the seating is differently arranged. Instead of the seats down the sides they are for the most part arranged across the floor of the car, with a passageway down the middle, two seats being on either side. In each car there are, however, a dozen seats—six on each side—arranged the other way, their backs to the wall so to speak. The two end motor cars have seats for forty-six passengers, the two inside ones holding rather more. Each train of four carriages will hold somewhere about 200 passengers seated. At busy times, however, the Waterloo and City will be managed on much more severely virtuous principles than most metropolitan lines if they don't get another good hundred into each of them. These new trains are American handiwork, and in their form, their style of building, their strength and solidity and the democratic severity of their appointments, they are quite novel in this country. There are no curtains or



"THE BANQUET."

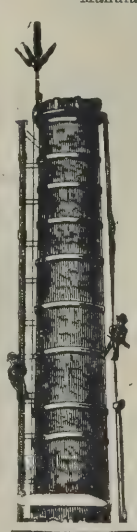
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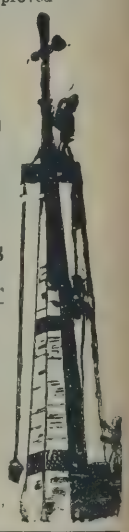
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ARE THE BEST FOR CHURCHES and TURRETS.
Makers of the Lincoln and Newcastle-on-Tyne Cathedral Clocks. Liverpool University College, and Great St. Mary's, Cambridge.

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HALL CLOCKS WITH QUARTER CHIMES
CHURCH BELL FOUNDERS & HANGERS.
Musical Hand Bells and Gongs.
ESTABLISHED 1848.

cushions—unless the company relent somewhat and mitigate the Spartan rigour of their interiors with slight mats for the bare seats. They are built of solid oak or something closely resembling it, and from the bottom of the window level the sides slope inwards like some of the saloons of river steam-launches. This is in order to adapt them to the circular walls of the tunnels they are to run through. The wheels are exceptionally small, and the carriages, therefore, ride very low, and they are broad at their base. This lowness and breadth and the solidity of their construction, and their tapering form upwards, give them an appearance of massive strength quite unlike anything hitherto seen on our lines. They are severely utilitarian in their finish, but their sound timber, merely varnished, their good plate-glass and first-class workmanship in all their details render them handsome and attractive, and unless very emphatic promises are unfulfilled they will be exceedingly well lighted by incandescent electric lights.

This rolling stock has been brought in on the South-Western line above and has been lowered down upon an enormous hydraulic lift just under the north side of Waterloo station. This lift is worked by hydraulic power, and will be used for bringing coal to the generating station. The electric generating station is on the south side of Waterloo, between Aubin Street and Lower Marsh. There is a repairing shop here, also with another smaller lift, by which, if necessary, the rolling stock may be brought up from the line below. From the generating station the current will be conveyed to the train motors by means of an insulated central metal, and it will be returned through the rails on which the trains run.

There is nothing intermediate between the Waterloo terminus and the City, where the station arrangements are in some respects only temporary. Eventually the way into the station will be from the central subway and from the Bank station of the Central London Railway. But neither the railway nor the subway is in a stage that permits of this connection, and access to the City end of the line is at present by rather a precipitous flight of steps leading down from the corner of Walbrook. From the bottom of the steps a long incline leads down to the platform, from which a service of trains, at the moment of writing not definitely arranged, will run, but which will no doubt vary according to the time of day. As it is a straightforward rush from one end to the other, and each train travels in its own tunnel, there need be no stopping when once started, and as there will be no shifting of engines, there need be no delay in the return. Trains can then be running at busy times every three or four minutes if required. At other times of the day no doubt they will be less frequent.

The railway has been constructed under the supervision of Mr. W. R. Galbraith, of the firm of Galbraith & Church, and the late Mr. Greathead. The latter gentleman died at the end of 1896, and was succeeded by Professor Kennedy. The whole of the tunnels and the City station were constructed by Messrs. Mowlem & Co. The Waterloo sub-station and the generating station were constructed by Messrs. Perry & Co.

CAST-IRON PIPES.

THE following suggestions for specifications of cast-iron pipes were read before the American Waterworks Association by Mr. F. D. Wanner:—

1. The metal used should be a No. 2 X or No. 2 plain foundry iron remelted in a cupola or air furnace, and of such quality and mixture as will produce a strong and even-grained pipe or casting that will drill and cut readily, and possess a tensile strength of at least 16,000 lbs. per square inch.

2. Pipe should be cast vertically in dry sand moulds truly cylindrical in shape, uniform in thickness of metal, in sections of 12 feet exclusive of bell, with bell end down. The seat or shoulder of the bell and the spigot end should be even. It is conceded in the art of pipe-making at this time that they should be cast vertically for obvious reasons, such as greater solidity, regularity of metal and less chance of air bubbles and of dross remaining in the pipe. They should also be cast with bell ends down, as this will produce a more perfect head, more shapely in form and of greater regularity in depth of socket and metal. Definite action in the specifications on this point would be of advantage to pipemakers, and save them the expense of maintaining a double complement of fixtures. Some engineers are determined, others indifferent, as to this practice. While perhaps a majority of the specifications call for bell ends down, many of them are not enforced, and in the majority of such instances the pipes are cast bell ends up as a matter of economy and convenience to the pipemakers.

3. The depth of socket or bell, with a suitable V-shaped lead ring, should be from 3·5 to 5 inches, according to the diameter or size of pipe; joint room or lead space from five-sixteenths to one half-inch, with number, year and initials of the manufacturer cast in raised letters and figures upon each pipe or special.

THE WELL-KNOWN FRIEZE,
ENTITLED
"THE CORN FIELD."
1. Ploughing. | 3. Mowing.
2. Harrowing. | 4. Carting.
5. The Products of the Corn Field.
Length, Fourteen Feet Seven Inches by Fifteen Inches deep.
A SPLENDID EXAMPLE OF COLOUR-WORK IN PERMANENT INK PHOTO, BY
M. PAUL ALBERT BAUDOIN.
This magnificent Illustration was presented to the Subscribers to "The Architect" in 1886. A few Proofs were taken, which immediately became out of print.

OPINIONS OF THE PRESS.

"We are not surprised to hear that there has been a great demand or the beautiful reproductions of the well-known frieze by M. Pau Albert Baudoin, entitled 'The Corn Field.' The plates have been reproduced by subscription at half a guinea the set, and so great has been their success that a second edition is being issued."—THE LADY'S PICTORIAL.

"They are beautifully done in colours by the permanent ink photo process, and form a very artistic and pleasing set at tue extremely moderate price of half a guinea."—THE STAGE.

"The well-known frieze entitled 'The Corn Field,' which is a splendid example of colour-work in permanent ink photo, by M. Paul Albert Baudoin, is to be reproduced by subscription of half a guinea a set. They are exceedingly artistic, and would grace the walls of any house."—THE GENTLEWOMAN

AND NUMEROUS OTHERS.

In consequence of the almost daily demand for these Plates, they have been reproduced by Subscription at Half a Guinea the Set, and are now ready for issuing.

P. A. GILBERT WOOD, 175 STRAND, W.C.

May be had framed in Solid Oak Frames with Mounts, at Three Guineas the set of Five Plates.

4. The thickness of metal, weight of pipe, with a fair allowance for variation, say from 3 to 5 per cent., should be regulated by the head or pressure to which the pipe is to be subjected, and correspond to the drawings and instructions of the engineer, who should always endeavour to remain on the side of safety, and not forget that it is but small economy, especially during these low prices of pig-iron, to recommend light-weight pipe even for the lightest pressure.

5. The pipe and castings, after coming out of the foundry, should be thoroughly cleaned inside and outside, chipped nicely and then carefully inspected with a light pick-hammer for that purpose. After this inspection the pipe and specials for water should be properly heated, and while hot dipped into a suitable preparation of coal tar mixed with a sufficient quantity of dead oil to give it the requisite body and gloss; the coating, after it is applied, should become hard and tenacious and show no blisters or flakes. The coating on pipe and specials, while an important feature in the trade, is of easy attainment with the proper materials and management.

6. Pipe should be tested by a machine built for that purpose under hydraulic pressure of from 100 to 300 lbs. to the square inch, according to the use intended, giving the pipe while under this pressure a few slight raps with a light iron or wooden hammer.

7. After testing the pipe they should be weighed, and the weight of each marked in white lead, either in the bell or on the outside. Pipe and castings should be sold by the lb., or the legal ton of 2,000 lbs. There is no so-called gross ton of 2,240 lbs. for pipe or castings, and it can be made obligatory only by special contract in writing. This ton should not exist at all, and there is no reasonable excuse for its maintenance by anybody whatever. It is annoying alike to the buyer and the seller, as well as to the railroad companies and other carriers. It is a nuisance that should have been abolished long ago.

8. Time for the beginning of shipment of pipe, quantity per week or month and time for completion should be plainly stated in contract, and without penalty for non-performance of contract on time, because it cannot be enforced at law; and why, then, encumber the contract with it or attempt to frighten the souls of the contractors?

9. Terms of payment should be thirty days cash, unless otherwise agreed, after the delivery of pipe and castings, less 10 per cent. to be retained until the satisfactory completion of the contract.

10. A bond may be required in from one-fourth to one-half of the amount of contract, with sufficient security, rendered by a surety company wherever the same may be practicable.

Parties inviting proposals or bids for pipe and special castings should refrain from asking for bids made on their own proposal blanks or for cash or cheques, because this practice is not binding and is against the policy of law, of no service to them and frequently annoying and a hardship to the bidders, who are, in any event, dependent upon the favour and tenderness of those inviting them to bid under the invariable reservation or right "to reject any and all bids."

Special castings should be cast upright or on an incline in dry sand or loam moulds, though small specials with care and good management may be cast successfully in green sand moulds.

The fault in specifications too often, outside of provisions that are unreasonable and cannot be fulfilled, lies in their being drawn too rigidly against the contractors and manufacturers, who are treated and seemingly looked upon in the outset as if they were both dishonest and incompetent.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

APPLICATIONS FOR PATENTS.

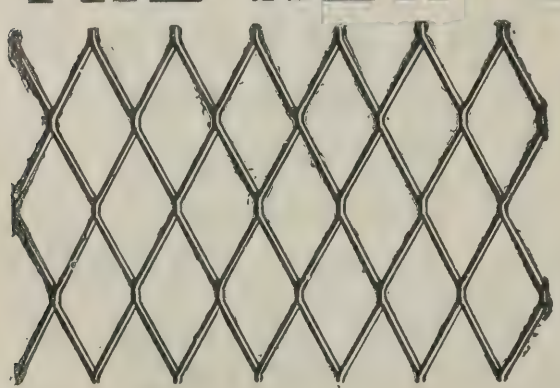
14152. Mark Polhill, for "Scaffold to be used wherever scaffolding is used for all purposes."

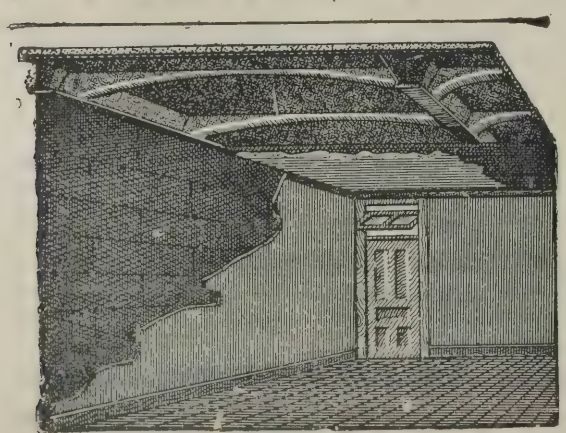
14447. Gustav Baader, for "An improved louvre ventilator."

14654. Wilhelm Heinrichs Barmen, for "Improvements in brick-kilns."

TO INVENTORS.—Patents for Inventions, Trade-marks and Designs secured; every assistance given to inventors. Specialists in Building matters. Information free.—Messrs. RAYNER & Co., Patent Agents, 37 Chancery Lane, London, W.C.

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Meshes from $\frac{1}{8}$th in. to 6 in. wide. Strands from 24 B.W.G. to $\frac{3}{16}$th in. thickness of steel.

FOR BUILDING CONSTRUCTION, as supplied to a large number of important Buildings, both Public and Private, in this country and abroad.

FOR SOLID PLASTER PARTITIONS, 2 inches thick, with Expanded Metal Lathing. Fireproof, vermin-proof and practically sound-proof.

FOR FIREPROOF LATHING, for attaching to wooden joists and studs, for walls and ceilings, also for suspended ceilings, ornamental mouldings, encasing columns, girders, &c.—no cracking or falling away of plaster to be feared.

FOR CONCRETE FLOORS WITH EXPANDED METAL.—The remarkable results and advantages of these will be better understood by perusal of the Report hereinafter referred to.

FOR EXTERIOR WALLS OF BUILDINGS.—Cement applied to Expanded Metal is not liable to crack or fall away through changes of temperature.

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ORNAMENTAL. STRONG. CHEAP.

OTHER USES FOR EXPANDED METAL.—These are innumerable. It can be used wherever lattice-work is required, from a letter-rack to a lift-shaft, for garden bordering and archways. Is highly ornamental and exceedingly durable, having no joints to rust away.

Being expanded by rapid machinery it is considerably cheaper, strength for strength, than any other description of metal lattice-work.

BRASS, ALUMINIUM, or any other ductile metal can be expanded, and the effect is very pleasing, and here again the absence of joints gives great durability to the metal, and the rapidity of manufacture allows of very low prices.

CATALOGUES AND PRICE LISTS can be obtained on application. Also copy of a REPORT by an EMINENT FIRM of ENGINEERS on the use of EXPANDED METAL IN CONCRETE.

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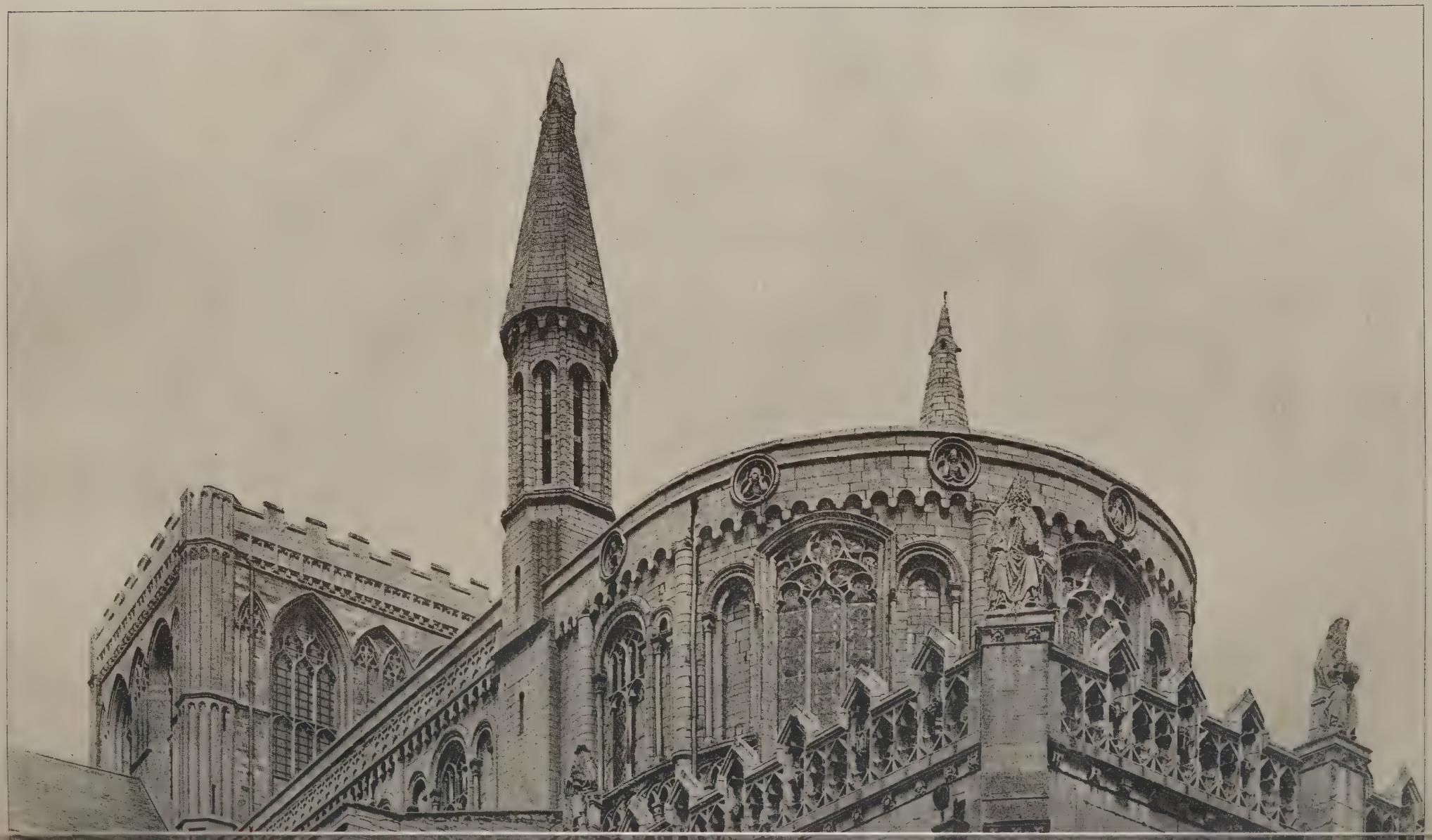
Telegraphic Address, "Distend, London." Works—WEST HARTLEPOOL. Telephone No. 1829.

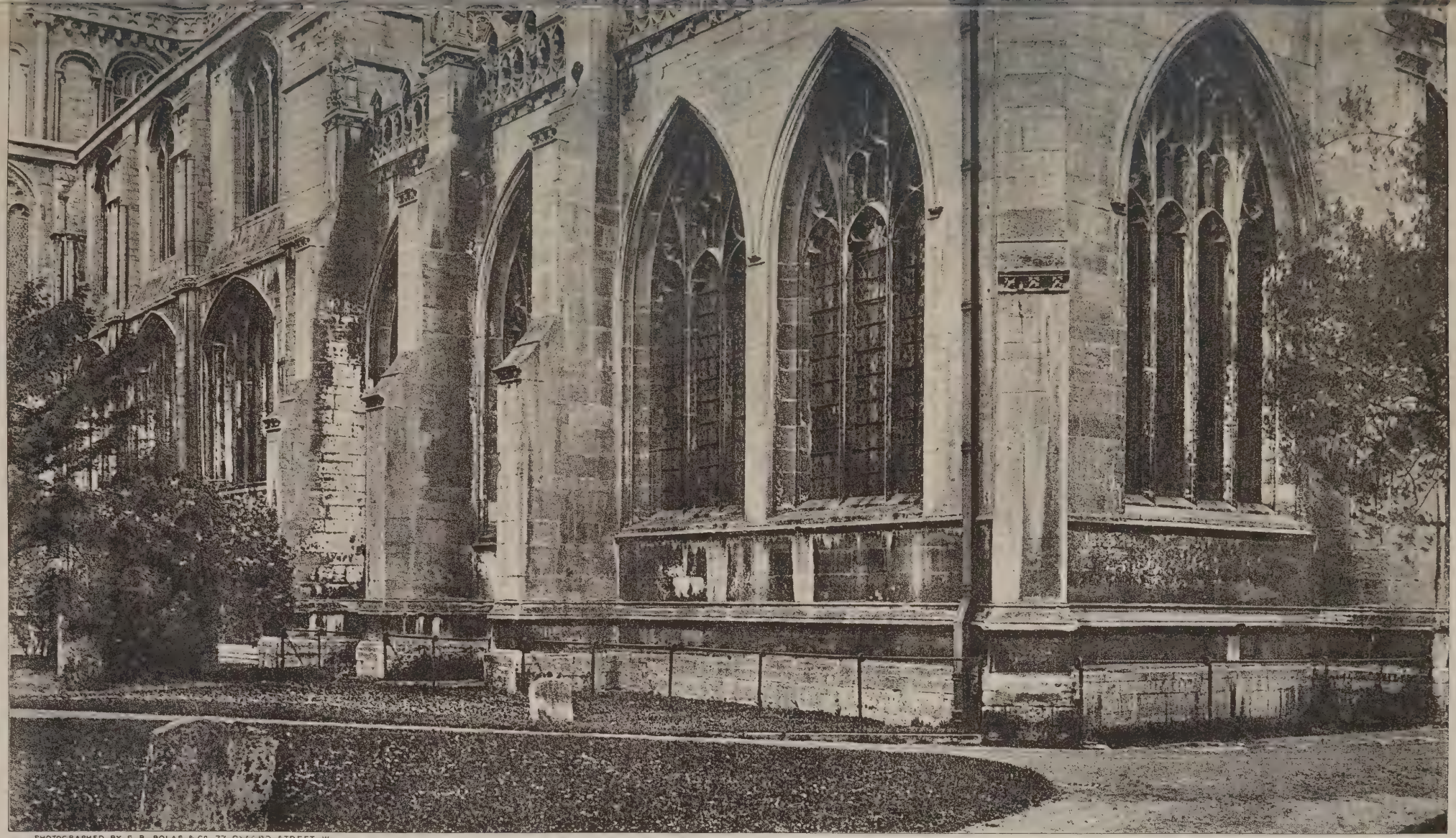


PROPOSED FAÀ-DI-BRUNO MEMORIAL SCHOOLS, ST. MARY OF THE SEA, HASTINGS.

J. H. EASTWOOD, A.R.I.B.A., Architect.

The Architect, July 15th 1898





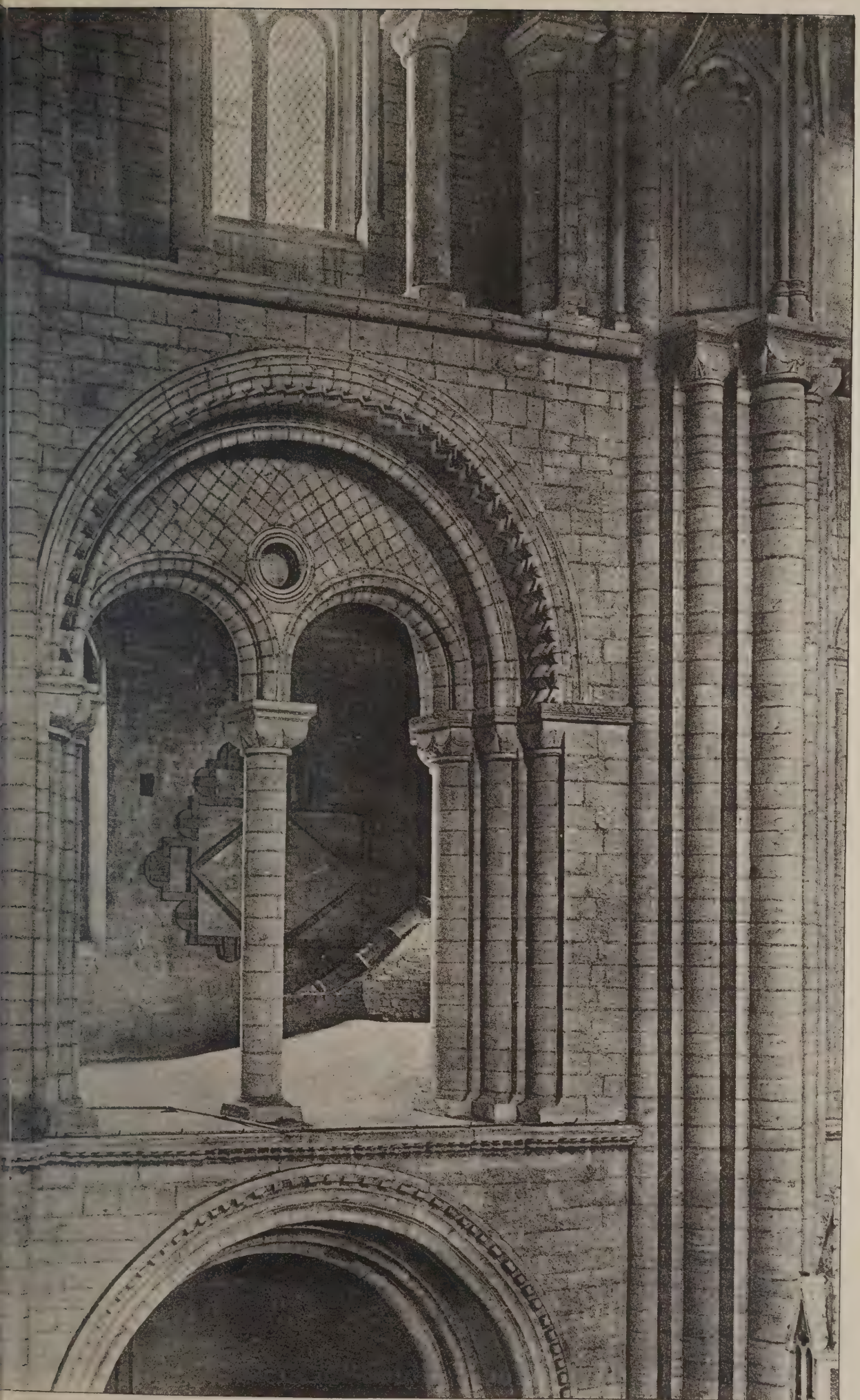
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CATHEDRAL SERIES, No. 148.—PETERBOROUGH: EAST END.



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PETERBOROUGH: TRIFORIUM.



"Morley House," St
G. D. Stevenso

July, 15th 1898.



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GARET'S BAY, DOVER.

..A., Architect.



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PROPOSED NEW ROOF AND DECORATION TO THE GUARDIAN ANGELS' CHURCH, MILE END.

J. H. EASTWOOD, A.R.I.B.A., Architect.

The Architect.

THE WEEK.

THE works committee of the London County Council must look upon Mr. MICAWBER as their patron saint and model. Such a band of sanguine men does not exist out of Spring Gardens. The losses inflicted on the unlucky ratepayers of London would be more than enough to make ordinary authorities doubtful about the advantages of amateur building, but the more unfavourable the difference between the outlay and the estimate the more hopeful are the committee about something turning up in the next job to make affairs assume an appearance of being satisfactory. This week the works committee have turned towards a venture on a big scale. It was proposed to undertake the erection of the Horton Manor Asylum, Epsom, without the intervention of a contractor. The official story runs that at the end of March last the manager of the Works Department submitted an estimate of 284,445*l.* for the work. This estimate being higher than the quantity surveyor's and the architect's, and the finance committee not being favourable to the work being carried out by the Works Department, the asylums committee invited tenders, but the lowest tender received was over 12,000*l.* in excess of the price named by the works manager. The works manager being still prepared to carry out the work for 284,445*l.*, the committee recommended that it should be entrusted to him. On Tuesday, when the subject was brought up, Lord WELBY pointed out that the finance committee considered the job was too big to be undertaken by a Department that was only lately reconstructed, and, as Lord ONSLOW afterwards added, the finance committee was practically the works committee. Sir JOHN HUTTON, who is an upholder of the Department, said he was obliged to come to the conclusion that the experiment was not one which should be entrusted to it. Sir J. B. MAPLE drew attention to the unfairness shown to the contractors who were put to trouble without any chance of success. On the other hand, Mr. JOHN BURNS made the astounding statement that from a workman's point of view it was a matter of vital importance that the Council should do the work itself, for the loss of life per 500,000*l.* worth of work done by the Council was smaller than the loss of life per 200,000*l.* worth of work done by contractors. As there is now a Workmen's Compensation Act in force statistics of the kind are less appalling than formerly, but the figures were enough to subdue opposition to the proposal, for a majority approved of the expenditure of 284,445*l.* in order to keep the Works Department going. To apply Mr. MICAWBER'S words, the probability is when the end of the amusement draws nigh we shall be very considerably astonished.

A MEETING was held at Marlborough House on Tuesday for the purpose of promoting a scheme to establish some permanent memorial to the late Sir J. E. MILLAIS, P.R.A. Owing to his recent accident, the Prince of WALES was, unfortunately, unable to preside, and the Duke of WESTMINSTER took the chair. A sub-committee, consisting of the Dean of ST. PAUL'S, Baron FERDINAND DE ROTHSCHILD, the Right Hon. CHARLES STUART-WORTLEY, M.P., Sir CHARLES TENNANT, Sir W. B. RICHMOND, K.C.B., Sir EDWARD J. POYNTER, P.R.A., Mr. JAMES KNOWLES, Mr. PETER REID, Mr. ALFRED WATERHOUSE, and Mr. WALTER W. OULESS, was formed to consider and report to the general committee the form which the memorial should take. Baron FERDINAND DE ROTHSCHILD consented to act as the treasurer, and Sir EDWARD J. POYNTER and Mr. PETER REID undertook the office of hon. secretaries. It was agreed to postpone an appeal for subscriptions until the form of the memorial should be decided. A vote of thanks was passed to the Prince of WALES for his offer to preside at the meeting, with a unanimous expression of regret at the cause of his Royal Highness's absence.

IN the charge to the clergy which was delivered on Tuesday, the Bishop of CHICHESTER recommended that great care should be taken that the glebes and other possessions of the Church are carefully set down in writing, and this safely kept. Much has been lost in times gone by from the want of such documents. Ignorance and encroachment have gone hand in hand in some places, and the Church is poorer to-day in consequence. Every parish should have its vestry book, and if in such book not only accounts but any event happening in the parish of real interest were recorded, there would be a gradually accumulating and true history of England in the vestries of our parish churches. The newspaper correspondent (and one appears to be found in every village) takes care to record all events of real interest, but all archæologists will admit it is an advantage to have entries of whatever relates to Church affairs, however remotely, entered in volumes which are trustworthy. Parish histories become more and more interesting as time runs on, and the Bishop of CHICHESTER'S advice is no less applicable to other dioceses.

BIDSTON COURT, a half-timber structure designed by Messrs. GRAYSON & OULD, and standing in grounds having an area of 31 acres, was offered for sale by auction in Liverpool on Monday. The most striking features of the exterior of the mansion are the twin-bays copied as closely as possible from those at Moreton Old Hall. Upon them is carved and painted in quaint and legible characters the inscription, "This house was built by ROBERT HUDSON and GERDA, his wife, Anno Dom. MDCCCXCI., these bay windows being copied from those at Old Moreton Hall in the hope that when they have perished these may remain." Upon the beams carrying the gables of the porch and great hall towards the court are the verses :—"When the trees are white with rime, And the ground is black and bare, Warmth and welcome ye shall find Underneath these gables faire. Charitie and jollitie Carve on every beam of wood, Mercie, truth, equalitie, Man's eternal brotherhood." Facing the whole length of the south front is a Dutch formal garden, the paths paved with white cobble stones, and the whole centring round an old Italian marble fountain. The fittings of the interior of the mansion are on a sumptuous scale befitting the character of the property. It is understood the property cost from 80,000*l.* to 90,000*l.* The bidding commenced with an offer of 10,000*l.*, and was increased to 25,000*l.*, but as no higher amount was to be obtained the property was withdrawn. The mansion, with about 7 acres of land, was offered as one lot, but the bidding was declared to be insufficient.

M. BUQUET, the architect for the new Hall of Assembly in the Chambre des Députés, is now busily engaged on the plans, but as yet they can be considered as only trial sketches. M. BUQUET has been studying all the available plans of the houses of parliament in various parts of the world. He is said to have come to the conclusion that a large number of them owe their form mainly to the diagram that VITRUVIUS put forth as representing the antique theatre. Among the buildings in which he could trace the influence of that plan are the ancient Hall of the Five Hundred, the senate chamber in the Luxembourg, the hall in the Palais Bourbon which is about to be abandoned, the two chambers for the Austrian Parliament, and, most remarkable of all, the new Reichstag hall in Berlin, which is found to be almost identical in plan with the Congress chamber at Versailles. M. BUQUET proposes to adopt an elliptical plan for the new building, but before deciding on the measurements he will visit the Parliament House at Buda Pesth, which has received much commendation. It is mysterious that M. BUQUET has taken no note of the Westminster chambers, although in them the most successful of parliamentary proceedings are held.

LAST year much interest was excited by the discovery at Delphi of the music which was used by the Greeks for two hymns to APOLLO. A similar discovery has been made in the Laurentian library at Florence. This is a fragment of VIRGIL'S "Æneid." The manuscript is apparently of the ninth century, and contains the notes from which the fragments were recited or chanted, for according to some authorities the declamation of the ancients was arranged with an art corresponding with what is seen in recitatives. M. COMBRIEU has reproduced the manuscript and has explained the system of notation with much acumen.

THE NEW PUBLIC OFFICES.

IN the House of Commons on Monday, the First Commissioner of Works announced that the Government had requested Mr. J. M. BRYDON to prepare plans and drawings for the new public offices on the Parliament Street site, and Mr. W. YOUNG to prepare plans and drawings for the new War Office on the Whitehall site. The plans when completed would be considered by the Government, and before orders were given to proceed with the buildings the drawings would be exhibited for the inspection of members. There can be no question about the competence of the two selected architects to undertake the important commissions they have had the good fortune to receive. If, however, there was less secrecy adopted in their selection there would be more satisfaction about the result, for it is impossible to say what circumstances determined the decision of the Government. It would be vain to deny that several architects have aspired to be entrusted with the new buildings, and they must be disappointed. But in architecture casualties of the kind are common, and a man is not fitted to follow the profession who is unable to endure them. Practice is to some extent a lottery, and one day or another every individual architect may hope to draw a big prize. All should endeavour to be as well able to turn it to good account as Mr. YOUNG and Mr. BRYDON. They have an onerous task before them, and for the sake of the profession in general we hope they will carry it out in the most successful way.

For it should be remembered that important official buildings like those proposed to be erected exercise influence over architecture for many years after their completion. Somerset House not only upheld the Italian style but set a fashion for "an easy-flowing foliage and an elegant imitation of such flowers and plants and other objects in nature as were best adapted to the purposes of architectural ornament." Who could think ill of any variety of Gothic when the Houses of Parliament were there to testify that our legislators could not discover another style so well adapted for the multiform duties imposed on the Lords and Commons? If it were not for peevishness of the lawyers and litigants who use the Law Courts, Gothic might still be supreme in England. The defects of the Home and Colonial Offices have had much to do with the preference for Queen Anne. If the classicism of the new offices can escape censure, it is reasonable to conclude that the style or styles adopted for them, however pronounced, will set the fashion in popular architecture. Stucco of a decorous drab colour might for a time obtain a preference over red brick, which, it may be remarked, is now becoming so glaring as to suggest its last days are approaching. Of all exaggerations those of colour are the most unpleasing, and some builders insist on having scarlets, which are subversive of the repose which red brick was diffusing through the land.

There is no fear that the new offices will offend the eyes of the judicious by any discordant scheme of colour, for it is stipulated that the exterior of the buildings must be constructed entirely of Portland stone. But the use of coloured materials in the manner which is now obtrusive enough is only one element in the fussiness which is taken to be a characteristic of architecture. It is well to have variety, but when we meet with surprises in every square yard, nay, sometimes in every square foot of frontage, it is difficult to resist a desire for relief if it were only as a monotonous plain surface. We appear to be fast approaching the vitality which WREN saw at Versailles, where "not an inch within but is crowded with little curiosities; works of filgrand and little knacks are in great vogue, but building certainly ought to have the attribute of eternal." If the new buildings in Whitehall and Westminster will serve as correctives to much of what now passes as advanced architecture, they will be worth the money expended on them, regardless of their use as offices.

The time is ripe for an effort which will recall the old glories of the art. The advance in draughtsmanship has caused it to be associated with the picturesque rather than with stability, and although buildings rarely collapse in England, the representations often excite doubts about the agency which keeps parts together that appear to be combined at random. But we cannot expect to have great works unless time is allowed to the architects to be satisfied with their designs. SCOTT, although he was practising in a style which was not familiar to himself or his assistants, was capable of producing a less unsatisfactory imitation of Italian than is seen at Whitehall if the pressure of officials had been less forcible. STREET was so worried by his sacrifice of portion after portion of his design to satisfy the First Commissioner of the time, it is a wonder the maimed remains retain so many excellent qualities. To the official mind the preparation of a design is a less important affair than the drawing up of a memorandum or a minute, and it is inconceivable why designs should not be produced with as much facility as documents. Legends about painters and sculptors continuing in a condition of mental distress because inspiration will not come when desired are accepted as credible, but that architects should also pine for forms to reveal themselves definitely seems as absurd as for a Government clerk to need a happy thought before he fills up a form. We hope the architects for the new offices will be allowed sufficient time to mature their ideas. It may be granted that accommodation is urgently needed, and economists will be dissatisfied if they see the sites for the buildings unoccupied. But allowance should likewise be made for the coyness of invention which is not always as spontaneous as one desires, and is not to be generated with the same ease as electricity. The conditions are so favourable for the production of excellent work, it will be difficult for the architects to come up to the anticipations of all who are competent to judge. The knowledge of that fact may spur Mr. BRYDON and Mr. YOUNG, but it may also be a restraint on their powers. They are expected to surpass all their former works, and that is not an easy task for any architect who always endeavours to be at his best. Let the authorities be careful not to make the task more onerous by meddling. The doctrine of non-interference is as applicable in dealing with artists as with foreign Governments, although it does not appear to be included among the rules and regulations of the Office of Works.

GERARD ON TASTE.

IN 1755 the Edinburgh Society for the Encouragement of Arts, Sciences, Manufactures and Agriculture offered a gold medal for the best essay on "Taste." None of the attempts submitted was considered worthy of the prize. The offer was repeated in 1756, when the Rev. ALEXANDER GERARD, D.D., Professor of Divinity in King's College, Aberdeen, sent in an essay, or rather part of a work, which he had completed on the subject, and the medal was awarded to him. Prize essays are not always prized by posterity, and although GERARD published his inquiry in its complete form, it has shared the fate of the majority of ordinary college exercises.

The book merits more consideration than it has received. If it has not created artists and amateurs, a similar powerlessness has marked more elaborate works of the class in all ages. We cannot be said to have arrived at success in our times, although more attention is given to the subject than in preceding periods. Newspapers in the remotest districts of most European countries would not now hesitate about announcing and applying principles of taste. On the basis of their temporary convictions, ancient and modern works would be judged without the least misgiving. It would seem as if the rules of good taste are so definite, they can be employed as readily and with as much certainty to determine qualities as a foot rule or a pair of scales can be used to measure size or weight. There is so great confidence on the subject prevailing, and everybody is so ready to pose as a legislator, it seems incredible to find an able writer like the late ALEXANDRE DUMAS the younger declining to lay down any rules on the subject, although it was well known that he bought and sold pictures with a success which dealers envied. He disclaimed all knowledge of laws, and the only explanation he could give of his competence was that he followed the guidance of his sentiments, his natural taste, and the experience which can be obtained by anyone who will use his eyes in a city like Paris.

DUMAS was a type of the most advanced class of latter-day amateurs. He enjoyed works of art, he could talk and write about them with eloquence and discernment. He had also the satisfaction of knowing that at the worst his pictures would realise the money he gave for them, and his enjoy-

ment was therefore obtained without more cost to himself than the ordinary interest on the sum expended. Yet he declared that, with all his success, "Je n'ai pas la prétention de faire une lois pour les autres." In other words, his pleasure arose from following his personal preferences, and not from obeying the dictates of theorists or the counsel of experts. It was open to ordinary men to imitate him. They might not make as much profit whenever they resolved to change their pictures, but at least they would have the satisfaction of exercising such powers as they possessed. Their works of art would be to some extent an expression of themselves.

The right to individuality which DUMAS claimed as an amateur he would naturally allow to artists. If "une loi" could not be made by so practised a writer for the guidance of men like himself, it would be still more absurd to attempt such a legislative feat for the benefit of artists. Why should BOULANGER, GÉRÔME, MILLET, COROT, MEISSONIER, have to succumb to an amateur's edicts? DUMAS for his own gratification preferred works in which the individuality of the artist was most strongly exhibited, and for the sake of the characteristic he was ready to condone departures from the precedents which had received academic sanction. So much latitude is one of the consequences of the numerous endeavours to produce works of art which will find a market, and the no less numerous endeavours to explain the points in which they are successful or deficient.

But in 1755 there was a belief in the existence of some beau-ideal which, if it could not be represented in stone or bronze, on canvas or paper, was at least capable of being suggested by words. There was accordingly peculiar fitness when the Aberdeen professor of divinity undertook the explanation. As truth was said to be single, it could not be opposed by truth, and to Dr. GERARD science, criticism, philosophy, were as applicable in questions relating to the arts as in those which related to theology. Processes resembling measuring and weighing if employed were supposed to determine difficulties. To use his own words, "Many of those qualities in objects from which the pleasures of taste result are capable of being measured with considerable accuracy," and he gives one instance to show how he would carry out the process :—

> The Grecian architecture excels in simplicity; this is unquestionably a source of pleasure. The Gothic has variety; this is likewise a source of pleasure. Which of them is most approvable? Of two sublime objects one exceeds the other in magnitude, but falls as much below it in simplicity. How shall we determine which is the most sublime? But this difficulty is not always insurmountable. It may happen, for instance, that one of the objects has more of approvable qualities, the other no more. The Grecian architecture has proportion, the Gothic is destitute of it; the addition of this quality plainly turns the balance in favour of the former. Thus, again, every work has its end and use: some qualities productive of pleasure may by their situation be subservient to this; other qualities very pleasing in themselves may by their position obstruct it.

There might be use occasionally in measuring the relations between solids and voids in a building, or light and shade in a picture; the proportions between the primary colours that produce "a neutralised bloom" can also be tested by those who are afraid to depend on their powers of vision, but what scale known to surveyors can be employed to bring simplicity and variety into conditions that are calculable? As long as the beau-ideal is indeterminate, it corresponds with the unsatisfied longing which appears to be inherent in the human mind; but as soon as precision is attempted we have a result which is neither fact nor fiction, and therefore misleading to those who are desirous to create.

GERARD was like many writers of the eighteenth century in his belief about the majesty of Classic buildings. It may be doubted whether his eyes rested on a single genuine example, and the representations which he could have employed were more or less fanciful. But on that account the beau-ideal of architecture was identified with a Classic building that was finer than any of those which were drawn as existing. He was unable to realise that there might be a second standard of the art, if not more. To GERARD the Gothic remains in Scotland were relics of a false system of divinity, that could only be produced in days when men were kept in ignorance, and education such as was imparted in his courses would therefore become fatal to Gothic as a style. He remarked in one place :—"The profusion of ornament bestowed on the parts, in Gothic structures, may please one who has not acquired enlargement of mind sufficient for conceiving at one view their relation to the whole, but no sooner is this acquired than he perceives superior elegance in the more simple symmetry and proportion of Grecian architecture." The Professor had no compunction about the condemnation of the college buildings where he taught and lived, which was involved in his words. That kind of heroic justice was common among the critics of his time. But what he could not have realised in 1756 was that the Gothic buildings of Scotland, which were supposed to be only pleasing to narrow minds, inspired WALTER SCOTT to undertake a revival which was equal to a new creation in literature, that SCOTT'S influence prevailed not only in English art and literature, but enkindled the romanticism of the French, and was almost as powerful in Germany. Let any one read what GOETHE says about the "Fair Maid of Perth," and it will be found that the qualities which he admired in the romance were (if unlike things can be compared) those which were condemned in Gothic buildings in the passage given above.

We must not be too hard on GERARD. If we consider the circumstances of the time, his book deserves to be admired as a remarkable effort. The Edinburgh Society realised the indifference to taste when the prize was offered for an essay on the subject. There were few books in existence to which GERARD could have recourse. HUME, in his "Treatise of Human Nature," had described the phenomena of association, which he had derived from THOMAS AQUINAS. GERARD was therefore able to say, "The principal source of grandeur in architecture is association, by which the columns suggest ideas of strength and durableness, and the whole structure introduces the ideas of the riches and magnificence of the owner." But he did not realise all that was to be accomplished about forty years afterwards with the aid of the theory of association by ALISON. REID was in 1756 one of the Aberdeen professors, but he had only published his essay on "Quantity." He had not then attempted to demonstrate that by the philosophy of Common Sense there was nothing really beautiful in the colour, form or exterior appearance of any object—there was only moral beauty, which had to be supplied by the spectator. HUTCHESON, who was not long dead, had by his theory of an internal or reflex sense of beauty maintained a similar conclusion. He was the English author who seems to have exercised most influence over GERARD, as we can see from many passages, and especially from one towards the close of the essay, where it is said :—"To those who are destitute of taste, general principles and rules, however just, will not supply the want of it; whenever they pretend to judge they will go wrong, not because the principles and rules are useless, but because they are incapable of applying them to the present case." Carried out to its full extent that conclusion would make all essays on taste almost useless, for if the man of taste is born, not made, it is waste of time to study principles which should be known intuitively.

The only book by a practical artist which fell in GERARD'S way was HOGARTH'S "Analysis of Beauty," and it shows a superiority to prejudice when we find the Professor so often quoting it. From the pages he was taught that the inexpressible greatness of the *Apollo Belvedere* arises from the uncommon length of the legs and thighs; that fitness was a principle of beauty; that the lowest utensil may be beautiful or ugly of its kind; that the curve was the line of beauty, &c. Occasionally we find passages in GERARD'S essay which suggest that, like HOGARTH, the Professor occasionally doubted whether an artist could as easily soar above the earth in his creations as theorists commonly assumed. For instance, he says :—

> It is possible to acquire so great refinement, especially when taste is accompanied with genius, that we conceive in idea a standard of higher excellence than was ever, in fact, produced; and, measuring the effects of art by this absolute and exalted form, we always miss some part of that immensity which we have figured out to ourselves. Leonardo da Vinci is said to have conceived so high a standard of perfection that, from despair of reaching it in the execution, he left many of his

features unfinished. When imagination is inflamed and elevated by the perfection exhibited to it, it goes on of its own accord to fancy completer effects than artists have found means actually to produce; by reason of some unpliableness in the materials employed, the execution seems always to fall short of our conception.

It is not the materials but the hand using them that fails whenever we are unable to realise our ideas. That expression alone would stamp GERARD as an amateur. But in the rest of the passage he gives one a notion that occasionally he was able to perceive that at its best man's work can be no more than approximation. One of the reasons which make the book interesting to a modern reader is that in it we see the contest between the student whose world was his library, and the professor who through his pupils was able to realise some of the shortcomings of life. He was forced to admit that men would run away from the beau-ideal if they saw anything novel:—"When genuine elegance in furniture or architecture has been long in fashion men sometimes grow weary of it, and imitate the Chinese, or revive the Gothic taste, merely for the pleasure they receive from what is unlike to those things which they have been accustomed to see." GERARD himself was not above yielding to the temptation. He also occasionally rebelled against a rigid correctness, for, as he said:—"To disapprove a transgression of a general law when the spirit is observed, and when the end is, perhaps, more effectually promoted, is not justness but servility and narrowness of taste. PARMEGIANO is said by good judges to owe the inexpressible greatness of manner in his pictures to the neglect of just proportion in some of the members of his figures." He was probably also disclosing a weakness which some readers would not fail to utilise when he said, "There is scarce any quality that recommends a person more strongly to our friendship than a fitness for gratifying our taste in some way or other." GERARD considered that taste was a sort of basis for all passions, with the exception of avarice. There is nothing like leather, said the old fable; there is nothing equal to taste, said Professor GERARD. But with all his belief in its efficacy, he did not dare to suggest that the temples in which his students were to officiate should be made to have less resemblance to barns. In the middle of the eighteenth century it required more courage than he possessed to advocate the employment of architecture as an auxiliary to religion.

In those days public opinion did not count for much. The multitude were expected to follow their leaders. GERARD could not imagine the possibility of a critic on architecture, sculpture and painting in every little town in Scotland where there was a newspaper, and of correspondents who would assert their claims to dispute anything favourable that might be said about Classic architecture or PARMEGIANO. When critics arose in England it was, as GOLDSMITH informs us, sufficient to say the artist would have done better if he had taken more pains and to introduce something about PIETRO PERUGINO. But that formula would have appeared revolutionary license to Professor GERARD. He would have no self-appointed critics. His arbiters of taste were to be carefully selected, and it would be a sort of heresy to fail in accepting their opinions. His words are:—

> Though general or universal approbation be assigned as the test of excellence, it really amounts to no more than the approbation of a very few. Multitudes are excluded from the right of suffrage, as being in one respect or another unfit to judge; the select few take the lead; what pleases their vigorous and improved taste ought to please all; whoever dissents ought to impute it solely to his own want of taste. An authority so absolute and uncontrollable had need to be clearly established.

STRATFORD PARISH CHURCH.

THE parish church, Stratford-on-Avon, was reopened on the 14th inst. by the Bishop of Bristol, after having undergone partial restoration. The church, apart from its Shakespearean associations, is most interesting. Portions of the present structure date from the time of the Norman Conquest, additions having been made in the thirteenth and fifteenth centuries. The church possesses some fine monuments, and is known as the Westminster Abbey of the Midlands.

Some years ago Mr. Bodley, A.R.A., prepared a scheme of restoration, part of which had been carried out when the work had to be stopped for want of funds, 6,000*l.* having up to that time been expended. Last autumn a public appeal was made for 5,000*l.* more to complete the work, and the work was resumed—to relay the floors of the nave and transepts, reconstruct the organ and provide new heating apparatus, and seating. The church has been closed for six months to carry out this work, and over 3,000*l.* has been expended upon it, but even now the task is uncompleted. A new vestry and a pulpit are wanted, and the nave requires to be seated with oak benches to match those in the aisles. A further sum of 2,000*l.* is needed, but as the committee are already considerably in debt, this latter portion of the work will have to be deferred. The reopening ceremony last week was attended by the Bishop of Bristol, who preached in the afternoon, taking as his text the words, "O, how amiable are Thy dwellings." His lordship said the word amiable, even in its personal application, might be applied to the fabric of a church, which spoke to them gently, tenderly, consolingly, and yet so firmly and so unmistakably. A church might be regarded as a voice in stone. In every stone of the fabric there seemed to be a rebuke to sin. How often, when one stepped into a quiet village church—to see, perhaps, whether the architecture was Norman or Early English—had one remained to receive such influences as these. The church in which they were assembled was to them a great inheritance and an immense responsibility—an inheritance not only of the beautiful fabric, but of the world-wide reputation that centred about that place, wherever civilisation was known and culture had reached. The church and the memory of him who once worshipped there spoke to their hearts and souls and consciences and told them of the great responsibility of that priceless inheritance. What would they who had to worship in great cities give to be able to approach their church through that avenue of lime trees, and to worship amid such peaceful surroundings. When one stepped out of a city church and stopped to dwell on some high and holy thought, it was at the risk of being run over. The world was always too ready to run over one at such times. The fabric of the church spoke to them in a voice which never jarred upon one whatever one's feelings might be. But that fabric, though it spoke to them with the voice of God, was the work of men's hands; still more did man's handiwork speak to them in Scripture. Who was worthy to stand before and interpret to himself the lesson of a great statue? In painting the skill of man appealed to them still more. What a revelation came to one when one sat down for a few moments before a great picture. But by far the greatest creation was the "maker," the man who made poetry or who made prose. In the early times of Greek art sculptors of the battles between the Centaurs and the human race made it clear that the Centaurs were so powerful because they used the simplest weapon—the weapon of nature. It seemed to him, as compared with the polished writers of the present day, the old writers had the greater power, because they used the natural weapons which were so simple. So Shakespeare was so natural and so strong that they almost forgot he was a supremely great poet. In thinking, how natural, how simple, how plain he seemed. That was a great lesson to all of them.

ARCHÆOLOGY OF THE PETERBOROUGH DISTRICT.

ON Thursday, the 14th inst., the fifty-fifth congress of the British Archæological Association commenced at Peterborough. Before the formal opening several of the visitors met at the cathedral, where Dean Ingram delivered an address on the history of the building.

Peterborough Cathedral.

The Dean traced the history of the first Saxon church, which was commenced in 656, on the site which, as nearly as possible, is now occupied by the south transept. He related the familiar legend of St. Chad in connection with the building of the church, which was destroyed by the Danes in 870. The second Saxon church was built about 970, and a wall was placed round it. Only within the last few days remains of this wall had been found under a portion of the eastern chapel, now being made secure. The Dean dwelt at some length on the legend of St. Oswald's arm, and said that for a long time this was the great relic of the church. In 1116 the whole church and monastery were destroyed by a fire that raged for fifteen days. The building of the present church, the choir of which was commenced in 1117, was completed in eighty-two years, and that perhaps accounted for the continuity of the whole design, Peterborough Cathedral being unique in this respect. The Dean drew special attention to the painted roof of the nave, which he said was no doubt expected by the monks in 1170, and was the oldest wooden roof in England. The west front must have been designed and built in the time

of five abbots, and none knew for certain who designed and who built it. Referring to the windows, the Dean said the whole were filled with stained-glass in the fourteenth century, but the only glass that remained after the brutal destruction of Cromwell's soldiers in 1643 were the two small lights in the eastern apse. Fortunately, added the Dean, there was no dynamite in those days, or they would not have had a cathedral now. The Dean then conducted the party round the cathedral. He pointed out the stone said to be erected by Godricus of Crowland over the grave of Abbot Hedda and his eighty-four slaughtered monks. Although Mr. Bloxam at a former meeting of the Association had sought to prove that the stone belonged to a period many years later, and was not a commemoration stone at all, yet he felt sure himself that it was the original stone, and this opinion was shared, he believed, by everyone whose opinion was considered anything at all.

The restoration of the great central tower was also alluded to, and the Dean observed that nearly 70,000*l.* had been spent upon the cathedral within the last 16 or 17 years. The west front came in for special attention, and before conducting the party up the scaffolding the Dean said :—"Very recently I was held up to scorn, ridicule and contempt of the world by a number of people who were totally ignorant of what they were writing about, and many of whom had never seen the cathedral. They imagined I was going to destroy the west front, but nothing was further removed from my mind than that idiotic notion." A number of the visitors (including the Bishop of Ely and half a dozen ladies) mounted the wooden scaffolding and were brought face to face with the work that has been carried out. The Dean explained that every stone was, where possible, replaced in its original position. Altogether 2,006 stones were taken down, and it was only found necessary to renew 170, most of which were hidden from view.

Afterwards the visitors were received at a garden party in the grounds of the bishop's palace.

The general meeting was held in the Assembly Rooms in the evening. Several water-colour drawings and other views of churches and other buildings of the district were exhibited, as well as some of the objects which were evidence of Roman occupation. The Bishop of Peterborough, in his address, said he recognised that as an antiquarian his presence was something of an anomaly, but in his official capacity he had pleasure in welcoming the British Archæological Society to the cathedral city of Peterborough. In the matter of population and industrial importance, Peterborough was below the class of town which the congress usually made its venue, but the locality had much of archæological interest to recommend it. That being the case, he wished the delegates a hearty welcome, and a pleasant and a profitable sojourn among the people of Peterborough. They not only desired that that particular congress might in some way start a new epoch in the life of the Association ; not merely be the result of sending each member a step forward in the science of his choice ; not only to take away from the locality a fund of knowledge and archæological mental pabulum which in the coming winter might be reduced to valuable pamphlets, treatises and reports ; not only leave behind them at Peterborough memories of their eight days' stay and pleasant friendships, but that there might remain some practical efflorescence, some imperishable memory. The Lord President proceeded to deal with the programme of the congress, and, alluding to the visit to Fotheringhay Castle, said that place possessed a historic interest a parallel of which would hardly be found throughout the length and breadth of the land. He characterised Fotheringhay Church as "a splendid structure melting slowly away," and urged the paramount necessity of rescuing that beautiful fabric from impending ruin, and maintaining it as a suitable English memorial to the memory of Mary Queen of Scots. Were that congress to result in a development such as he had indicated it would not have been held in vain. The character of the nation's life was changed by work such as that undertaken by the Society. The young country had no past from which to draw the lessons of to-day. She might be smarter, more go-ahead, quicker in her intentions, more pliable and self-adaptable ; but America, for example, would give a large slice of her national wealth for such a treasure-house of archæology as England possessed. America knew what an influence this was in making character and forming men. She knew the value of that power of retrospect, and that a nation's greatness in the past was a large factor in her present power and future strength. Bishops owed another debt of gratitude to the Society for its work in the formation of English character and the steadying of English lives. They all knew the value of the study of archæology in the rectories and vicarages of the clergy. When golf, bicycles, tennis and croquet made such demands upon men's time, it seemed especially desirable that such higher pursuits—which were more suitable, perhaps, to the employment of the spare time of the members of the learned professions—as the great science of archæology should be commended both by example and precept to the attention of the country clergy. His lordship devoted a considerable portion of his address to the Little Gidding community and the work of Nicholas Ferrar, who was visited by King Charles after his defeat at Naseby, and this fact, no doubt, caused the ruthless destruction by Cromwell's soldiers. The latter portion of his lordship's address was devoted to the cathedral, and he prefaced what he said by the remark that they would excuse him, as the twenty-eighth bishop and successor of forty-five abbots, if he desired to fix their interest upon it. In retelling the story of its vicissitudes, he incidentally mentioned the work of his hero-worshipping uncle, Charles Kingsley, who little knew at the time he justified by his novel the sacking of the abbey by Hereward, that his nephew was to succeed to the See. A passing allusion was made to the west front controversy. If, to use a vulgar phrase, "seeing is believing," then their presence, said the Bishop, would give wider force than anything else could do to induce the public to believe that the architect and the Dean and Chapter acted rightly. They had preserved one of the most perfect specimens of Gothic art.

Dr. Walker read a paper dealing with the Roman occupation of the district, showing that Castor and Peterborough formed an important centre as shown by the remains that had been frequently discovered.

Mr. Romily Allen (treasurer) proposed a hearty vote of thanks to Dr. Walker for his paper and to the Bishop for presiding.

Among papers promised to be read during the congress are the following :—"Lathom Hospital and its Early Statutes," by Lord Melville ; "The History of Ramsey Abbey as Illustrated by the MSS. in the British Museum," by Dr. W. de Gray Birch, F.S.A. ; "Yaxley and Fotheringhay Churches," by Mr. H. M. Townsend ; "The Gentlemen's Society in Connection with Peterborough," by Mr. C. Dack, local hon. sec. ; "Castor Church," by Mr. J. C. Traylen ; "The Roman and Saxon Occupation of Peterborough," by Dr. Walker ; "Maxey Church and Parish," by Rev. W. D. Sweeting, M.A. ; "Northborough Church and the Cromwells," by the Rev. H. J. D. Astley, M.A. ; "The Crosses of Fletton and Helpston," by Mr. C. Lynam, F.S.A. ; "Bury Church, Hunts," by Mr. J. A. Poulter ; "Crowland and the Legend of St. Guthlac," by Miss Edith Bradley ; "Notes on the Fenlands," by Prof. T. McKenny Hughes ; "The Commercial Importance of Peterborough in pre-Roman Times," by Dr. Phene, F.S.A. Papers also will be contributed by Mr. G. Patrick, A.R.I.B.A., hon. sec. ; Mr. J. W. Bodger, local hon. sec., and others.

THE ARCHITECTS AND CORPORATION OF PLYMOUTH.

A FEW months ago the special works committee of the Plymouth Town Council considered it would be wise to make arrangements in order that the buildings which were to be erected in connection with the Tavistock Road improvement should not possess the commonplace character which characterises provincial towns when the building owners are left unrestricted liberty. Accordingly, they offered some modest premiums to the local architects. But whether from an oversight or from want of acquaintance with the usual procedure, the conditions were not considered satisfactory to architects or advantageous to the town. The architects in a friendly spirit appointed a few of their representatives to wait on the committee in order to explain their objections. The interview was followed by the subjoined correspondence :—

I

Plymouth : May 14, 1898.

Mr. J. H. Ellis, town clerk, Plymouth.

Dear Sir,—In reply to yours of the 3rd inst, we beg to thank you for the privilege granted us of laying before you personally through our representatives our objections to the terms of the above competition, and for your kind consent to bring these matters and our reasons for objecting thereto before the special works committee.

We also beg to thank the special works committee for receiving our objections, giving them careful consideration and modifying the terms of the competition on certain points ; but we regret that the main points of our objections have not met with a more favourable reception, and we desire to appeal to the committee for a further reconsideration of the conditions of the competition, and ask to be allowed to offer the following suggestions for amending the said conditions :—

1. That the competition shall be confined strictly to the designs of elevations only, drawn to a scale of 16 feet to the inch, with enlarged drawings of all blocks varying from each other in general character, drawn to a scale of 4 feet to the inch.

2. That an architect, who shall be nominated by the Royal Institute of British Architects, shall be appointed as assessor, and that the terms and conditions of the instructions to architects shall be submitted to him for his advice and approval thereon.

3. That all the designs sent in shall be submitted to the assessor, and that he shall select from these designs three which are in his opinion the best, and award three premiums of the value of 70*l.*, 60*l.* and 50*l.* respectively to those placed by him first, second and third in order of merit.

4. That all the designs, including the premiated drawings, after having been exhibited to the public for seven days, shall be returned to their respective owners, and a copy of the design selected for carrying out shall be at once supplied to the borough surveyor, and retained by him for reference.

5. That the architect who is the author of the first premiated design shall provide working and detail drawings, together with full-size detail drawings of all moulded and enriched work to the purchaser (or his professional adviser) of any one or more of the sites, and that he shall have power to enforce the carrying out of the design on the lines approved by the committee, and for such services he shall be paid a fee of seven guineas on each site by the purchaser thereof.

6. We object strongly to supply designs for plans, as we hold that it is desirable in the interests of the town, as well as in the interests of our profession, to give freedom to the purchasers of sites to carry out their own requirements in planning, and that they should be restricted only to number and heights of floors, to lines of front and back boundaries and designs of elevations.

Trusting that our suggestions may have the favourable consideration of the committee, and be received in the same spirit with which they are offered.

(Signed)

E. Coath Adams.	E. R. Lethbridge.
M. Alton Bazeley.	W. H. May.
A. G. Bewes.	R. A. Mill.
W. J. Carder.	R. H. B. Neal.
F. A. Clark.	A. S. Parker.
J. H. Dwelley.	B. Priestley Shires.
Hine & Odgers.	H. J. Snell.
King & Lister.	S. Roberts, jun.
T. Rogers Kitsel.	Wiblin & de Boinville.

II.

Town Clerk's Office, Plymouth: May 17, 1898.

Dear Sir,—I beg to acknowledge the receipt of your letter of the 14th instant, and the accompanying letter signed by architects practising in the borough, which I submitted to the special works committee at its meeting yesterday.

I am directed to inquire whether, provided the committee are prepared to consider the suggestions submitted by the architects, they would be prepared to waive their requirement in relation to the appointment of a professional assessor.

I may add that I have instructions to convene a special meeting of the committee as soon as I receive your reply to this inquiry. J. H. Ellis.

B. Priestley Shires, Esq.

III.

May 20, 1898.

J. H. Ellis, Esq.

Dear Sir,—In reply to yours of May 17, the question of a professional assessor being appointed on the above competition has been fully discussed by the architects of Plymouth, and they are unanimous in declining to enter the competition unless this condition is granted.—p.p. the Architects of Plymouth,

B. Priestley Shires.

IV.

Town Clerk's Office, Plymouth: June 7, 1898.

Dear Sir,—Referring to previous correspondence hereon, and particularly to the architects' letter of the 14th ult., I beg to say that the special works committee has decided to recommend the Council to meet the objections and suggestions put forward by you and your brother architects in the following manner, viz.:—

They will agree to the appointment of a professional assessor, provided the premiated plans become the property of the Corporation.

The premium to the successful competitor to be 250*l.*

The committee regret their inability to dispense with any of the drawings mentioned in paragraph 4 of the instructions to competing architects, and, in this connection, I would reiterate the statement contained in my letter of the 3rd ult., to the effect that the committee propose only to exhibit publicly the elevations of the whole façade, so that no opportunity will be given to unscrupulous persons to take advantage of the labour of competitors.

The committee cannot agree to the fee of seven guineas on each site being paid to the successful architect by the purchaser thereof, as suggested in paragraph (5) of the letter of the 14th ult., and the fee of 250*l.* must be regarded as inclusive.

The committee has also decided to prescribe the following condition, viz. that competitors are to submit designs of premises which will produce a rental of about 100*l.* per annum, with the exception of the two end sites, which are to be specially treated.

I shall be glad to know prior to the meeting of the Council on Monday next whether the architects will be prepared to compete under the altered conditions of competition.

J. H. Ellis.

Mr. B. Priestley Shires.

V.

June 11, 1898.

Mr. J. H. Ellis, Town Clerk, Plymouth.

Dear Sir,—I beg to acknowledge receipt of your letter of the 7th inst., which I duly laid before the architects of Plymouth at their meeting yesterday afternoon.

I am desired to say that your letter of May 17 led us to believe that our objections to the terms of the competition (apart from the appointment of an assessor) would receive the favourable consideration of the special works committee. We are very much disappointed to learn that the only concessions are the appointment of an assessor and the increase of the premium. We are unanimously agreed that our objections to the terms of the competition are reasonable and are of considerable importance to us professionally, and we ask the committee to reconsider and adopt at least the general principle underlying the suggestion set forth in our letter of the 14th ult.—p.p. the Architects of Plymouth,

B. Priestley Shires.

It cannot be said there is anything unreasonable in the requirements of the architects. The buildings, we understand, are likely to cost about 50,000*l.*, on which the usual fees would be 2,500*l.* To accept instead a fee of one-tenth the amount—for that would be the practical result of the Town Council's proposition—would be not only fatal to the architects of Plymouth, but it would be detrimental to the interests of the profession throughout the empire. For if a fraction of the normal fees will be sufficiently remunerative in one case, they must be no less adequate in all others. There is also the danger that the premiated design would be copied or imitated by incompetent hands, and the laudable intention of the Town Council would be frustrated. By their departures from the original scheme the Council acknowledge they are not infallible, and without any loss of dignity or reputation they can concede all that is required by the architects, who cannot be indifferent to the interests of Plymouth. The Council, however, appear to think they must uphold a character for firmness. As they do not expect to be able to persuade the architects to adopt an irrational course, they have resolved to open the competition to the whole of the architects of the country upon the original conditions, which were briefly as follows:—1. One premium of 150*l.* for best design for twenty-eight shops and dwelling-houses, to be adjudged by the special works committee and not by a professional assessor. 2. The following drawings will be required:—

a. A block-plan, showing the whole of the buildings (twenty-eight shops and dwelling-houses), with the position of the drains and the extent of open space attached to each building.

b. Complete plans of each floor of the buildings.

c. Sections of the buildings.

d. Complete elevations of the whole façade, with enlarged details throughout.

The committee may be able to attract designs from gentlemen who have received their education in the School of Architecture at South Kensington, but no architect who is competent and possesses a character which is worth upholding is likely to be tempted to gratify the Plymouth Town Council.

THE LEIGHTON HOUSE.

It will be a sad and strange experience for many Londoners when they pass into "The Leighton House," as it is now called, to miss the kindly host who did the honours of it so well, and the stream of guests he used to welcome so cordially on those Sunday at homes in the early months of the year while his Academy works were being planned and carried through with such loving completeness. The opportunity is given two days in the week to those who apply for tickets to Mrs. Russell Barrington, the hon. secretary of the committee who have got together the drawings and studies which now hang on the walls and remind us of the great canvases which year after year were the pictures of their year, and of the infinite care which their painter devoted to them. The studies are in some respects even more interesting than the pictures themselves, and "Leighton House" will be a museum for the Londoner generally, but especially for the artist and the art student.

The house itself, says the *Daily News*, was for its owner as much a study and a labour of love as any of the works conceived and slowly built up under its roof. As you pass into the

inner hall, the bronzed cast of Mr. Brock's fine portrait bust is the first personal relic which meets the vision. It stands where the painter so often stood to meet his friends, and at its base is a wreath of bay leaves, the Daphne which he loved so to introduce into his picture, and which he drew with such finesse and accomplishment. Left of you is the Arab Hall, of which Leighton was so fond and proud. As you left the studio above, he would always beg of you to pass into it on your way to the hall. He and his friend Mr. Purdon Clark were one autumn travelling in the East, and arrived at some town where a mosque had just been pulled down, and all its appurtenances, including its tiles, were being dispersed. The chance was a great one for an artist, and especially for an artist who was also a colourist. Leighton bought largely—the carriage home was more trouble than the actual purchase—and the Arab Hall was the outcome of that special journey to the East. Across the darkened vestibule you see the domed hall, with its studied and effective lighting, its cool splashing fountain, its windows jewelled with old Damascus glass, its Cairene woodwork, old too, and of exceptional beauty, and its tiles of rich and passionate colour. The Moorish capitals of the columns were carved in polished marble by his friend Boehm, the frieze that runs between them was designed by Walter Crane, the Arabic characters in the architrave over the approach were once the salutation that met the worshipper as he entered the old mosque. It is a building to study and to linger in, and perhaps its greatest triumph as a piece of design and architecture is that it impresses you less in detail than in its harmonious completeness.

As one passes up the spacious staircase with its ebony balustrade, one follows the master from room to room. "Hic illius arma, hic currus fuit." On the wall is his copy of one of the Sistine frescoes. As you pass into the "Silk Room" you come upon studies and photographs of studies which serve to delight and to instruct. Here, on a screen, is a drawing of the little town of Cervara, signed "F. L. 1856." Leighton was a slim, long-haired young man when he visited Cervara first, he and a number of Roman art students halting there half-way on a picnic excursion. During the halt a beehive was accidentally overthrown; the bees, disturbed and infuriated, settled on the donkeys, and stung mercilessly one particular young animal that, unlike the others, had not "broken from its harness on that first assault." An older artist of the party has years afterwards tolds us how he saw a young man with wavy hair cover his face and draw gloves over his hands, and so protected come to the rescue of the poor tortured brute. That was the first introduction of Professor Costa to Leighton, and the commencement of a friendship that lasted through their lives. Cervara is a delicately pencilled little drawing, and the date is 1856. Of earlier date is the head of the boy "Vincenzo"—the prettiest and wickedest boy in Rome, Leighton used to say of this favourite model with the art students of 1854. Here, again, is a head of Dante, given by Canon Rawnsley, and dated 1853, and two landscapes of the Brescian Hills from Verona. In the ante-room on screens are pencil studies of flowers, mulberries, thistles, hollies—all showing that finesse of draughtsmanship in which he had few rivals. Most of these drawings are of Italian subjects, such as the Palazzo Rezzonico in Venice, where his friend Robert Browning was to end his days. How careful he was in his work, what a gift he had for taking additional pains, we see here again and again as we come on studies for well-known pictures, the figure first in the nude and then draped — he never spared his trouble. As we have said, the interest of this collection is for the student and for the artist more than for the general public. The visit is an education as well as an interest. And then Leighton too had in his nature a dash of satire. That his tremulous sense of beauty was not inconsistent with a gift of humour even exercised at his own expense may be seen in a caricature executed in his early Roman days, where he is represented receiving his artist friends, evidently at some fancy ball got up by the students. Here he stands, no slim youth, but a podgy citizen ill at ease in his Florentine hose, terminated by boots with spurs, while the procession mounts the stairs, a delicately featured poet, a Palmer, a Knight Templar, a sort of shoddy Brian de Bois Guilbert, and serving men sneering covertly or laughing outright. There is caricature in the attitudes, in the very legs of the figures as they mount the stairs. How glad one would be if Thackeray could have given us some account of this artists' ball, of the days when he and Leighton were young together.

As the Arab Hall was an adjunct to the house, so but a few years before its owner's death the top light, or glass studio, became for the painter a necessity. In this room, which was a workroom, and not always opened on his "At Home" days, are now shown some of the most interesting studies in the whole collection. These are copies which young Leighton made from Memmi's frescoes in the Spanish Chapel of Ste Marie Novella, when he was staying at Florence in 1853. Here we may see Taddeo Gaddi in white and gold cap; Giotto, gold and sea green; Cimabue, gold flowers on white ground. The criticism on these copies in the admirably written preface to the catalogue should be read carefully. It may be said generally of the drawings here exhibited that with those who only knew Leighton from his finished works they will increase an already splendid reputation; for even the slightest of these works exhibits that incommunicable gift of style which is the hall mark of genius, and only belongs to the great artist of all schools and all periods.

"HINGED" MASONRY ARCHES.

A PAPER was lately read before the American Society of Civil Engineers by Mr. David A. Molitor, in which he explained the advantages of masonry arches over iron and steel bridges, and presented a mathematical analysis of strains and loading in a three-hinged arch from which he calculated the deformation and determined the thickness of masonry. Mr. Molitor illustrated his methods by a practical design and estimate for a three-hinged concrete arch of 236·23-feet span, 46·57 feet wide, proportioned to carry a 44,000 lbs. electric motor car, besides a uniformly distrtributed live load of 82 lbs. per square foot. The allowed working strains are 568·8 lbs. compression and 28·4 lbs. tension per square inch on concrete composed of one part Portland cement, two parts sand and three parts crushed limestone. He gave detail tables of loads, strains and dimensions, and of quantities in the finished structure, which he assumed would cost about 96,000 dols. The purpose of the paper was to demonstrate that masonry arches may be constructed on any good foundation as accurately and simply as iron or steel structures, and sometimes more cheaply. He considered that the Austrian tests of 1890 to 1895 and the recent construction of a few long span three-hinged masonry and concrete arches inaugurate a new era in masonry bridge construction. According to Mr. Molitor all the harassing features of fixed masonry arches are overcome by the introduction of hinges at the crown and abutments, and by basing the design on the theory of elasticity, and that it is practicable to strain the material one-sixth of the ultimate strength of test samples.

The idea of crown and abutment hinges was introduced by Koepke, of Dresden, in 1880. Leibbrand, of Stuttgart, substituted sheet-lead for the open joints in 1885 and cast-iron hinge bearings in 1893. In 1880 Koepke built a sandstone arch in Saxony with 42·64 feet span and 9·84 feet rise, and a maximum thickness of arch-ring of 1·97 feet. The hinges consisted of a convex surface of sandstone, with a radius of 3·2 feet rolling in a concave surface, with a radius 3 6 feet. In 1885 Liebbrand built a sandstone bridge over the Enz river, near Hoefen, Germany, with a span of 91·86 feet, a rise of 9·19 feet and hinge-like joints of sheet-lead. In 1883 the same engineer built a concrete arch over the Danube river, near Munderkingen, Wurtemberg, which had a span of 164 feet, rise 16·4 feet and thickness 4·59 feet. This arch had three steel hinges and was made of concrete proportioned 1 to 2½ to 5. In 1893 Braun built a concrete bridge over the Danube, near Rechtenstein, Wurtemberg, with 75·45 feet span, 8 feet rise and 2·95 feet thickness. Lead strips were inserted at the crown and abutment joints. The concrete was made 1 part cement, 2½ parts sand, 5 parts gravel and ½ part quarry stone. In 1895 Butticaz built the Coulonvrenière Bridge over the Rhone at Geneva. This bridge has two spans of 131·24 feet, one of 45·92 feet and one of 39·36 feet, and is made of concrete with lead joints. In 1896 Leibbrand built a bridge over the Danube near Inzighofen, Wurtemberg, with a span of 141·08 feet, rise 14·62 feet and maximum thickness 3·6 feet. It had cast-iron hinge joints at crown and abutments, and was made of concrete, 1 part cement, 2½ sand, 4 crushed limestone and ½ limestone screenings. These bridges are stated to have given excellent satisfaction, and to have developed no cracks, although some were founded on piles or clay.

We are Informed that Mr. R. S. Henshaw, who has for many years filled the office of secretary to the "Institute of Builders" and the "Central Association of Master Builders of London," has found it necessary to resign those positions in order that he may devote himself entirely to the increasing business of the "Builders' Accident Insurance, Limited." Mr. Thomas Costigan has been appointed to the joint office of secretary to the "Central Association of Master Builders" and the "Institute of Builders."

Upon an Examination of the bells that are rung on the Royal birthdays in the Curfew Tower of Windsor Castle—one of which, the big tenor, suddenly fell during a recent celebration—it was found that the fifth bell was cracked. This weighs about fourteen hundredweight, and has been pealed at intervals for over a century and a half. It is composed of tin and copper and was cast in 1745.

NOTES AND COMMENTS.

IN the volume of the "National Biography" which was published a few days ago there is an article on the late GEORGE EDMUND STREET, R.A., from the pen of Mr. PAUL WATERHOUSE. The most important events of the architect's life are skilfully compressed in a few columns. His father was a solicitor, a descendant of a Worcestershire family that produced Sir THOMAS STREET, one of the judges who tried the Rye House conspirators. GEORGE STREET was also intended to follow the law, but a few months' experience of his father's office convinced him of his unfitness for the profession. His merits as an architect are analysed by Mr. WATERHOUSE in the following passage:—"Though never exhibiting any animosity towards the practice of Classic architecture, STREET had always looked upon Gothic work as his mission, and was consistently true to the style of his choice. In his earlier career he had leanings towards an Italian type of the style, and the special study which bore literary fruit in his 'Brick and Marble Architecture' was turned to practical account in the church of St. James the Less, Westminster. His later and more characteristic work was, however, based on English, or occasionally, as at St. Philip and St. James's, Oxford, on French, models of the thirteenth century; and although his work as a restorer led him more than once to practise in the methods of the late English Gothic or Perpendicular manner, this style was hardly ever adopted by him in original design. STREET was no slavish imitator; he gave full play to his inventive faculties, and his special invention of the broad nave with suppressed aisles, a device for accommodating large congregations, is well exemplified in the church of All Saints, Clifton. One of STREET's favourite designs was that of Kingstone Church, Dorset, carried out for Lord ELDON. It is a cruciform building with an apse, central tower and narthex built throughout of Purbeck stone with shafts of Purbeck marble, all from quarries on the estate. The mouldings are rich, and, owing to the character of the material, the building has a model-like perfection and neatness which age will probably improve. The American churches at Paris and Rome, and those for the English community at Rome, Vevay, Genoa, Lausanne and Mürren are also notable examples of STREET's work. It was in the parish church, large or small, that his genius was realised to best effect."

MR. FREDERIC HARRISON, who was chairman of the improvements committee of the London County Council in 1892, when there was a scheme for a new street from Holborn to the Strand, has written to the *Times* about the latest scheme for the same improvement, which he describes as bolder, larger and less costly than his own. Mr. HARRISON says "the new street will make it absolutely imperative to widen Waterloo Bridge and its approaches. And this problem should at once be attacked." But he makes a more remarkable suggestion when he proposes that Somerset House should be converted into a County Council Hall, as it is spacious, central and imposing. According to Mr. HARRISON, "There is no reason why wills, stamps, audit and the like should continue to monopolise the finest palace of Old London. It should belong to London and be devoted to London. The vast area to be cleared by the new scheme will offer ample sites whereon modern and commodious rooms might be erected for the miscellaneous departments which are scattered about Sir WILLIAM CHAMBERS's grand palace." We have no wish to say a word against a block of buildings which has become almost as much identified with London as St. Paul's. Mr. FERGUSSON has descanted on the shortcomings of a work which, according to him, proves that the designer "had evidently no grasp of mind or inventive faculty and little knowledge of the principles of art." It is very doubtful, however, whether Somerset House could be transformed into such a building as the County Council require. At present complaints are continually heard from the official occupants, and many of them would gladly fall in with Mr. HARRISON'S or any other scheme which would allow of their emigration. If the County Council wish to have a hall worthy of the Metropolis they can easily obtain a site opposite Somerset House, and they will be able to demonstrate that the rulers of London have quite as good taste as GEORGE III., and that as able an architect is to be found in our time as the clever sailor who was His Majesty's drawing-master. It is sad to see Mr. HARRISON incapable of rising to the necessities of the case, and afraid to do more than recommend a policy of vamping in respect of architecture. Age has no more pity on him than on other ardent reformers.

THE Historical Manuscripts Commission cannot be considered as neglecting its duties, and there are few papers of any value in private collections which are not well known to experts. The proposal to give the County Councils about to be created in Ireland authority to recommend the editing, translating, printing or publishing of any historical manuscript relating to the counties is not therefore of much practical value. It is true, as was said in the House of Commons some nights ago, that a series of memoirs in connection with the Ordnance Survey was at one time contemplated, of which only one volume was published. It related to the county of Londonderry. But the memoirs were not intended to be altogether historical. They were also to deal with the geology and natural history, the statistics and social condition of the various counties. The part relating to geology in the volume that was issued from the Ordnance Office afterwards appeared as a treatise on the science. If volumes could be compiled of the same class they might be useful. But there is already too much of what is called history accessible in Ireland, whilst it is difficult to obtain information which a business man can turn to account. No doubt the Celts have always a weakness for the past, for they can indulge their imagination in connection with it, but that sort of enjoyment has to be dearly paid for in a time when competition rules.

EVERY visitor to the Paris Exhibition of 1900 will, of course, expect to see the Gobelins worthily represented. The factory of Sèvres will also be expected to uphold its reputation. But while there are many rivals to the Government potteries of France, the tapestry-weavers of the Gobelins stand alone in their glory. The failure of the Windsor tapestry works, in spite of the exalted patronage bestowed on them, suggests the difficulty of upholding the production of woven pictures without the aid of a liberal subvention. It is well known that at the Gobelins there are several works in hand which will display the competence of the artists to deal with various styles of subject. M. J. P. LAURENS has prepared the cartoons for an immense piece which will represent a Mediæval tournament. That will be serious if not tragic in aspect. As a contrast will be a delightful panel after M. MAURICE LELOIR, called *The Romance in the Seventeenth Century*. M. ROCHEGROSSE, who takes his subjects from ancient history, has prepared the design of a suggestive work, *France as a Coloniser*. M. MAIGNAN will have an allegory derived from OVID's "Metamorphoses." The late M. GUSTAVE MOREAU was a mystical painter, somewhat allied to the English pre-Raphaelites, but he attempted one design for tapestry which is now being reproduced. It offers great difficulties to the weavers. M. GEORGES CLAUDE will have two pieces prepared from his designs. One will represent a *Civil Marriage in 1792*; the other a scene from VOLTAIRE'S "Zaïre" as performed at the Comédie Française, which is intended for the Maison Molière.

THE Sala Regia is one of the most pleasing parts of the Vatican. It was erected from the designs of SAN GALLO in the pontificate of PAUL III. Among the artists employed on the decoration were PIERINO DEL VAGA, DANIEL VOLTERRA, GIORGIO VASARI, SOMMACHINI, TADDEO ZUCCHARI, SALVIATI and SERMONETA. The ceiling is especially rich, as gilded, stucco and painting are combined to make it attractive. The walls are painted in fresco, and among the subjects represented are *The Interview between Pope Alexander II. and the Emperor Frederick I., The Battle of Lepanto, The Return of Gregory XI. from the Exile of Avignon, Gregory VII. and Henry IV.*, &c. The Sala Regia is about to be restored under the direction of the architect to the Vatican, Signor VESPIGNANI, who will be aided by Professor SEITZ and other artists.

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: TRIFORIUM.

INGLIS MEMORIAL HALL, EDZELL, N.B.

THIS handsome building, erected by Colonel Inglis, of Craigendowie, Reigate, and Adam's Court, London, to commemorate the life and labours of his father (for many years minister in Edzell), has now been handed over to the Parish Council of Edzell for the benefit of the residents in that popular health resort. Our plates show the appearance of the building, in the design of which it is evident the architects have been influenced by the historical buildings existing in the neighbourhood, which is fortunate in possessing specimens of ancient architecture of quite uncommon interest. There are no less than three Druidical temples in the parish. The old castles of the Lindsays, Edzell, Balbegno, and Invermark, not to speak of Brechin, with its cathedral and round tower, make the district architecturally one of the richest anywhere from an antiquarian point of view. The modern building we illustrate was the subject of a rather notable competition which took place about two years ago, and which was won by Messrs. Ower, of Dundee, out of a very large number of competitors—the adjudication being by London experts.

The hall owes its effect to its proportions and harmonious lines rather than to minute detail, though both carving and mosaics have been used where ornament was specially called for, at the main entrance door and elsewhere.

Granite shafts and Venetian enamel mosaic have been used with beautiful effect in the porch, over which appears the inscription in mosaic "Inglis Memorial Hall," in letters of the colour of old ivory, against a stone-coloured ground having a faintly relieved scroll of Scotch thistles on it. Over this rises the clock tower, and at the same level as the clock faces, a view-chamber with four openings commands the most extensive range in the district short of climbing the Grampians. The style used is Scotch of the sixteenth century.

The interior of the building is both useful and beautiful. Colonel Inglis has provided in it a library and reading-room, council chamber for the use of the parish council, one large hall for public meetings, and one smaller which can be used either separately or combined with the main hall. A complete scheme of cloak-rooms, kitchen, sculleries, with storerooms, &c., accompanies the halls.

The library, which Colonel Inglis wishes specially to connect with the Jubilee (Diamond) of Her Most Gracious Majesty, has been finished and fitted up in a most elaborate fashion, with all the improvements in use for the proper distribution and reception of the books, which already number over 5,000 volumes (the gift of Colonel Inglis). The windows of this room are filled with stained-glass, in which appear quaint Scotch proverbs bearing on life and conduct, the selection being Colonel Inglis's own. An iron staircase from the library floor gives access to the upper part of the bookcases, as well as to a workroom for binding and cataloguing on the first floor, on which is the caretaker's house, entrance to music gallery, and staircase to view-chamber in tower.

The works have been executed in the most substantial and artistic manner by the following contractors:—Messrs. J. Ford & Son, Montrose, masonwork; Messrs. J. Black & Son, Brechin, joinerwork and library fittings; Mr. J. Scott, Brechin, slaterwork; Mr. D. McKay, Carnoustie, plumberwork; Messrs. Thomson Brothers, Brechin and Edzell, plasterwork; Messrs. Mackenzie & Moncur, Edinburgh, heating; Messrs. Milne, Edinburgh, gasfittings; Messrs. Alexander, brassfounders, Dundee, hall pendants; Messrs. Wooliscroft, of Hanley, floor and wall tiles and mosaics.

Messrs. Salviati, of Venice, Messrs. Meikle, of Glasgow, and Mr. Fox Maule Boyd, of Dundee, have respectively carried out the Venetian enamel mosaic, stained-glass and painter-work, to special designs by Mr. C. Ower, to that gentleman's great satisfaction.

Mr. Robert Scott, of Arbroath, has acted as clerk of works, with the architects' entire approval.

Messrs. Wright, of Aberdeen, supplied the granite, and Mr. Annandale, of the Den Nursery, laid out the grounds.

Messrs. Henry Southern & Co. furnished the books, binding and catalogue.

Messrs. C. & L. Ower, of Dundee, are the architects.

LANDSCAPE PAINTING.

THE natural world, chiefly in landscape, has become the favourite art of this century. This argues a wholesome taste. Of the old, conventional religious landscape we have but few recent examples. Each artist affects to go to nature because the public mind insists upon nothing less. Many, however, deceive themselves and their friends by shamming what they have not the resolution to pursue. Correggio, considering his time, took perhaps the greatest step in divesting landscape art of its previous stiffness and formalism. He attempts the freedom and grace of nature, particularly in his foregrounds. To Titian, however, landscape is most indebted. Although he never wholly freed himself from the old system, yet his landscapes as a whole are simple and broad in character, giving the general features of nature, though not its variety. That which, however, he rendered in foreground detail is given with perfect fidelity of form and colour. Grandeur and majesty were his chief aims. We are impressed, however, both by the general spirit of his views and by the excellence of detached parts. His *St. Jerome*, in the Brera Gallery at Milan, is a happy example of how far he could steep nature in his imagination, adhering to her truths but investing them with occult meaning. Landscape with him, however, is always an accessory. One of the most attractive views, from the extent and variety he introduces, is to be seen in his Dresden *Venus*. Nature in his hands always maintains its dignity. In his skies there is perhaps a somewhat artificial rendering of light, as if he sought to exaggerate effects by a species of twilight mystery. He never painted actual sunlight, but tried to give a luminous, serious effect in harmony with his subjects. Sometimes, as in his *St. Catherine* in the Pitti Palace, the clouds are hard and monstrous, rendering his distant hills of blue, in comparison, quite transparent. These effects were, however, before his style in this branch was fully formed. Later, particularly in his trees, he was unrivalled, both in truth of quality and outline. In general, his water is liquid and his earth dry, telling with solidity against his sky, while his light is subtly and equally diffused throughout his pictures. Tintoretto felt landscape and had a greater grasp of imagination, but with less ability in technical expression than Titian. The world can judge of an artist's power only by its results. It has neither time nor inclination to spend over the illegible. The artist, therefore, who slurs his work from impatience, or aims only at coarse effect like stage scenery, paying no attention to the purity and permanency of his materials must, like Tintoretto, reconcile himself either to be forgotten or overlooked by the public. There is no injustice in this, because genius has no authority to outlaw the vehicles of its thought. To be successful it must be considerate in all things. Salvator Rosa gives confused dreams of the natural world. Much that is false in quality or strained in sentiment, he mixes with occasional bits of truth, fresh and vigorous from nature. He had power and will, but lacked judgment and patience. He did much, however, to recall love for open healthful scenery, and the motive and execution of his landscapes have yet power to charm. In Claude we see more truthful results from inferior natural abilities. He had no invention or taste in composition. Consequently his landscapes in general are unpleasantly artificial, indeed, we may say little in thought. But in his direct studies from nature there are more breadth, space and atmosphere than in his paintings. Architecture, such as then was the fashion, was in him a passion. He built it upon his canvases after a cold and stately ideal of his own, which reminds one more of castles in the air than actual habitable mansions. In drawing and variety he was feeble, but in the great qualities of sky, earth and water he created an epoch in art. An uninjured Claude is a rare object. Almost every one of his pictures have been more or less skinned, to use an expressive term, by the carelessness of cleaners. Instead of their original luminosity, we have cold, dry surfaces, yet, even in their loss, so infinitely surpassing in quality the attempts of other artists as to still claim for Claude the first position as a painter of the grand elements of nature. A sea-view of Claude's in the Academy of St. Luke, at Rome, and one in the Dulwich Gallery, and a few others, most favourably present his rare merits. In depth and unity of colour, subtle gradation of light and shade, sparkling liquidity of water, solidity of stone and opacity of earth and transparency of atmosphere, they are unrivalled. The water of these pictures is natural in quality; it brings with it the refreshing breeze and musical ripple, and suggests those moments in which nature is most charming. His sun is not a glaring white spot, but shines, diffusing light equally through the picture; it borrows no external rays, but covers all things within its influence with a trembling, luminous atmosphere of its own. The vegetation of some of his trees is massed with great naturalness. When art is so much indebted to one man, it seems like sacrilege to notice his deficiencies; but they are necessary to be exhibited as warnings to other artists to strive after a complete whole, while, with people at large, Claude will be remembered only by his diligence and success in making us feel the power of art to transfer to canvas

those general features which most constitute our delight in the natural world.

None of the artists mentioned, not even Gainsborough, with all his power and love of nature, can be compared to Turner in knowledge of landscape. To England is the honour due of producing the most complete landscapist—one who has shown us the capability of art to make us feel the variety as well as grandeur of nature. Turner was to the landscape what Raphael was to the human figure; each embodied in his branch of art a certain grace of expression, whether in repose or movement, hitherto unequalled. Everything that either touched, lived; its vital functions were at once fully developed. As complete, however, as was the external expression of each, we feel that the former has but suggested what remains to be done in comparison with the latter, who, in his water-colours, has created a new era in art. Turner gave the physical truths of nature, on every scale, with a fidelity and variety which placed him far above preceding landscapists. Through his works nature talks to us; she smiles or frowns, incites to action or invites to repose, as may be her mind. To no artist is the lover of nature more indebted than to Turner, for he has established a standard of truth in art from which the world will not readily forgive departure. The universality of his genius in this respect is remarkable. Other landscapists have contented themselves with being distinguished in parts, but he aimed at the great whole. Nothing created that was endowed with beauty, from an Alp to a limpet, escaped his notice. His true field was nature; but in the works of man he could equally distinguish himself. Few artists had ever drawn architecture like Turner; witness his cathedral at Rouen in his "Rivers of France." Ships, too, were his delight; he revelled in ocean sublimity and mountain grandeur. His heart was no less open to the joy of the plains and the quiet of valleys. Whatever he undertook he touched lovingly; at times carelessly, it is true, and even wantonly, but always with power and meaning. In no respect is his genius more apparent than in his management of nature, by which in general he instinctively seized upon her happiest moments and most beautiful aspects. The trivial and commonplace seldom found sympathy in him, because he felt that in interpreting nature his mission was to be faithful to her highest instincts.

The true field of Turner was the natural world. Whenever he aspired to the supernatural, as in the illustrations of Milton, and even the fanciful, as in some of those of Campbell, he failed. His failure is the more prominent from its position in the poems, which shows that in imaginative grasp and beautiful imagery he was not only unequal to those minds, but incompetent, even with their aid, to soar equally high; but when called upon to illustrate natural scenery or domestic life he then showed himself also a poet. His drawings have an exquisite sense of harmony. In gradations and variety he carefully studied nature. One of his chief merits is that he suggests more than he represents. Feeling is conspicuous in his work; consequently we fail to exhaust his work, but go to it again and again, ever discovering some new beauty or thought. We feel the inability of material to portray his complete idea. There is a sublimity of expression in nature beyond art to render, but of which Turner, more than any other artist, makes us sensible; indeed, in the making up of his landscape world, he condenses so much of the noblest and loveliest elements of the natural that we feel his ideal while recognising the truthfulness of the actual scenery. He catches the best expression of nature. While Turner has laboured as the prophet of nature to make us perceive her beauty and sublimity, Mr. Ruskin, in no less degree, has wrought as the apostle to make us comprehend her truths. To these two art-souls the world is more indebted than the present generation may confess. To name the drawings and engravings which stamp Turner as the greatest master of landscape would be to fill a volume, he was as prolific and various as he was cultivated. We see that he embodied both power and diligence. There are in him no traces of academic teachings, every line breathes of the pure school of nature. As a painter, however, he had not that same delicate feeling for colour that he had for form, or rather he sought to carry out in oil the same principle which gave him success in water-colours and failed in consequence of pitching his key too high. Those who seek to establish his reputation on this basis do him an injury and mislead the public in their appreciation of the harmony of colour. We can only judge of his oil pictures as we now find them. If Turner was careless or experimentive in his materials, so that his colours have not only become opaque, but are changed and even falling from his canvas, he lacked an essential feature of a great painter. On his engravings and drawings must rest for the future his reputation as an artist. There are great paintings of his still in perfect condition, but they are of his early days, when he prided himself upon triumphing over Claude, Salvator, Vandevelde and Cuyp, each in their particular excellence. He even made an attempt to copy Titian in colour. These pictures are sufficient to give him much reputation as a painter, but not to establish him as a great colourist. His power over water is more apparent in form than hue, which is slightly dry; but he so far excels all other artists, even in luminous liquidity, who have painted the ocean in mass—the quiet bits of water by Claude are not to be considered as ocean—that we think of failure in him only in comparison with nature itself. In his *Landing of the Prince of Orange*, how gloriously the barge lifts on the swell, which is all motion and passes away in the salt-mist that half-veils the distant vessels. There are brine and tar and bilge-water, the creaking of blocks and the running of ropes, the dull fog-muffled sound of cannon and the quick stroke of oars, the lazy pitch of the hull and the flapping of canvas in all this. We can cast hook and line in this water and they will go to the bottom; whereas with almost all other artists—even Stanfield's is viscid—St. Peter would have needed no miracle to have saved him from sinking.

Turner's fame as an oil-painter by some is made to rest upon his later style. In some of his recent pictures there are portions of colour that sparkle with light and are true to nature; but they are so rare, as we now see his pictures, as to seem exceptions to his general tone. In the pictures which he retained in Queen Anne Street Turner appears to have departed from all those qualities which make his water-colours so valuable. There is nothing of nature in them. Occasionally some familiar object is suggested, but there is no certainty, even after close study, of the motive and scarcely of the form. With many the time chosen, especially in the Venetian pictures, is when the sunlight is strongest, and we naturally fly from its glare. If his ambition were to rival nature's intensest light, he has, as all painters must, signally failed. The pictures present glaring white surfaces, spotted with positive colours, laid on with a dash of the brush or the fingers, with little or no attention to form, an intense blue for the upper sky, but all colour opaque, and the canvas so heavily loaded that in many places the paint has dried, cracked and dropped off. Where, as in the *Napoleon*, he has aimed at strength of colour, he has given only an unintelligible glare of blood-red and spotty-black over a white surface, on which form is almost wholly untraceable, so that the picture is more like an artistic nightmare than a coherent thought. His *Hail, Rain and Steam* is no less untrue to nature. The bridges are mere ghosts of substance. Both earth and water are equally destitute of quality. The sky is far more solid than the stonework. It has no luminosity whatever, but is actually falling to pieces from its own weight of paint. Even the locomotive, which should have the appearance of metal at least, is a mere phantom. The ironwork, which naturally suggests strength and capacity, is made up of a thin glazing of black. In short, he has reversed the first principles of painting, leaving solids transparent and making liquids solid, and pitching all upon so high a key as to offend the eye. It may be a freakish display of power, an endeavour to accomplish impossible ends through frail materials, or an attempt to dazzle by eccentricity, but it is not the labour of an artist rich in the experience of time, diligent and patient, and loyal to nature's truths. Too much strength to colour cannot be given. Its power lies in this. The tints must be harmonised and scumbled into luminosity, not left positive and opaque. Nature overpowers vision by her brightness; but in her most gorgeous sunsets the sky is full of cool, whitish greys, which amalgamate with and permeate the richer tints, giving them that quivering transparency which is so dazzlingly attractive. We want luminous and liquid air, and not plain white or blue paint, which Turner has given. His skies are spotty and hard. They do not illuminate. The bright atmospherical colours should appear of prismatic tenderness of outline and texture as in the rainbow, arching space. Solid pigments will not express the qualities of either sky, flesh, or water. Yet Turner lavishly employs them for these effects, and when he seeks to render solidity and dryness, gives an almost ethereal lightness of colour. So much faith had he in his method that he often relied on colour more than his drawing to suggest objects. The consequence is that in all this class of pictures he bewilders the mind by his palpable violations of the first truths of art. Titian, on the contrary, although relying on the enchantments of colour for his greatest effects, never disturbed its harmony by gross departures from the general unity of form and spirit. Turner occasionally indulged in mere tricks. Titian always worked on broad principles. The latter will live through all time by the permanency of his works. The former must depend upon the engraver for his general fame, while his highest merit can be known only to the few who possess or have the opportunity to study his best water-colour drawings.

Unfortunately for him engraving cannot do his varied powers, as exhibited in the minute gradations and subtle forms of nature, full justice. Neither does it thus far adequately represent Gainsborough, Titian, Raphael, Leonardo, or any great mind. Turner challenged comparison with Claude by hanging two of his works in the National Gallery at London,

between two of that artist's, one of which is an indifferent copy, and the other, if original, inferior to other Claudes. Turner is by far the greater artist. We find in him an imaginative power and feeling, in short, a genius, to which Claude was a stranger. He is great, however, in these pictures in parts, and not as a whole. His colour is hot and harsh, as in his *Building of Carthage*, and the attempt to eclipse Claude in his particular method of composition is too apparent. The latter, not in these two pictures, which by no means fairly represent him, but in those that are undoubtedly genuine, please more from their harmony of colour and general unity of nature's chief elements.

GIBRALTAR.

A PROMINENT American architect, Mr. A. J. Bloor, who has been travelling in various parts of Europe, has given in *Architecture and Building* the following account of his visit to Gibraltar, which has more than usual interest owing to the revived importance of the place :—

The first sight of the renowned rock of Gibraltar and stronghold of British power is, like that of Niagara and many another object of nature or art, somewhat disappointing, I fancy, to most observers ; but as one gradually takes in its sky-line and notes its steep and rugged sides, everywhere studded with masses or seamed and crossed with lines of defensive masonry, one soon realises that he is confronted by one of the greatest fortresses of the world. In fact it is, with its works, given I believe the first rank as a fortification by military authorities. Or at least it has hitherto held that rank, though whether the tremendous projectile appliances of recent years do not invalidate its reputation for impregnability must be left for them to say.

Apart from its importance to the modern world from the military point of view, this never-sleeping sentinel of the power that commands the Straits from which its frowning crags emerge—the gateway to the east—has other claims on our interest as the *Ultima Thule* of ancient civilisation, till the Phœnicians, from the other end of the Mediterranean, braved the mystery and unknown dangers of the untracked waste of waters to the west (compared to which, if they had but known it, their Great Sea, with its tideless water, was but a lake), and sailing northward ransacked the Cornish coast of England for its tin.

As our good ship came to anchor among eight or ten British men-of-war—several of them seemingly of the highest grade—and a few other vessels, naval or mercantile, flying the American or German flag, we found before us a solid sea wall apparently two or three miles long, with a town sloping upward from it and forming a short line, oblique and in some places almost vertical, on the left, till it terminated somewhat less than half-way up in an ancient looking building reminding one of the keep of a Mediæval castle, and which, on landing, my guide told me was a Moorish castle built by the first invaders of Spain from the opposite shores of Africa 1,300 years ago. From these remains the topmost structures of the town slope in a long, easy line downward to the right till the sea wall is reached. The town itself is a solid mass of buildings, civic and military, within these topping-out lines, which roughly form a long, narrow triangle. From the right-hand termination of the mass, carrying the eye further to the right, stretches a long space, nearly vacant except for vegetation, some of it quite tropical, and this is followed by another scattered collection of buildings, apparently a suburb of the town proper, and made up largely of military works. Beyond this settlement the rock still stretches for a considerable distance, and is crowned with several fortifications till it dips into the sea. Carrying one's vision backward to the left we find the rock terminating not far from the base of the thickly massed portion of the town ; and keeping one's glass always to the left, one sees a few rods further off a gateway guarded by sentries which, I am told, marks the limit of the English occupation on the peninsula. Beyond this stretches, for apparently a quarter mile or so, a flat space which is neutral ground between that and the Spaniards' town of Lina (an arena in front of which to the right is, we are told, devoted to bull-baiting), and which, as that word in their tongue is equivalent to ours for line, is evidently applied to it to indicate their first line of possession.

Turning round, with our back to the rock, we face the coast of Africa, but a few miles off, the town of Ceuta, in Morocco, being distinctly seen even with the naked eye. And here I have a little discussion with a *compagnon de voyage*, who contends that the base of a mountain visible at some distance to the left of Ceuta is surmounted, if only the thick clouds would permit us to see them, by two peaks which are what the ancients named the pillars of Hercules. Such recollection, however, as comes to me of my juvenile Latin exercises inclines me to the belief that the rock of Gibraltar itself (the Calpe of the classics) is one of the pillars, standing as the outpost for Europe, and having a counterpart on the opposite side of the strait as sentinel of the African continent. It seemed very odd when we turned to the guide-books at hand to find Gibraltar apparently forgotten. At all events, we could find nothing to settle the question, and on reflection it seemed to me that I could really recall less about the place than about any other on our itinerary.

Getting ashore in a small steam tender through a crowd of small boats laden with all sorts of fruit and gimcracks, vehemently offered for sale by "rock scorpions," Spaniards, Levantines, Arabs, Moors and negroes of every shade of colour and every variety of costume, we scramble up on the jetty and receive tickets admitting us within what I have been calling a sea-wall, but is, I find, the outer line of fortification and the seaward wall of a series of casemates, each well guarded by sentries. Over the interior wall of the gateway giving entrance from the water to the town is a marble slab inscribed with the information that it was built in a designated year (I quote from memory and seldom feel safe in recording dates without the exact figures before me) "of the reign of His Most Gracious Majesty George III., by His Royal Highness the Duke of Kent and Strathearn, &c., Governor of Gibraltar." The Duke of Kent was a son of that king and the father of the Queen-Empress who still rules over those vast dominions on which the sun never sets, after the longest reign in English history, and long may the reign last of that exemplary sovereign lady who for many years has never failed to send a quick and gracious message of condolence and sympathy on every occasion of public calamity in the Great Republic once a colonial appanage of her grandfather. British governorships, even its viceroyalties, have been usually administered by men below the upper ranks of the nobility, and the importance of Gibraltar to the British Crown may be estimated by the, I think unprecedented, fact that the rule of it has been held by a prince of the blood.

I was soon threading my way slowly along the main street of Gibraltar, parallel with the water, and up the narrow, winding, zigzag lanes ascending from it, structures of one kind or another for military use being met at every few steps, interspersed with little shops and houses of various classes, some of the latter having their lower windows grated and having oriel windows or balconies or both above. Those of sufficient importance to have been designed with any attempt at architectural *motif* may be described as having a Renaissance basis of rococo development. The lowest and main street was full of life and business, the freightage of merchandise being conducted in narrow carts drawn by horses, mules or donkeys, those with more than one beast being driven tandem fashion. Occasionally one saw three to the vehicle, reminding one of old times (and possibly of current times) in Philadelphia, with six or eight horses trotting in Indian file before their load. Small donkey carts also abounded, and light carriages, dog-carts, tea-carts—or whatever may be the current name for traps of that kidney—the whips wielded by smart-looking ladies, doubtless the better halves of officers of the garrison. Side by side with them trotted along patient little donkeys with a huge well-piled pannier swung on each side and almost hiding them from view, and not seldom, poor beasts, with the additional burden of a great lubberly fellow squatting between the panniers. The people who threaded their way among these vehicles were as motley as they, ranging, with all sorts of colours and costumes, from the smartly-groomed officer or civilian to the *gamin*.

Mounting the cross streets in all their devious ways we find the higher we go less bustle, fewer civilians, more soldiers, more walled and sentried enclosures, more fortifications, and everywhere cannon, cannon, cannon. We are passed, after requisite parleyings, through several enclosures, and, coming to a guard-house, are desired to register our names and addresses, and soon find ourselves surrounded by more embattled walls, more cannon, more soldiers, and no civilians but ourselves and several other little visiting parties. The "milingtary," as Dickens's Marchioness used to call the rank and file of her country's fighting force, are the same well-groomed young fellows—those on duty at least, which most of them in the enclosure are—one sees wherever an English garrison exists—dandified, as far as dandies can be made out of material most of which is rough enough originally, and most of them having that air of self-complacency and deputised world-possession which sits not unbecomingly on men who are taught, not in so many words, of course, but by the conditions and discipline imposed upon them, that their one duty is, at the call of their military superiors, to take their lives in their hands at a moment's warning as defenders of their Queen and country. To the civilian, and especially to the American civilian who is too young to have had a part in the civil war, there may be something offensive, or even ludicrous, in the individual bearing of the British rank and file ; but the private, though only an atom in the homogeneous military machine, is of good set purpose disciplined to recognise that each atom has its place in the whole, and he is led to practise carefulness and precision in greater things by making it obligatory on him to wear his natty little cap at a particular angle on his head, with the strap of it on a special line betwe en

his mouth and chin. His *amour propre*, representing his share of the self-respect of the entire *personnel* of the army, is nourished, too, by flourishing the jaunty cane he carries when not under arms. Several long sojourns in the Bermudas—that important mid-Atlantic military and naval depôt of the British Empire (it has the largest dry dock in the world)—having given me some acquaintance with the garrison ways of Tommy Atkins, and being somewhat tired of following up my little party's not always very coherent or very intelligible guide, it occurred to me it might be a good plan to secure one for myself in the shape of a private whom I noticed lounging about without cane or cap-strap and with other *negligé* signs of being off duty. Accosting him, I found him at liberty and more than willing, for a consideration, to pilot me within the famous galleries, the entrance to which we had now reached. First securing a pass for myself, we passed the sentinel and gatekeeper and entered the galleries, cut out of the solid rock more than a century ago (I noticed a stone in one of them dated 1789, coincident with the outbreak of the French Revolution) as a shelter for the inhabitants rendered homeless by the destruction of the town from the shells of the besieging Spaniards and French. The galleries are occasionally somewhat dark, but are generally fairly well lighted by port-holes cut out of their seaward walls, and in front of each opening stands a great cannon. The view from the ledges of the rock, to which there is an occasional outlet from the galleries, as one looks downward to the Spanish territory and across the straits to the African continent, is very fine, but did not prove sufficiently so to an enterprising if somewhat overdressed damsel attached to another American party than my own, and straggling outside of it in search evidently of the prey her kind affects.

My military guide was not a bad-looking young fellow, and he was evidently not adverse to her gradual approaches, for he buttoned up his jacket, tightened his belt and got his cap at the right angle with the strap in proper position. With an alluring glance at him and a half-bold and half apologetic one at me, she was soon at his side, plying him with questions as to the place and its inhabitants, especially its military contingent. After the manner of her sort her tones were more strident than musical, and her queries more indicative of fluency than of depth. Our bold soldier boy was in fact occasionally rather distraught under her rapid fire, and "Hi reely don't know, Miss," was his most frequent answer; but she checked her inquiries only to inform us of her place of residence "at home," and said she had never left it before except to go to the World's Fair in Chicago, and that she had then and there made up her mind that she was agoing to make a tour of the world and had given her pap no peace till he had engaged to take her part way this time and the balance for her wedding trip. Here she looked a little conscious and shy, but promptly recovered her self-poise, and taking hold of a button on the soldier's jacket said she would give him "a quarter" for it. She wanted to take it home as a "souvenir." She was agoing to get souvenirs of soldiers' buttons in every country she visited; they would be such nice, small, handy things to carry home as souvenirs; she could get any quantity of them in her satchel. Our Tommy looked somewhat blank. "Well!" she said," "if a quarter ain't 'nough I'll give half a dollar. I'm bound to begin my c'llection right away. Mebbe you can lend me a knife?" turning to me. It is my way to carry two penknives, one for real work and the other a smaller and nicer one, to meet just such cases, to wit, the call of ladies for a loan of something to cut with. But on this occasion I gave no sign of even single possession, and told her with impressive solemnity that such was the tyrannous discipline prevailing in the standing armies of the effete monarchies of Europe that an unfortunate private would probably be flogged within an inch of his life if appearing on parade minus a button belonging to his uniform. The young lady, as she listened, was evidently divided in her mind between commiseration for the unhappy youth's perils, the suspicion that I might be guying her, and the impulse to raise her bid for the coveted initiatory button to a dollar; but as our guide confirmed to some extent my assertion as to the punitive results of missing buttons, she was evidently nonplussed. By this time I felt that I had some claim to my own extemporised cicerone, and observing a couple of nice-looking young fellows standing before an adjoining port-hole, I directed our fair companion's attention to the superb view to be had from it. She promptly swallowed the bait, and the next moment the enterprising damsel was beside my two opportune youths and thanking them for making way for her. Whispering to my guide that she didn't "belong to me"—for he had evidently supposed she did—I slipped off with him, and we pursued our way among more cannon and port-holes. After awhile I got tired of the monotony as well as of the climb itself, and declining my guide's invitation to mount to a second storey of the gallery, which he admitted was but a repetition of the lower one, "though you know, sir," he added, "the 'igher hup you goes the more you sees of the fine prospecks," I took a last lingering look towards the waste of waters we had just crossed and began to retrace my steps. On our way back we met our young lady chatting and laughing between the two youths she had captured in front of the fine view I had pointed out to her, and both cavaliers were evidently quite in the frame of mind habitual to our old friend Barkis.

Returning to the entrance of the gallery I bade my guide good-bye, and after a good look at what remains of the Moorish castle, I leisurely traversed my way down the narrow streets and lanes in the direction of the Alameda, the park and Rotten Row of the place, which, while our parks at home are probably hidden in snow, show sub-tropical vegetation in full condition, some of our own flowers being also abundant, especially fine examples of the geranium.

While in the galleries I had been on the *qui vive* for the indigenous monkeys I had read about, and my guide had told me there was "a plenty on 'em sometimes, and they got in at the winders and made a great racket," but the only monkeys I encountered—and those outside of the military precincts—were of the ubiquitous species, most mischievous of all, the small boy. One of these, "born on the Rock," he told me, offered me for "a ha'penny" two of the military buttons coveted, at a cost of two shillings sterling, by our young lady would-be collector. They had been skilfully manipulated and crushed together so as to look at first glance like ancient coins, and as such the little "rock scorpion" offered them, emulous of the trading tricks of his betters. From another, a newsboy also "born on the Rock," I bought a copy of the Gibraltar *Chronicle* headed with a woodcut of a castle, having a large key under it, indicative of the location's relations to the Eastern World, while the motto beneath, "Montis insignia Calpe," shows that my memory was correct at least as regards the classic name of the Rock, and I think it is not less so as regards the Rock itself being one of the pillars of Hercules.

As we steamed out of the harbour and there came into full view the side of the Rock against which abuts its back, a sheer precipice, ending far up at top with seemingly a mere pathway of flat surface, I fancied that I saw before me the rough-hewn outline, carved by some Michel Angelo among the Anaks, of a nude human figure, stretched out prone on top of the rock, his back toward us, the elbow of his right arm resting on the rock and his head on the palm of his hand, with his lower limbs stretched out at full length and his left hand resting on his hip. Or rather, an awful figure not hewn from lifeless stone, but a huge giant who had drifted, long ages ago, across the Atlantic from the western world, and, seeking rest before re-embarking on the tideless waters that divide Europe from Africa, had, while taking a last look backward, fallen into the sleep which knows no waking and been turned into stone like that on which he slumbered.

While in this imaginative vein I recalled the sketch I had made from our vessel's deck of the front of the Rock while waiting for our tender, and taking my sketch-book from my pocket it seemed to me I saw before me, though it had not struck me while making the sketch, the outlines—rough, of course, but even more distinctly defined than those of my imaginary rock-turned Red Indian—of the British lion, in the attitude called in heraldry *couchant*, stretched at full length above the Straits it guards, its shaggy head resting on its front paws and its hind legs thrown out to their full length backward; a lion at rest, but ready to spring up at a moment's warning, and, when danger draws nigh, send its roar of warning and defiance from one end to the other of the Empire whose drumbeat is heard all round the globe, and sound the note of the best practicable colonisation for the surplus population and energies of the mother isles, and of the best attainable recuperation and civilisation for the worn-out communities and waste places of the world, preliminary to that higher civilisation when, under the influence of new and space-annihilating appliances, born of electricity and its probable sequences of other latent physical (to say nothing of spiritual) forces now undiscovered, the racial differences of the past and present shall be forgotten by the new and cosmopolitan race resulting in the future from the commingling in one strain of the special forces, adaptabilities and virtues of the former various races.

ARTISTS' COPYRIGHT.

THE Select Committee of the House of Lords on Copyright met on the 14th inst., when Mr. John Scrutton, barrister-at-law, put in a copy of a report which he had made to the Board of Trade on the two Bills before the committee, and in which he had suggested, clause by clause, points for the consideration of the department. He expressed a strong opinion that instead of attempting to deal in a single clause, as Lord Herschell's Bill did, with the different kinds of copyright, it would be desirable, so far as rights and infringements were concerned, to keep all the different subject matters of copyright separate. It would only lead to confusion to attempt to put into one clause a form of words which would cover such different subject matter as books, pictures, plays, sculptures, and

so on. There was a great difference in "publication" as applied to works of art and as applied to books. There was no difficulty in ascertaining where a book was published, but there was enormous difficulty in ascertaining where a work of art was published. Any person, for example, who tried to discover where a work by Sir E. Burne-Jones was published would probably find that it was practically impossible to make publication a test of the commencement of copyright. No right was obtained by publication under the copyright law relating to artistic works. Copyright in that case vested on the making, and there was side by side with that a common law right, and the effect of publication was to divest the common law right. Without publication the common law right and the statutory right ran side by side. If the artist never published his picture and never registered he would still be able, as would also his descendants, to stop any other person from making copies so long as it was desired to keep it unpublished, but until registration the protection of the statute could not be obtained by way of penalties and other remedies. He did not say that publication in relation to artistic works was incapable of definition, only it would be a good thing for the lawyers.

The Chairman: Is there any objection to annexing the right to penalty to the common law right as a remedy?—It would materially strengthen the common law right and I see no objection to it.

With regard to the definition of publication in the case of books, he thought the law would treat a book as published when any person could obtain it by going to the particular place where it could be got. He suggested that the committee should deal with this question in relation to works of art published in the United States. At present, owing to an unfortunate slip in the law, works so published were not protected at all, and many citizens of the United States felt it to be a grievance. The author of an artistic work, such as paintings and engravings, made in the United States could not get copyright in England. The United States law was passed on the understanding that it gave copyright both for books and works of art published in England by persons living in the United States, but while that was the case in regard to books, it was not so in regard to works of art.

The Chairman announced that the committee had come to the conclusion, looking to the advanced period of the session, not to proceed with further evidence, but to report the evidence so far as it had gone, and to recommend the reappointment of the committee for next session.

THE PERCEPTION OF COLOUR.

ON Monday the annual general meeting of the Victoria Institute was held in the rooms of the Society of Arts. Sir G. Stokes, F.R.S., the president, delivered the annual address. Taking for his subject "The Perception of Colour," he observed that all scientific men recognised the imperfection of their knowledge with regard to the perception of colour. Something had been done experimentally, partly by way of establishing certain laws as to the direct perception of colour, and partly by way of investigating other perceptions which might guide them by analogy towards forming some conception of the requirements demanded in our bodily organisation for the perception of colour. The subject lay on the borderland between physics and physiology, but so far as his own knowledge extended it seemed to him that there was one theory which had by far the greatest amount of probability. That was the one known as the "Young-Helmholtz" theory. It was now universally admitted that light consisted of vibrations. They sometimes said that colours harmonised, but there was absolutely no phenomenon known in light answering to the sensation of harmony in sound. It had long been suspected that in light there was a kind of triplicity, that three kinds of light would give all the sensations of colour by mixing them together. Some had speculated on the possibility of there being an objective quality in light answering to redness, greenness, or blueness, or whatever trio of colours might be taken, but there was absolutely nothing objectively in light that they knew of which answered to redness as such, yellowness as such, or blueness as such. Dr. Young believed there were three primary sensations of colour, and that they were called up simultaneously when any colour was presented, but in different proportions according to the nature of the colour. Those primary sensations were red, green and violet. Those might be taken as the three standards of colour, because by their mixtures the other colours could be most closely reproduced. That theory was taken up by Helmholtz, and was now known as the "Young-Helmholtz" theory. Under this theory three classes of nerves were brought into play, and what scientific men had now to explain was how it was that the stimulation of these nerves produced the three different sensations which he had spoken of as primary. Helmholtz had advanced the theory that it was due to some photo-chemical action, and possibly there might be something in that suggestion. At any rate the subject was a very difficult and speculative one, but it led to some interesting contemplations. One thing they could not fail to be strongly impressed with was the wonderful complexity of that marvellous organ the eye and its retina, and the proof which, to his mind, it gave of design in its construction.

Lord Kelvin, in moving a vote of thanks to the President for his address, observed that the "Young-Helmholtz" theory of the perception of colour was now universally accepted among scientific men all over the world.

Lord Lister, in seconding the vote, remarked that, among the many hypotheses on the subject, of this, at any rate, they might be sure, that the different sensations experienced in the perception of light did not depend on differences of construction in the individual nerve fibres, but on the nerve fibres being called into action by a certain stimulus.

The vote of thanks was passed unanimously.

THE LOCKWOOD MEMORIAL.

THE following is the report of the sub-committee appointed to consider the appropriation of the money subscribed in order to raise a memorial of the late Sir Frank Lockwood, Q.C.:—"The sum received from subscribers amounts to 1,250*l.* It is unnecessary that any further subscriptions should be solicited. Your committee recommend that this sum shall be applied in the following manner:—(*a*) To the endowment of a child's cot in the London Hospital, to be named after Sir Frank Lockwood, 500*l.*; (*b*) to obtaining a portrait of the late Sir Frank Lockwood, to be eventually offered to the trustees of the National Portrait Gallery, 420*l.*; (*c*) to erecting a stained-glass memorial window in York Minster, 175*l.*; (*d*) to erecting a memorial brass in St. Margaret's Church, Westminster, 50*l.*; (*e*) to the purchase of a portrait of Sir Frank Lockwood, to be presented to Lady Lockwood, 105*l.* The above expenditure amounts to 1,225*l.* "In respect to the endowment of a cot your committee recommend that the nomination to such cot should be vested in Lady Lockwood or a person named by her, with power to transmit such nomination. Your committee have communicated with Mr. Arthur Cope and recommend that he should be selected as the artist to paint the suggested portrait. Your committee have communicated with the Dean of York on the subject of the erection of a window in the minster. No direct reply has been received from him, but your committee are informed by Sir Frank Lockwood's executor, who is resident in York, that the Dean will give every facility for the erection of the proposed window. Your committee have learnt from Canon Eyton that he will gladly authorise the erection of the proposed brass in St. Margaret's Church, Westminster. An excellent portrait of Sir Frank Lockwood has been painted by Mr. J. F. R. Wood, which can be inspected by members of the general committee. It is thought that Lady Lockwood will value the possession of this portrait. It will be seen that there is a balance in hand, as to the allocation of which the sub-committee seek the direction of the general committee.

TESSERÆ.

A Window as a "Casus Belli."

THE war of 1688, so fatal to France, was occasioned, says M. le Duc de St. Simon, by a paltry dispute about a window between Louis XIV. and Louvois, his Minister of War, which showed the character of the monarch and the minister so clearly that he felt it to be his duty to give a correct account of so strange a cause for war. Louvois on the death of Colbert was appointed superintendent of public buildings. The small Trianon de Porcelaine, built originally for Madame de Montespan, displeased the king, who rejoiced in nothing but palaces, and amused himself in building them. He possessed a very correct eye for proportion, regularity and symmetry; but for pure taste, he possessed none. In rebuilding this palace, when it had scarcely risen above the level of the ground, the king espied a defect in the arrangement of one of the windows of the ground-floor storey. Louvois, who was by nature surly, and so spoiled as scarcely to receive any rebuke, even from his royal master, disputed the point forcibly, and maintained that the proportions of the window were correct. The king turned upon his heel and walked away to another part of the building. The next day he met Le Notre, the architect, whose taste in ornamental gardening had embellished Versailles, St. Cloud, Chantilly, the Tuileries, Greenwich, Windsor, St. James's, &c., had been rewarded by his sovereign with riches, knighthood and nobility, and by the verse of the poet of gardens, Delille. The modern Alexander demanded of the Gallic Dinocrates whether he had been at Trianon.

The architect replied that he had not. The king explained how he had been offended, and desired him to see the peccant window. The next day the same question and the same answer, and the following day similar repetitions. The king plainly saw that Le Notre was equally afraid to discover wrong in royalty as to blame the powerful minister; Louis became angry, ordered the hesitating architect to be at Trianon on the morrow to attend him and Louvois. Le Notre could no longer parry the royal thrusts; the king met them both, as appointed, at the new building, and his first inquiry was concerning the window. The architect said nothing, the king commanded him to measure and try it by line and square, and say how he found it. While he was thus occupied Louvois, incensed at the anticipated verification of the king's correctness, grumbled aloud and angrily maintained that the window corresponded in every respect with the others. When the examination was finished, he asked Le Notre how it was, who hesitated. The king flew into a passion, and commanded the stammering architect to speak plainly, which he did, by avowing the king to be right and the window defective. He had scarcely finished when the king turned to Louvois, told him to give up his obstinacy; that the window was all awry and must be rebuilt, when at this time the building should have been finished; and rebuked him sharply. Louvois, incensed at this sally in the presence of courtiers, workmen and servants, went home in a furious rage. There he found St. Fouange, Villeneuf, the Chevalier de Nogent, the two Tilladets and other intimate friends, who were alarmed at seeing the minister in such a state. "It is done," he exclaimed; "I have lost the king's favour for a paltry window. I have no other remedy than a war that will draw him away from his buildings and render me necessary; and, faith, he shall have it." In a few months this vile threat was accomplished, and in spite of the king and other Powers, he involved his country in a general war, fatal and disgraceful to France at the end, although distinguished by many successful and gallant actions in its course; and which, perhaps, conduced to the success of the Prince of Orange in accomplishing the glorious revolution of 1688, and all through a quarrel about a French window.

Bookcases of the Ancients.

Every monastery in Greece, says Ricaut, has its library of books, which are kept in a lofty tower; and this fashion, possibly very ancient, was certainly adopted here from superior seclusion. Libraries existed in Egypt contemporary with the Trojan war, and one was formed at Athens by Pisistratus, long before the time of Aristotle, who, Strabo says, was the first Greek who made a library. The Romans borrowed the fashion from the Greeks, and the former had superb libraries, adorned with portraits of deceased *literati*; cases reaching to the roof, called "loculamenta," with shelves ("pegmata") and holes for the rolls ("nidi"), the walls between the cases being encrusted with plates of ivory and coloured glass. The cases and desks were made of ebony and cedar. The pavements were of marble and there were porticoes for readers. Duplicates of books were called "fratres," and all the works of an author were put, with his portrait, in the same place. These, however, were superb structures, belonging to the public or the great. The room at Herculaneum in which the rolls (not less than a thousand) were found was a mere closet, and Juvenal says that the poor poet Codrus kept his books in an old chest. But we hear of cabinets for books, which cabinets were numbered, stood in the vestibule, and were charged with ornaments repeated on the envelopes of the books. A library found in a ruined villa under the wood, belonging to the church of the Augustines, near Portici, was adorned with presses inlaid with different sorts of wood, disposed in rows, at the top of which were cornices as in our own times. Among the Egyptian monks the books were kept in a window, by which we suppose is meant an arched cupboard in the wall, the depository among the Britons, and apparently the Anglo-Saxon "boc-hord," for it appears in the frontispiece of Trivet's "Annals," engraved from the ancient illumination. The famous Godiva gave the monks of Worcester a bookcase divided into two parts, and we find elsewhere painted presses, chests, shelves and versatile desks called "rotæ." A very elegant one consists of a tall post or stand upon claw feet, surmounted by a large eagle. The shaft is cut into a screw for raising or lowering a round desk which encircles it.

Devices in Painting and Sculpture.

A device is an emblem or metaphor, which represents one object by another which bears some resemblance to it, such as a motto, a fanciful composition of small size, composed of attributes rather than principals, or an emblem used on a shield to indicate the rank, person, family, derivation of the wearer, or of the nation to which he belongs. The heroes of Greece wore different devices and inscriptions upon their shields. The Theban warriors carried the emblem of a serpent for their device, to indicate that they derived their origin from the serpent's teeth that were said to have been sown by Cadmus, the founder of their city and race. Æschylus has described in his "Seven Chiefs against Thebes" the bucklers of the chieftains, by the dramatic agency of the soldier, who is communicating to Eteocles the names of the seven heroes who are selected to attack the gates and the description of their appropriate armour. Their bucklers bore both devices and inscriptions. That of Capaneus had the figure of a naked man armed with a torch, inscribed in letters of gold, "I will burn Thebes." Upon that of Eteocles a warrior scaling a castle, saying, "Mars himself shall not repulse me." On that of Polynices, the brother of Eteocles, the figure of himself led by Justice, bearing for his motto, "I will re-establish him in the city and palace of his father." The usage of devices was practised by the people of the earliest antiquity, but they did not use them to the extent of some modern nations, mostly affecting a greater clearness in their inscriptions, and placed their allegories in images. Of modern devices that of the representation of a fish, indicating through the initials of its Greek name ΙΧΘΥΣ is the most celebrated, and perhaps the most perfect device or anagram extant. The Α and Ω placed on each side of the cross is rather more to be considered as a monogram than a device. Father Lemoyne considers the French to have been the inventors of devices, which is certainly untrue, but that they have used them to a considerable extent is well known. They have been the foundations of modern heraldry, which has been carried to great perfection by that people. Some of them are very clear and intelligible, such as the figure of a star, with the motto "Monstrant regibus astra viam," which was the device of the knights of the Order of the Star, instituted by the French King John. The representation of a fowling-piece, with the inscription "Ante ferit quam flamma micet," of the Dukes of Burgundy. René of Anjou, king of Sicily, having lost his wife, to whom he was much attached, took for his device the figure of a bow with its string snapped in twain, with the Italian motto "Arco par lentar, piaga non sana." Valentine of Milan, wife of the Duke of Orleans, who was assassinated at Paris by the orders of the Duke of Burgundy, assumed after his death, for a device, the emblem of an empty watering-pot, with the words "Plus ne mest rien, rien ne m'est plus." Louis XII. assumed the figure of a porcupine, inscribed "De loin et de près," to intimate his power of wounding close or at a distance. Devices may in this manner be composed upon most occasions, but they are in many instances only pictorial punning, alike removed from good taste and genius in art.

Greek and Roman Stables.

The Greek stable was to be so contrived with respect to the house that the owner could see his horse frequently, and the stall was to be so managed that it would be difficult to steal the provender out of the manger. The floor was to be sloping and on a declivity, and made of stone, each stone being about the size of the horse's foot. The groom was to lead the horse out of the stable when he was to be cleaned and dressed, and after the first meal to remove or turn him from the manger, that he might return to his second or evening food with fresh appetite. They were muzzled when cleaned and the groom stood sideways. In the stable they were confined by a halter to the manger. The litter and dung were removed every day. The stable-yard was paved with round stones, with a ridge or border of iron for keeping them together, hardening the hoofs, &c. Besides the stable-yard was a rolling place for the horses to roll themselves in. In the Roman stable we find rails to separate the horses, and the patena or manger of a rack, images of gods painted upon the stalls, a painted portico annexed to the imperial stable and lodgings of grooms near them, for so commentators interpret Caligula's stopping in a stable to sup. Stables to the present day are dark, and the ancients had an idea that darkness contributed to fatten animals.

George Jamesone.

Jamesone has been called vain because he often painted his own portrait, and ever with his hat on; but it should be remembered that this wearing of the hat was the practice of his great master Rubens, and that when his portrait was commissioned by a customer it became a duty to paint it. It was also, perhaps, in imitation of Rubens, that he usually introduced the portrait of his wife with that of his son and himself. Isabel Tosh was a comely woman, and the artist no doubt was vain of her good looks. His disposition appears to have been amiable; he painted many portraits for fame or for friendship alone, and bequeathed some of his most valuable works to the noblemen who had patronised him, thus at once repaying them for their kindness and securing for his productions galleries worthy of their merit. About his hours of study or his modes of labour who shall instruct us? He painted commonly on a grey canvas; his full-length portraits were usually a slight degree less than the life; his earliest works are sometimes on board and sometimes on cloth smoothly primed with a proper tone to help the harmony of his shadows. "He was one of the most

esteemed," says Walpole, "of Rubens's scholars, and painted in the broad, thin, transparent manner. His excellence consists in delicacy and softness, with a clear and beautiful colouring; his shades not charged, but helped by varnish, with little appearance of the pencil. He had much of Vandyke's second manner, and to Sir Antony some of his works have been occasionally imputed." This is high praise, but when we consider the state of British art in his day, and especially the unskilfulness of the native professors, it can scarcely be considered as extravagant. To depart at once from the formal corpse-like system of making figures, and assert the grace of form and the colouring of nature required boldness as well as genius, and there can be no question that Jamesone did all this. It may gratify certain sorts of critics to dwell on the undoubted facts that a certain hardness of manner is visible even in the happiest of his works; that his portraits are often of a severe aspect, with a touch too much of the vinegar of the times in them; and that he has reached but seldom the perfect ease and happy gracefulness of nature. His outlines are correct, his colouring lucid, and his proportions just; and he was the first native of our island who refused to limit himself to miniatures, like Hilliard and Oliver, and transferred life of the natural dimensions to his canvas. That he stands at the head of the British school of portrait painting there can, therefore, be no question, nor had England an artist of her own worthy of being named above him in his own walk before the days of Reynolds. When we consider the circumstances of the painter and his times—his want of instructors and models and the various difficulties which the fanatical prejudices of that dark age must have presented to any cultivator of the graceful arts—it is impossible not to admit that Scotland has all reason to be proud of George Jamesone.

Sketches on Canvas.

The painter is recommended to paint the sketch previously on canvas, as was the practice with Rubens. This method of painting the sketch, instead of merely drawing it on paper, will give a facility in the management of colours and in the handling which the Italian painters, not having this custom, wanted; by habit he will acquire equal readiness in doing two things at a time as in doing only one. A painter if possible should paint all his studies, and consider drawing only as a succedaneum when colours are not at hand. This was the practice of the Venetian painters, and of all those who have excelled in colouring. Correggio used to say, "Ch' avea i suoi dessegni nella stremità de' pennelli." The method of Rubens was to sketch his composition in colours, with all the parts more determined than sketches generally are; from this sketch his scholars advanced the picture as far as they were capable, after which he retouched the whole himself. The painter's operation may be divided into three parts: the planning, which implies the sketch of the general composition; the transferring that design to the canvas; and the finishing or retouching the whole. If for despatch the artist looks out for assistance, it is in the middle stage only he can receive it, the first and last operation must be the work of his own hand.

Runciman's Wall-Paintings at Pennycuick.

Historical painting became the confirmed idol of Runciman since he beheld the wonders of the Sistine, and he was no sooner settled in the North than he submitted the design of a great national work to Sir J. Clerk, namely, to embellish his hall at Pennycuick with a series of paintings from Ossian. This was agreed to at once. The poems ascribed to the blind old man of Morven were at that time in all the full-blown splendour of fame; the singular boldness of the style—the wildness of the imagery—the deep, heroic and chivalrous feelings which they breathed rendered them universal favourites, and when it is considered that a nation's vanity was involved in their history, and its character emblazoned on every page, no wonder that Scotland eagerly received and adopted what was announced as the offspring of her own cultivated genius produced at a period when all other European nations were barbarians. The reigning wits of England meantime looked on with distrust or derision; Johnson, Goldsmith, Burke, Garrick and all that coterie, together with Boswell, whose natural prejudices were as nothing to his worship of Johnson, amused themselves with lampoons in prose or verse against Fingal, Temora and the whole race of Celtic poems, whether epic or lyric. When it was told that Pennycuick was to be adorned with a series of paintings from those works, and that the hall was to be called Ossian's Hall, the mirth of these unbelievers knew no bounds. Men of talent are, however, seldom driven from their purpose by the malice of wit or the bitterness of humour. Runciman, content to receive for truth what his own nation believed, read, studied, sketched and imagined he saw in those effusions a series of fine historical subjects such as would make the hall of Ossian a rival to the Sistine Chapel. And supposing Ossian to be authentic, Runciman was right; the works of art with which a nation adorns herself should be from her own story, and to seek in Scottish poetry for his subjects was surely wiser far in a Scottish painter than to have recourse to the trite and hopelessly defunct mythology of Greece. The heroes and spirits of heroes and wild divinities of the Celtic bard had, moreover, the recommendation of novelty, and, finally, whether some ancient Highlander did or did not produce the whole, or any particular passages, no man now disputes but that the pages of "Ossian" do abound in poetry of the highest order. Sir J. Clerk readily entered into the feelings and wishes of the painter; sketches were made and approved, scaffolds raised, and to work he accordingly went with all the enthusiasm of one who believes he is earning an immortal name. But there is no work, however much it may be the offspring of one's own heart, that can be accomplished perhaps in the same spirit in which it was commenced. Men of taste, connoisseurs, patrons of fine arts were ready, with their dissonance of opinion, to excite pain in the mind of a sensitive artist; pain of mind was aggravated by pain of body; he had to lie so much on his back, while occupied with the ceiling of the hall, that his health failed, while, to add to other vexations, the searching spirit of inquiry and criticism began to sap more and more the lines of circumvallation within which Macpherson had entrenched himself, and that Fingal lived and that Ossian sung began to be doubted even among the Scotch. He painted on, nevertheless, and finished his very romantic undertaking.

Early Scottish Paintings.

Of the elder artists of Scotland and their works little has been either said or written. A few names and dates and references have been preserved in the Royal Book of Accounts The first name on the royal record is evidently a native one—it is that of John de Linlithgow, who, in the year 1329, sculptured the tomb of the great Robert Bruce; the second is that of "Andrew the painter," who made a monument in memory of David Bruce and his queen. Artists in those days were both sculptors and painters, and it was the fashion to paint and gild and inlay with precious metal and with precious stones the recumbent statues of our sepulchral monuments. Nor were the labours of those men confined to the church. The great hall in the castle of the renowned Randolph Earl of Murray was a work of no common magnificence, and must have cost much money and time. It was 89 feet long, 35 feet wide and 30 feet high, roofed with massive beams of carved oak and ornamented with sculptures. The oaken dining-table and chair of the warrior are still preserved; the former stands on six pillars, curiously bordered and inlaid, and the latter, in shape and fashion not unlike the old coronation chair in Westminster Abbey, is emblazoned with carvings of his family arms and emblems of his station as regent. Paintings in fresco, and even in oil, existed in Scotland from an early period. They were chiefly Scripture pieces or portraits of distinguished men. One likeness in fresco, of William the Lyon, is supposed to have belonged to the monastery of the Trinity Friars of Aberdeen, of which that king was the founder. It measures 4 feet high by 2 feet 9 inches wide, and bears the following inscription, of course of a later age than the picture:—"St. William, King of Scots, surnamed the Lyon, the first founder of the Trinitie Friars at Aberdeen, where he had his chappell, the chief place of retirement for his devotions. He reigned forty-nine years, beginning 1165, dyed at Sriveling 1214 and was buried at Aberbrothwick." In the parish church of Houston, Renfrewshire, were preserved the effigies or portraits of Sir John Houston and his lady, which belonged to a series of monuments commemorating the house of Houston. The knight is in complete armour, his lady, Mary Colquhoun, is in the dress of the time, 1400; they closely resemble the works of the same period still preserved in England. The portrait of Cardinal Innes in the collection of the Scottish Society of Antiquaries is believed to be the work of foreign hands. He is represented in the act of composing; books occupy the background, and an inscription says he is a native of Scotland, flourished in the year 1412, and wrote these volumes. Pinkerton assigns to the year 1430 the following story, in which barbarous deeds mingle with art perhaps equally barbarous:—A Highland robber having stolen a poor woman's cow, she vowed to wear no shoes till she told the king. On this the savage seized her, and, in ridicule of her vow, nailed horseshoes on her feet. On recovering, she went to the palace, told her story, and showed the scars on her feet. The monarch caused the savage to be secured and tried. On conviction he was clothed in a canvas frock on which was painted a man fixing horseshoes on a woman's feet, exhibited two days in the streets of Perth, and then dragged at a horse's tail to the gallows and hanged. James I. of Scotland, a poet of no common genius and a musician of some skill, was also a painter of miniatures and an illuminator of books. None of the works of this royal pencil have reached us, but he who could write with such good feeling could no doubt imagine works of art worthy of living. Illuminated manuscripts and miniatures are perishable matters; and, not to speak of time and bad

keeping, the fire of the reformers found its way so effectually among libraries that few works of that period remain ; one only, Fordun's "Scotichronicon," containing only some four or five illuminations, is preserved among Bishop Parker's books in the library of Christ's College, Cambridge. Heraldic painting, a sort of hieroglyphic history of families, was long popular. On the execution of Murdoc, Duke of Albany, and his sons, in the year 1425, they were buried on the south side of the altar in the Black Friars Church at Stirling, and over them were placed paintings of their persons and their coats armorial. In the reign of the saints in 1643 this sort of harmless emblazonment, which had survived Knox and all his fierce companions, was declared infamous. The General Assembly of the Kirk perceived something of Baal and Ashtaroth in the armorial bearings suspended in places of worship when persons of note or family died, and passed a prohibitory Act "against burials and hanging of pensils and brods, and offering of honours and arms, and such like scandalous monuments, in the kirk." Having destroyed their splendid abbeys, they possessed, no doubt, in those days few kirks worthy of hanging either pensils or honours or arms in.

Palladio's "Teatro Olimpico," Vicenza.

Admired at first, because then superior to anything of the kind, it has continued to be admired since, partly on account of the character attached to it, which few care to dispute, and partly perhaps on account of its singularity, and because it shows the peculiarities of the ancient theatre. By no means, however, is it a very accurate imitation, though its chief merit lies in being a mere imitation ; it is semi-elliptical instead of semicircular, with the stage on the longer axis of the ellipse, wherefore it looks too much squeezed up one way and stretched out the other, and produces the same kind of disagreeable effect as would arise from placing the stage on the longer side of a parallelogram of the same extent (96 by 45 feet). It is said that the space to which the architect was restricted compelled him to adopt that form, yet it hardly appears so from the published plans of the building, for it would not be difficult to show how a semicircle might have been brought in. With regard to the scena, for which unlimited admiration is claimed, nothing can be more tasteless ; it abounds in almost as many architectural barbarisms and solecisms as could well be brought together. Even Robert Adam spoke of it as mere "gingerbread," and another architect, Wood, says, "The scene, which is the part most admired, borders upon trumpery," and that although the building "is too celebrated to be omitted, for him it might have slept in oblivion." It is not, however, so much the scena or facciata itself as the avenues seen beyond it through the centre arch and other openings which attract notice, and have been extolled by some as greatly superior to the "flimsy" painted decorations upon canvas used in modern theatres. Those avenues represent as many streets, the fronts of the buildings being modelled or carved in relief, and attempted to be shown in perspective by the floor and ceiling sloping very much upwards and downwards, and the other horizontal lines accordingly, and by the passages themselves being narrower at the further end. The contrivance is puerile at the best, and instead of being more deceptive or natural than painted scenery the imitative perspective becomes distorted when viewed from any other situation than the centre of the theatre and the level of the stage. It is also difficult to understand how these narrow enclosed passages could have been properly lighted at the time of a performance, and although they are, in stage language, "practicable," hardly could they have been made use of, at least not for their whole extent, because at their further end an actor would appear gigantic. This structure is nevertheless entitled to notice as an example of a very defective and faulty system, and because it has been frequently mentioned for the purpose of recommending, on the imposing authority of the name of Palladio, what ought not to be imitated.

The String-Course.

String-courses admit of great variety, and contribute very much to decoration, while they are in themselves essential members, inasmuch as they serve to define the internal division of the building, corresponding with the floors of the several storeys; and by separating one tier of windows from another, to mark each as a distinct portion of the general composition, complete as regards itself, though secondary to the other. While they separate they serve also to connect and combine the successive stages of a building, and to produce a due mixture of horizontal with perpendicular lines. In Gothic architecture the upper surface of a string-course is almost invariably splayed or sloped in order to shoot off rain, the projection being usually such that the wet would else lodge upon it. The string-course itself consists sometimes of only a few narrow and plain mouldings, at others of a variety of them separated by one or more considerable hollows. In the later or perpendicular style of Gothic the string-course is frequently made a broad tablet, not only richly moulded, but ornamented with sculptured blocks, heads of animals, shields, &c., placed at intervals in the principal cavetto or hollow, besides which, additional carved ornament is occasionally introduced on the surfaces between the other mouldings. In some instances the string-course is so enlarged as to become a sort of frieze or horizontal panel filled up with a pattern of tracery, or with lesser panels, &c., carved on it. In Italian architecture the string-course (*fascia*, Italian; *cordon*, French; *Band*, German) is either quite plain, or more or less decorated according to the character of the floor to which it belongs. That which crowns a basement floor is seldom more than a plat-band or plain surface, while the upper ones form ornamental fascias, enriched with guilloches, frets, &c., either with or without mouldings.

GENERAL.

Dr. Charles Hunter Stewart has been appointed by the Edinburgh University Court professor of public health and sanitary science. Dr. Stewart was chief assistant in the bacteriological laboratory connected with the chair of medical jurisprudence and public health in the university.

Sir J. Wolfe-Barry has been elected chairman of the council of the Society of Arts.

Plans are being prepared for a military hospital for the Portsmouth Garrison, which is to be erected at the foot of Portsdown Hill.

The Directors of the New Gallery have decided to hold next winter an exhibition of works by the late Sir E. Burne-Jones, and they have pledged themselves that, after the payment of rent and other incidental expenses, the proceeds of the exhibition shall be added to the amount that has already been raised by public subscription for the purpose of presenting a work by the painter to the National Gallery.

Mr. Gordon P. G. Hills, 4 Adam Street, Adelphi, has been successful in the competition for the new Board schools to be erected in Littlehampton.

Applications for space in the British section of the Paris Exhibition must be made before August 20 next. It is therefore desirable that manufacturers and others wishing to exhibit should send in early applications for space to the Secretary of the Commission, St. Stephen's House, Westminster.

Mr. Thomas Brock has been entrusted with the commission for the national statue of Mr. Gladstone, in Westminster Abbey.

The Directory of the Department of Science and Art, revised to June 1898, was published this week, and contains several important changes of the regulations.

The Gladstone Memorial Committee propose to erect "such monumental memorials as may hereafter be decided in the capitals of England, Scotland and Ireland; and to offer to erect as a memorial to Mr. Gladstone at Hawarden a building to contain the books of St. Deiniol's Library, which were gathered during his lifetime and placed by his own hands in the structure where they now are."

The Report of the National Trust for Places of Historic Interest states that Joiner's Hall, Salisbury, has been acquired. The sale of the Marquis of Worcester's Monmouthshire estate, it was said, might possibly provide the Society with the opportunity of acquiring Tintern Abbey, a piece of property of national interest. The Society hope, as soon as the necessary arrangements can be made for the transfer, to become the trustees of the site of Driffield Castle and an old columbarium at Garway, near Ross.

A Tomb of a remarkable character has been discovered in the course of excavations at the Eastern Chapel of Peterborough Cathedral. From a figure on it having a roll and a yard measure it is supposed to represent the abbey tailor, but may with as much reason be supposed to be connected with the works.

The Committee on Museums are understood to recommend in connection with the appointment of officials :—(1) That the scheme of special examination already in operation in connection with the Jermyn Street Museum should be extended to South Kensington ; (2) that, following the practice of the British Museum, no examination should be held unless there be a minimum number of candidates ; (3) that no member or paid official of the Science and Art Department should be employed as examiner ; and (4) that the regulation (abolished in 1871) requiring reports upon the qualifications of all new officials to be sent to the Civil Service Commissioners should be re-enacted.

A Firm of surveyors were recently employed in taking some measurements in St. Bride's Church, and having occasion to leave the building for a few moments, deposited their implements on a seat. On their return they found everything had been taken, their incompleted work having to be left until a further supply of instruments could be obtained.

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Architect and Contract Reporter.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

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For Advertisement Scale, see page xiii.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

COMPETITIONS OPEN.

GLASGOW.—Aug. 15.—Designs are invited for the exhibition buildings to be erected on sites in the Kelvingrove Park and Bunhouse Ground. A premium of 200*l.* will be awarded to the author of the design considered first in merit, second and third premiums of 150*l.* and 100*l.* respectively. Mr. H. A. Hedley, general manager and secretary, 141 Buchanan Street, Glasgow.

ROTHERHAM.—Plans are invited for proposed extensions of the Baptist schoolroom, Westgate, Rotherham, at a cost of about 600*l.* Mr. A. Crowcroft, Clifton Crescent South, Rotherham.

SALFORD.—Aug. 16.—Designs for three chapels, offices, lodge, entrance gates and boundary walls at proposed cemetery in Langley Road and Agecroft Road, Pendlebury. Premiums of 50*l.*, 30*l.* and 20*l.* respectively. Borough Engineer, Town Hall, Salford.

STOCKHOLM.—Aug. 31.—Designs for railway station Particulars from the Offices of the Consulate, 27 Great Winchester Street, London.

CONTRACTS OPEN.

ACCRINGTON.—July 26.—For excavation and ballasting for sidings, construction of bridges and retaining walls and erection of new engine-shed, for the Lancashire and Yorkshire Railway Company. Mr. C. W. Bayley, secretary, Hunt's Bank, Manchester.

ALDERTON.—July 27.—For erection of Wesleyan chapel. Mr. F. W. Hinton, Alderton.

ALTRINCHAM.—July 25.—For alterations and additions to the hospital, Market Street. Mr. John Macnamara Bancroft, architect, Hale Road, Altrincham.

ANGLESEY.—July 25.—For re-erection of Groeslon inn, Brynsiencyn. Mr. Richard Davies, architect, Bangor.

AYLESBURY.—July 25.—For erection of a block of workshops at the asylum, Stone, near Aylesbury. Mr. R. J. Thomas, county surveyor, County Hall, Aylesbury.

BARNSLEY.—July 27.—For erection of six houses and outbuildings off Dobie Street. Mr. Herbert Crawshaw, architect, 13 Regent Street, Barnsley.

BARNSLEY.—July 25.—For erection of a store and house at Ryhill. Mr. A. B. Linford, architect, Kelvin Cottage, Wombwell.

BELFAST.—For alterations and additions to shops on Albert Bridge Road. Mr. David M. Cooper, architect, 22 Donegall Place, Belfast.

BILLINGSHURST.—July 25.—For erection of a house on the Eastlands Estate. Mr. C. H. Burstow, architect, 6 West Street, Horsham.

BISHOP AUCKLAND.—July 27.—For erection of a billiard-room and conservatory at Redworth Hall. Mr. F. H. Livesey, architect.

BLACKBURN.—July 26.—For erection of infants' school and alterations and additions to the present boys and girls' schools. Messrs. Cheers & Smith, 24 Richmond Terrace, Blackburn.

BLETCHLEY.—Aug. 2.—For erection of two cottages and a shop, with alterations to existing shop, in Albert Street. Mr. A. E. Wade, 1 Albert Street, Bletchley.

BRIGHTON.—For erection of boys and girls' department of St. Mark's schools, Kemp Town. Mr. Joseph Norton, architect, Alliance Chambers, Sheffield.

BRISTOL.—July 25.—For extension of Greenbank Board schools. Mr. F. Bligh Bond, architect, Alliance Chambers, Corn Street, Bristol.

BRISTOL.—Aug. 6.—For erection of a police-station at Staple Hill, near Bristol, for the Gloucestershire Standing Joint Committee. Mr. M. H. Medland, architect, 15 Clarence Street, Gloucester.

BURNLEY.—Aug. 13.—For erection of imbecile wards in the grounds of the workhouse. Mr. S. Keighley, architect, Nicholas Street, Burnley.

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BURTON-UPON-TRENT.—July 29.—For erection of a retort-house and the execution of works incidental thereto, at the gasworks. Mr. F. L. Ramsden, engineer, gas and electric-light works, Burton-upon-Trent.

BURY.—July 28.—For erection of a manager's house at the sewage-disposal works at Livesey Fields. Mr. J. Cartwright, borough engineer, Corporation Offices, Bury.

CARDIFF.—July 28.—For alterations to the chief inspector's house and additions to covered shed at the waterworks depôt, Trade Street, Penarth Road. Mr. C. H. Priestley, waterworks engineer, Town Hall, Cardiff.

CARDURNOCK.—July 30.—For rebuilding the Horse and Jockey inn. Mr. Geo. Armstrong, architect, 24 Bank Street, Carlisle.

CARLISLE.—July 28.—For erection of Board schools and master's house at Nenthead, Alston. Mr. Thos. E. Davidson, architect, 33 Grainger Street West, Newcastle-on-Tyne.

CHATHAM.—July 27.—For repair of stands, &c., on the Football Ground. Mr. J. Evling, 53 Luton Road, Chatham.

CHELMSFORD.—July 30.—For rebuilding a portion of the electric-lighting station, Anchor Street. Mr. F. Whitmore, architect, 17 Duke Street, Chelmsford.

CRUMLIN.—July 25.—For erection of an additional class-room to accommodate fifty children and other works at the Board schools. Messrs. Rosser & Roberts, architects, Abercarn.

CUMBERLAND.—July 28.—For erection of a reading-room, &c., with caretaker's house attached, at Seaton. Mr. J. Donald, architect, 14 John Street, Workington.

DALKEITH.—July 25.—For erection of the Burns memorial fountain and lamp in High Street. Mr. R. Dryden, surveyor, Dalkeith.

DARTMOUTH.—July 25.—For works of ventilation, general repairs, painting, &c., at the school premises, Newcomin Road, Mr. J. A. Brand, architect, 3 Victoria Road, Dartmouth.

DARWEN.—July 25.—For erection of two blocks of cottages to be used as artisans' dwellings in Punstock Lane and Reservoir Street. Messrs. Woods & Thackeray, architects.

DEVONPORT.—Aug. 4.—For erection of an additional storey to the workhouse infirmary, for the Guardians of Stoke Damerel. Mr. H. G. Luff, architect, 64 Chapel Street, Devonport.

DUDLEY.—July 28.—For erection of a laundry, Stourbridge Road. Mr. Arthur Gammage, architect and surveyor, Imperial Chambers, High Street, Dudley.

DURHAM.—July 25.—For erection of a new entrance and cloak-room and other alterations at Bearpark schools. Mr. George Ord, architect, 16 The Avenue, Durham.

ELGIN.—July 26.—For additions to Collingwood, Institution Road. Messrs. A. & W. Reid & Wittet, architects.

ELGIN.—July 25.—For additions to the farmhouse at Oakenhead, Drainie. Messrs. A. & W. Reid & Wittet, architects, Elgin.

ESSEX.—July 26.—For erection of twenty-nine houses for working classes at Hermit Road, Plaistow. Mr. Lewis Angell, borough engineer, Town Hall, Stratford, E.

ESSEX.—July 26.—For erection of an underground latrine in the Broadway, Ilford. Mr. Herbert Shaw, surveyor, 7 Cranbrook Road.

GATESHEAD.—July 28.—For pulling-down the Half Moon inn and adjoining property in Bridge Street, Gateshead, and erecting new hotel. Mr. Thos. E. Davidson, architect, 33 Grainger Street West, Newcastle-on-Tyne.

GLAMORGAN.—July 28.—For altering and repairing certain portions of the South Wales and Monmouthshire Truant School, Quaker's Yard. Mr. E. Stephens, secretary, at the School, Quaker's Yard, Treharris, R.S.O.

GLASGOW.—July 28.—For erection of stable, offices, &c., in the Queen's Park, and enclosure walls, &c., around the gardener's yard on Glasgow Green. Mr. J. D. Marwick, town clerk, City Chambers, Glasgow.

GREAT HARWOOD.—July 30.—For erection of a block of offices in Police Street. Messrs. Briggs & Wolstenholme, architects, Richmond Terrace, Blackburn.

HALIFAX.—July 30.—For erection of two better-class houses and boundary walling at Birks Hall Lodge. Mr. T. Lister Patchett, architect, George Square, Halifax.

HALIFAX.—July 26.—For erection of workshops, sheds, offices, engine and boiler-houses, and chimneys for the premises to be erected near North Dean railway station, for Messrs. Lumby, Son & Wood, Limited, boiler makers, &c. Messrs. Horsfall & Son, 22A Commercial Street, Halifax.

HAMPTON WICK.—Aug. 3.—For repairs and painting offices and lamp standards generally, for the Hampton Wick

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HANLEY.—For additions to the North Rode school. Mr. John T. Brealey, architect, Piccadilly Buildings, Hanley.

IPSWICH.—July 25.—For providing a new stepped block floor for a classroom at the London Road girls' school. Messrs. Eade & Johns, architects, Thoro'fare, Ipswich.

IRELAND.—Aug. 1.—For alterations and additions to Drumragh Catholic church, and for erection of a caretaker's residence. Mr. James L. Donnelly, architect, 8 Castle Street, Omagh.

IRELAND.—July 30.—For erection of a dispensary and dispensary residence at Lisbarnet, in the parish of Kilmood. Mr. T. Roe, architect, 1 Lombard Street, Belfast.

KENDAL.—For repairs of Ings Church. Architect's specification can be seen at Ings Vicarage.

KETTERING.—July 30.—For erection of a greenhouse, 30 feet long, 12 feet wide, in the cemetery. Mr. T. R. Smith, surveyor, Market Hill, Kettering.

KING'S LYNN.—July 21.—For alterations in the laundry at the workhouse. Mr. Eagleton, architect, Tuesday Market Place, Lynn.

KNUTSFORD.—July 26.—For taking-down present footbridge and building a brick culvert bridge under roadway at Free Green, Peover Inferior. Mr. Joseph Burgess, surveyor, Tabley, Knutsford.

LEEDS.—July 28.—For extension of Kirkgate market roof and building new fish shops and boundary wall. City Engineer, Municipal Buildings, Leeds.

LEEDS.—July 25.—For rebuilding the Woolpacks inn in Towngate, Holbeck. Mr. Thomas Winn, architect, 92 Albion Street, Leeds.

LONDON.—July 28.—For erection of head office buildings on a site at the corner of Carmelite Street and the Victoria Embankment for the Metropolitan Asylums Board. Mr. Edwin T. Hall, architect, 57 Moorgate Street, E.C.

LOUGHBOROUGH.—July 26.—For erection of new Golden Fleece Hotel, Cattle Market. Messrs. Barrowcliff & Allcock, architects, Mill Street, Loughborough.

MARKET DEEPING.—Aug. 3.—For erection of classroom and alterations at the Maxey school. Mr. Stallebrass, architect, North Street, Peterborough.

MIDDLESBROUGH.—July 27.—For erection of a permanent orchestra in the town hall and alterations to retiring-rooms, staircases, &c. Mr. Frank Baker, engineer, Municipal Buildings, Middlesbrough.

MYTHOLMROYD.—July 27.—For erection of a foundry. Mr. W. Wrigley, architect, Albert Street, Hebden Bridge.

NOTTINGHAM.—Aug. 5.—For erection of the superstructure of the workhouse, infirmary and appurtenant buildings for 1,600 inmates and staff at Bagthorpe. Mr. Arthur Marshall, King Street, Nottingham.

PONTARDULAIS.—For erecting house and shop at Hendy. Messrs. Davies & Son, architects, Llanelly.

ROTHERHAM.—July 25.—For erection of Board schools in Doncaster Road. Mr. J. E. Knight, architect, 20 Moorgate Street, Rotherham.

SCOTLAND.—July 30.—For building chimney stalk, 60 feet high, for the Stranraer Gasworks. Mr. P. Stewart, manager.

SCOTLAND.—July 25.—For erection of a block of buildings in High Street, Rothes. Mr. R. B. Pratt, architect, Elgin.

SCOTLAND.—July 27.—For erection of warehouse at Glen-Spey distillery, Rothes. Mr. Charles C. Doig, architect, Elgin.

SCOTLAND.—Aug. 1.—For erection of a classroom to accommodate thirty scholars, to be built as an addition to the existing school buildings at Kilerivagh in Benbecula, for the South Uist School Board. Mr. Andrew M'Elfrish, clerk to the Board, Lochmaddy.

SHAW.—Aug. 1.—For erection of public baths in Farrow Street. Messrs. Wild, Collins & Wild, architects, 15 Clegg Street, Oldham.

SHOREDITCH.—Aug. 3.—For construction of an underground public convenience in Hoxton Street, opposite the workhouse infirmary. Mr. J. Rush Dixon, engineer, Vestry Town Hall, Old Street, E.C.

SOUTHEND-ON-SEA.—For erection of Baptist chapel, Clarence Road. Messrs. Goodchild & Sons, 81 Finsbury Pavement, London.

SOUTHWARK.—July 26.—For construction of a ladies' lavatory at the rear of the public library buildings, Borough Road. Mr. Oliver E. Winter, C.E., surveyor, Vestry Hall, Borough Road, S.E.

SWANSEA.—Sept. 19.—For erection of Manselton school. Mr. C. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

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SWINDON.—July 28.—For erection of shop, dwelling-house, dairy and stables in Radnor Street, New Swindon. Mr. R. J. Beswick, architect, 9 Regent Street, New Swindon.

SWINDON.—July 25.—For erection of manual workshops (section B) at the rear of the technical schools, Victoria Road, New Swindon. Mr. H. J. Hamp, surveyor, Public Offices, Swindon.

THETFORD.—For erection of a vestry at St. Cuthbert's Church. Mr. Arthur J. Lacey, architect, 6 Upper King Street, Norwich.

ULVERSTON.—Aug. 3.—For erection of porter's lodge, receiving wards, &c. Messrs. J. W. Grundy & Son, architects, Ulverston.

UPPER EDMONTON.—July 26.—For building four blocks of projections at the workhouse, Silver Street, to contain additional water-closet and lavatory accommodation. Messrs. W. S. Cross and Kekwick, architects, 18 Outer Temple, Strand, W.C.

WALES.—July 25.—For erection of a chapel in the Llanstadwell cemetery. Mr. John Griffiths, clerk.

WALES.—For erecting villa at Llangennech. Messrs. Davies & Son, architects, Llanelly.

WALES.—July 25.—For erection of brick villa and outbuildings near Bodgwynedd, Bettwsycoed. Mr. Peter McIntyre, Gwydyr Ucha, Llanrwst.

WALES.—July 27.—For erection of two houses at Cemetery Road, Porth. Mr. E. Jones, architect, Porth.

WALES.—July 27.—For erection of a shop and premises, Station Road, Port Talbot. Mr. Frank B. Smith, architect, Port Talbot.

WITHINGTON.—July 26.—For alterations to the schools and homes at Nell Lane. Mr. James B. Broadbent, 15 Cooper Street, Manchester.

WIVENHOE.—July 28.—For erection of a Wesleyan chapel. Rev. R. Collett Cowell, Ivy Dean, Winnock Road, Colchester.

WREXHAM.—Aug. 18.—For erection of a bridge over the river Gwenfro, at Stryt-y-bidden. Mr. John Strachan, Crispin Lodge, Wrexham.

THE Duchess of Devonshire has laid the foundation-stone at Eastbourne of the new lifeboat house which is to be erected as a memorial to the late Mr. William Terriss.

TENDERS.

ASHTON-UNDER-LYNE.

For construction of a rubble wall along a portion of the bank of the river Tame. Mr. J. T. EARNSHAW, borough surveyor.

S. Johnson	£2,131 8 6
C. Braddock	1,376 18 9
Underwood & Bro.	989 1 6
R. C. FISH, Ashton-under-Lyne (*accepted*)	953 16 6

BOOTLE.

For erection of an electric-light station in Pine Grove. Mr. J. CROWTHER, borough engineer.

J. Corkell	£7,261 0 0
Hughes & Stirling	7,150 0 0
J. Paterson & Son	7,097 0 0
P. Tyson	7,000 0 0
S. Webster	6,950 0 0
W. MUSKER, Bootle (*accepted*)	6,598 0 0

BRENTWOOD.

For additions to the Sunday-schools. Mr. CHARLES PERTWEE, Bank Chambers, Chelmsford.

Smith & Son	£1,038 0 0
A. Brown & Sons	1,025 0 0
S. Parminter	1,000 0 0
E. West	968 0 0
F. J. Wilding	957 0 0
F. Johnson	920 0 0
ROGERS & ROBSON, Wellesley Road, Brentwood (*accepted*)	857 0 0

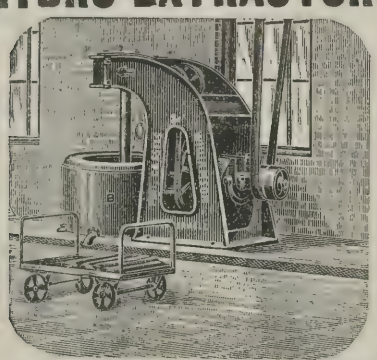
BUCKIE.

For erection of cottages in Buckpool. Mr. R. DUNCAN, architect, Huntly.

Accepted tenders.

W. Milne, mason.
A. Henry & Son, carpenter.
G. Bremner, slater.
W. Hume, plasterer.
J. Barclay, plumber.
R. Duncan, painter and glazier.

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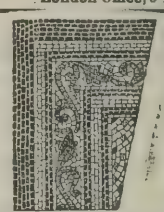
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CARDIFF.

For erection of new premises, Neville Street, for trustees of Riverside Conservative Club. Messrs. VEALL & SANT, architects.

E. R. Evans & Bros.	£2,865	0	0
Lattey & Co.	2,793	0	0
Mathias & Son	2,750	0	0
C. C. Dunn	2,673	9	9
W. T. Morgan	2,660	0	0
Turner & Sons	2,598	0	0
Knox & Wells	2,557	0	0
Melhuish Bros., Cardiff*	2,497	10	0
W. A. Walters (*withdrawn*)	1,980	4	5

* Reduced to £2,398 and accepted.

For erection of new hotel, stabling, &c., Lansdowne Road, Canton, for Messrs. W. Hancock & Co., Limited. Messrs. VEALL & SANT, architects.

W. Thomas & Co.	£6,449	0	0
Knox & Wells	6,325	0	0
C. C. Dunn	6,147	0	0
Shipton & Son	6,118	0	0
C. & F. Couzens	6,110	0	0
Lattey & Co.	5,968	0	0
Turner & Sons	5,888	0	0
J. Allan	5,750	0	0
W. Symonds & Co., Cardiff*	5,695	0	0

* Reduced to £5,050 and accepted.

CHURCH.

For excavating and paving with granite setts Blackburn Road, and for relaying the flags and kerbs, and sewering part of the road.

Chadwick Bros.	£1,229	14	4
J. Moore	1,083	3	9
W. H. Bury	1,033	10	9
G. ADAMS, Oswaldtwistle (*accepted*)	998	2	11
Exors. of A. Broadley	983	18	1
T. Horrocks	972	4	4
A. Lord (flagging only)	81	6	0

GORE FARM HOSPITAL (KENT).

For erection of a destructor.

J. Ellingham & Sons	495	15	0
Goddard, Massey & Warner	462	4	0
T. KNIGHT, Craybrooke Works, Sidcup (*accepted*)	378	0	0

CROYDON.

For making-up and metalling the road from Lock's Lane to Greyhound Lane

T. Adams	£4,183	0	0
Lawrence & Thacker	3,680	0	0
W. Langridge	3,514	15	0
Free & Son	3,430	0	0
E. Iles	3,257	9	6

Note.—Referred to highways committee.

HALIFAX.

For excavating for, providing and laying 110 lineal yards of 12-inch earthenware pipe sewer, and for the execution of other works in Haigh Lane. Mr. EDWARD R. S. ESCOTT, engineer.

R. Walker	£198	2	3
S. Bedford	185	0	3
R. Foulds	169	7	0
T. Kitchen	138	14	4
BOWER BROS., Halifax (*accepted*)	135	5	8

For private improvement work in Peabody Street, Buxton Street, Grange Street, Matlock Street and Livingstone Street. Mr. EDWARD R. S. ESCOTT, engineer.

Peabody Street.

R. Walker	£112	6	6
R. Foulds	76	12	7
S. Bedford	71	0	8
T. KITCHEN, Halifax (*accepted*)	65	0	9

Buxton Street.

R. Walker	118	4	0
R. Foulds	80	17	2
S. Bedford	73	10	8
T. KITCHEN (*accepted*)	68	17	10

Grange Street.

R. Walker	200	6	0
S. Bedford	130	0	9
R. Foulds	126	19	9
T. KITCHEN (*accepted*)	111	9	9

Matlock Street.

R. Walker	157	1	0
R. Foulds	103	10	7
S. Bedford	101	17	7
T. KITCHEN (*accepted*)	87	7	9

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HALIFAX—*continued.*

Livingstone Street.

R. Walker	£192 9 0
R. Foulds	124 4 3
S. Bedford	116 11 3
T. KITCHEN (*accepted*)	106 19 9

HAVERFORDWEST.

For erection of vagrant wards at the workhouse. Mr. D. E. THOMAS, architect, Victoria Place, Haverfordwest.

T. Davies & Son	£538 0 0
J. Lewis	502 15 0
W. MORRIS, Haverfordwest (*accepted*)	446 0 0

KEIGHLEY.

For erection of twelve artisans' houses, Lawkholme Lane. Mr. W. H. HOPKINSON, borough engineer.

Accepted tenders.

J. W. Fishburn, Silsden, near Keighley, mason	£1,498 0 0
F. Driver, Keighley, joiner	600 0 0
J. King, Keighley, plasterer	176 0 0
W. Thornton, Keighley, slater	143 0 0
J. Harrison, Keighley, plumber	85 0 0

KINGSTON-ON-THAMES.

For fitting-up an installation for electric light at the club premises, Fairfield Road. Mr. J. E. EDGCOME, consulting engineer.

Tender A.

Jackson & Coley	£292 10 0
W. Adams	266 15 0
Thompson, Howard & Co.	244 12 6
Sax, Slatter & Co.	234 16 3
Prestwich & Burt	203 17 6
Safety Concentric Wiring Co.	197 10 0
C. A. Hemingway	175 0 0
Bergtheil & Young	170 0 0
Brush Electrical Engineering Co.	167 13 6
Christian & Phipps	165 15 0
A. H. Wood	165 0 0
National Electric Wiring Co, Limited	157 0 0
T. H. Taylor	156 16 0
SPAGNOLETTI & CROOKES, London, W. (*accepted*)	150 6 10
Thames Valley Electrical Engineering Co.	150 0 0
J. R. Offer	143 5 0

LIVERPOOL.

For erecting a mortuary at the corner of Ford and Maguire Streets.

HOLME & GREEN, Liverpool (*accepted*)	£1,190 10 0

LLANHILLETH.

For erection of a police station. Mr. WILLIAM TURNER, county surveyor.

D. W. Richards	£1,322 0 0
W. Williams	1,184 0 0
J. Charles	1,179 10 0
C. F. Morgan	1,163 0 0
D. LEWIS, Llanhilleth (*accepted*)	990 0 0

LONDON.

For partial reconstruction of the North-Eastern Hospital.

Martin, Wells & Co.	£139,725 0 0
Leslie & Co., Limited	121,145 0 0
W. Johnson & Co., Limited	118,340 0 0
Spencer, Santo & Co., Limited	114,975 0 0
McCORMICK & SONS, Northampton Street, N. (*accepted*)	113,642 0 0
Architect's revised estimate	115,000 0 0

For alterations, additions and fittings at the Lord Nelson public-house, Manchester Road, Cubitt Town, E., for Mr. H. French. Mr. FRED. A. ASHTON, architect, 177 Romford Road, Stratford, E.

	A'terations, &c.	Fittings.	Total.
R. E. Williams & Sons	£1,387	£965	£2,352
Courtney & Fairbairn	1,345	888	2,233
W. J. Maddison	1,397	828	2,225
A. E. Symes	1,340	879	2,219
H. Wall & Co.	1,324	889	2,213
J. & H. COCKS (*accepted*)	1,260	865	2,125

LONDON SCHOOL BOARD.

For sanitary and drainage work, William Street school, Hammersmith Road.

F. G. Minter	£1,770 0 0
J. & C. Bowyer	1,768 0 0
J. Garrett & Son	1,739 0 0
E. Triggs	1,675 0 0
Lathey Bros.	1,639 0 0
Stimpson & Co.	1,587 0 0
W. Johnson & Co., Limited*	1,544 0 0

* Recommended for acceptance.

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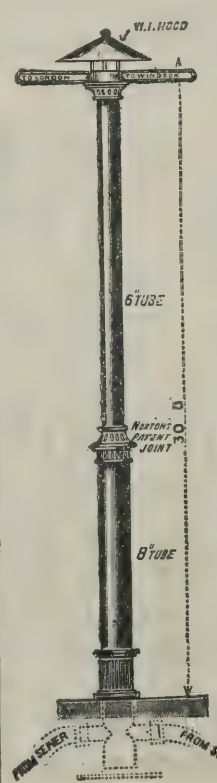
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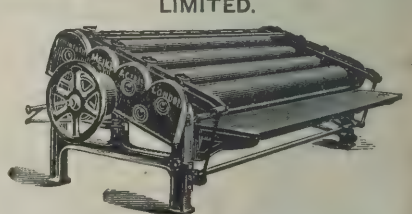
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LONDON SCHOOL BOARD—*continued.*

For sanitary and drainage work, Carlton Road, Kentish Town.

Cowley & Drake	£3,200 10 0
L. H. & R. Roberts	3,145 0 0
R. A. Yerbury & Sons	3,122 0 0
G. S. S. Williams & Son	2,924 0 0
E. Lawrance & Sons	2,915 0 0
W. Akers & Co.	2,886 0 0
E. Triggs *	2,819 0 0

For special school and enclosing additional land, &c., Langford Road, Fulham.

R. A. Yerbury & Sons	£4,349 0 0
Leslie & Co., Limited	3,979 0 0
W. Scrivener & Co.	3,879 0 0
L. H. & R. Roberts	3,780 0 0
E. Lawrance & Sons	3,430 0 0
B. E. Nightingale	3,386 0 0
Stimpson & Co.	3,349 0 0
Edwards & Medway	3,321 0 0
Treasure & Son	3,318 0 0
O. Craske	3,209 0 0
S. Hart	3,197 0 0
Lathey Bros.	3,177 0 0
E. Triggs *	3,106 0 0

For works on site and additional land, Lyham Road school, Brixton Hill.

W. & H. Castle	£943 0 0
F. & F. H. Higgs	826 0 0
Lathey Bros.	777 0 0
Holliday & Greenwood	770 0 0
E. Triggs	750 0 0
J. Garrett & Son	711 0 0
B. E. Nightingale	648 0 0
Rice & Son	608 0 0
Maxwell Bros., Limited *	595 0 0

* Recommended for acceptance.

For adaptation of hired premises for a temporary school, Stepney Meeting boys' school, Garden Street, Stepney.

Johnson & Co.	£720 0 0
J. T. Robey	598 0 0
A. E. Symes	585 0 0
E. Jackson & Son	584 15 0
W. Shurmur	560 0 0
G. BARKER (*accepted*)	534 10 0

LONDON SCHOOL BOARD—*continued.*

For enlargement of classroom in girls' department and other works, Southampton Street school, Camberwell.

T. Freeman & Son	£785 0 0
Rice & Son	676 0 0
Frampton & Co.	589 0 0
Johnson & Co.	542 0 0
E. Triggs	488 10 0
W. & H. Castle	471 0 0
G. Kemp	470 0 0
B. E. Nightingale	455 0 0
J. Garrett & Son *	443 0 0

For small apparatus and boiler, Tooting Graveney school.

Vaughan & Brown, Limited	£323 6 0
W. G. Cannon & Sons	305 0 0
J. Grundy	276 0 0
J. & F. May	273 0 0
C. Seward & Co.	264 0 0
Dargue, Griffiths & Co., Limited	247 0 0
Wippell Bros. & Row *	227 10 0

For additional heating, Pulteney school, Berwick Street, Soho.

Wenham & Waters, Limited	£380 0 0
J. C. & J. S. Ellis, Limited	349 0 0
Teale & Somers	336 0 0
B. Harlow & Son	330 0 0
H. C. Price Lea & Co.	321 0 0
Wright Bros.	320 0 0
J. Wontner-Smith, Gray & Co.	299 16 0
J. Esson	298 0 0
Purcell & Nobbs	296 0 0
Lewis Hill *	219 10 0

For division of large room in temporary hired school for public day school in Fortess Road, Kentish Town.

T. Cruwys	£319 0 0
G. Chase & Son	278 0 0
W. Bunce	245 0 0
G. Ball	230 15 0
F. Britton	197 10 0
F. T. Chinchen	165 0 0
Marchant & Hirst	159 0 0
J. Stones *	134 0 0

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LONDON SCHOOL BOARD—*continued.*

For division of room in girls' department, &c., Byron and Bright Street school, Bromley.

A. E. Symes	£220 0 0
Wake & Dean	190 13 6
G. Barker	190 0 0
S. H. Corfield *	182 0 0

For partitions in infants' department, Teesdale Street school, Bethnal Green.

G. Barker	£252 0 0
Johnson & Co.	235 0 0
W. Irwin	230 0 0
McCormick & Sons	185 0 0
E. Jackson & Son *	163 0 0

For division of large rooms in boys and girls' departments, Bonner Street school, Bethnal Green.

J. F. Holliday	£247 0 0
Johnson & Co.	220 0 0
J. Kiddle & Son	203 0 0
E. Jackson & Son	138 11 0
McCormick & Sons *	138 0 0

For division of large room in infants' department, &c., Upper North Street, Poplar.

W. Shurmur	£135 0 0
J. Haydon	125 0 0
J. Kybett	125 0 0
G. Barker	115 0 0
Johnson & Co.	115 0 0
S. H. Corfield	93 0 0
W. Martin	90 16 0
E. Jackson & Son*	80 0 0

For outside porch, Ellerslie Road school, Shepherd's Bush.

W. R. & A. Hide	£73 5 0
F. T. Chinchen	66 15 0
W. Brown	62 0 0
H. C. Clifton*	60 0 0

For additional fume closets in laboratory, Mansford Street school, Bethnal Green.

Johnson & Co.	£75 0 0
G. S. S. Williams & Son *	56 0 0

* Recommended for acceptance.

LONDON SCHOOL BOARD—*continued.*

For division of room in girls' department, the Victoria school, Starch Green.

G. H. Sealey	£113 8 0
Lathey Bros.	102 0 0
W. R. & A. Hide	98 10 0
W. Brown	82 0 0
G. Neal *	79 0 0

For division of main room in boys' department, Vere Street school, Clare Market.

T. Cruwys	£130 0 0
W. Martin*	59 12 0

For partition in infants' department, Larkhall Lane school, Clapham.

E. P. Bulled & Co.	£70 0 0
Rice & Son	68 0 0
E. B. Tucker	65 0 0
E. Triggs	56 0 0
J. Garrett & Son *	50 0 0

For additional heating, Richard Street school, Islington.

Duffield & Co.	£140 0 0
J. & F. May	89 0 0
J. Esson	78 0 0
W. G. Cannon & Sons	71 0 0
Vaughan & Brown, Limited	66 14 6
J. Grundy	55 2 6
G. Davis *	45 10 0

For additional heating, Sandford Row school, Walworth.

J. Esson	£75 0 0
J. & F. May	67 0 0
H. C. Price Lea & Co.	59 0 0
J. Wontner-Smith, Gray & Co.	54 0 0
J. Grundy	49 0 0
G. Davis	42 18 0
Vaughan & Brown, Limited*	40 0 0

For adaptation of manual training centre for a physical laboratory, &c., Blackheath Road school, Greenwich.

S. Musgrove	£521 16 0
T. Freeman & Son	398 0 0
T. Cruwys	363 10 0
Jones & Groves	279 0 0
B. E. Nightingale *	269 0 0

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LONDON SCHOOL BOARD—*continued.*

For new system of heating apparatus, Marlborough Street school, Blackfriars.

J. Fraser & Son	£723 0 0
J. & F. May	679 0 0
E. Oldroyd & Co., Limited	635 0 0
Duffield & Co.	623 0 0
H. C. Price Lea & Co.	610 0 0
G. DAVIS (*accepted*)	586 0 0
J. Esson	485 0 0

For heating apparatus for new boys and girls' school, Monnow Road school, Bermondsey.

Teale & Somers	£535 0 0
A. Dougill & Co., Limited	447 13 2
Wenham & Waters, Limited	440 0 0
W. G. Cannon & Sons	435 0 0
Duffield & Co.	388 0 0
C. Seward & Co.	372 0 0
J. C. & J. S. ELLIS, LIMITED (*accepted*)	368 0 0

For heating apparatus, &c., Flora Gardens school, Hammersmith.

Comyn Ching & Co.	£454 16 0
G. Davis	370 0 0
Vaughan & Brown, Limited	367 11 6
Turner & Co.	356 10 0
W. G. Cannon & Sons	350 0 0
Dargue, Griffiths & Co., Limited	344 0 0
J. C. & J. S. Ellis, Limited	337 0 0
J. Defries & Sons, Limited	287 10 0
WIPPELL BROS. & ROW (*accepted*)	265 0 0

For forming roads and approaches, Shaftesbury Infirmary.

T. Bruty	£297 0 0
H. J. Carter	280 0 0
H. R. RONS (*accepted*)	254 0 0

MAIDENHEAD.

For erection of public convenience at Guildhall. Mr. PERCY JOHNS, borough surveyor.

C. Woodbridge	£139 10 0
W. C. Pearce	117 10 6
J. K. BOLTON, Maidenhead (*accepted*)	104 0 0

MAIDENHEAD—*continued.*

For making-good Ray Park Avenue. Mr. PERCY JOHNS, borough surveyor.

F. Talbot	£497 10 0
T. FREE & SON, Maidenhead (*accepted*)	490 0 0

NEWINGTON.

For construction, supply and erection of boilers, pumps, steam and water mains, water-tank, surface condenser, fuel economiser, ironwork, mechanical stokers, conveyer and elevator.

BABCOCK & WILCOX (*accepted*)	£9,348 0 0

NORDEN.

For alterations to the Bagslate Wesleyan day schools.

T. ASHWORTH & SONS, Norden (*accepted*)	£375 0 0

ROCHESTER.

For erection of a scullery and bathroom at the new almshouses, Maidstone Road. Mr. J. W. NASH, surveyor, Rochester.

H. WYLES, Chatham (*accepted*)	£90 0 0

SCOTLAND.

For erection of a block of buildings at Rothiemay. Mr. R. DUNCAN, architect, Huntly.

R. Mitchell, Huntly, mason.
J. Stewart, Rothiemay, carpenter.
A. Strachan, Keith, slater.
J. Wilson, Huntly, plumber.
J. Logie, Huntly, plasterer.
A. Robertson, Huntly, painter and glazier.

SCUNTHORPE.

For putting-down a well and borehole, and testing water and works connected therewith. Mr. A. M. COBBAN, surveyor.

Duke & Ockenden	£7,349 16 0
C. Chapman & Son	5,478 10 0
E. Timmins & Son, Limited	5,113 12 0
VIVIAN'S BORING CO., Whitehaven (*accepted*)	4,495 0 0

SOUTHWARK.

For construction of chalet at St. George's Circus.

G. Newton	£2,215 8 4
Water Carriers' Engineering Co.	1,959 0 0
Nightingale	1,775 0 0
Doulton & Co.	1,770 0 0
Finch & Co.	1,659 0 0

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H. Gledhill	£1,125 0 0
G. Foster	1,004 0 0
W. Walken	954 0 0
JACKSON BROS., Goole (*accepted*)	899 15 0

STRATFORD-UPON-AVON.

For alterations and additions at the gasworks. Mr. RODEN DIXON, borough surveyor.

J. HARRIS (*accepted*).

TRING.

For construction of pipe-sewers and patent precipitation tanks and irrigation areas. Messrs. THOMAS & TAYLOR, engineers, Westminster.

Contract No. 1.

J. Neave	£5,383 0 0
Pedrette	5,204 0 0
Osenton	4,780 0 0
Ketteringham	3,968 0 0
C. Ford	3,640 0 0
G. Bell	3,488 0 0
Manders	3,228 0 0
J. Jackson	3,175 0 0
SIDDONS & FREEMAN, Oundle (*accepted*)	2,930 0 0

Contract No. 2.

C. Ford	1,150 0 0
Siddons & Freeman	1,075 0 0
UNIVERSAL COMPANY, Derby (*accepted*)	970 0 0
J. Jackson	956 0 0
G. Bell	887 0 0

UPPER HOLLOWAY.

For alterations and additions to the Cottenham Arms public-house. Mr. A. E. PRIDMORE, architect, 2 Broad Street Buildings.

Stevens Bros.	£2,055 0 0
Lyle & Co.	1,970 0 0
Ditcham & Taylor	1,861 0 0
Marchant & Hirst	1,839 0 0
King	1,790 0 0
Thompson	1,773 0 0

WOKINGHAM.

For making a road about 90 yards in length.

T. Turner	£127 10 0
F. Talbot	123 7 6
A. Wodeson	101 10 0
S. LEWIS, Rose Street (*accepted*)	99 14 0

YORK.

For erection of electric-light station for the Corporation. Mr. A. CREER, city engineer.

PARKER & SHARP, Peasholme Green (*accepted*)	£7,170 19 5

Received too late for Classification.

EALING.

For heating St. Saviour's Church. Mr. GEO. H. FELLOWES PRYNNE, architect, 6 Queen Anne's Gate, Westminster, S.W.

Haden & Sons, hot air and hot water	£585 8 0
John Grundy, hot air and hot water	467 0 0
Jones & Attwood, hot water	466 0 0
Vaughan & Brown, hot water	414 0 0
Haden & Sons, hot air	396 10 0
Dargue, Griffiths & Co., hot water	372 0 0
Wontner-Smith, Gray & Co., hot water	364 4 0
Rosser & Russell, hot water	263 17 0
JONES & SONS, London, hot water (*accepted*)	262 10 0

LONDON.

For new receiving wards at the Strand workhouse, Silver Street, Upper Edmonton, for the Guardians of the Strand Union. Messrs. W. S. CROSS & KEKWICK, architects, 18 Outer Temple, Strand. Quantities by Mr. BERNARD SWINSTEAD.

J. Jarvis & Sons	£8,598 0 0
C. G. Hill	8,000 0 0
W. Lawrence	7,955 0 0
H. Wall & Co.	7,460 0 0
T. G. Sharpington	7,448 0 0
Merredew & Wort	6,939 0 0

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ELECTRIC NOTES.

THE purchase of the Birmingham Electric-lighting Company, sanctioned by the City Council, is already bearing fruit, as it is in contemplation to light the reference library and the council house by electricity.

THE Paisley electric lighting committee have agreed to recommend the Town Council to make application for power to borrow an additional 25,000*l.* for the purpose of extending the electric-lighting system. If this amount be borrowed, it will bring the sum raised in connection with the electric installation up to 60,000*l.*

THE Palace Theatre maintains its pre-eminently popular position among the variety theatres, thanks to the liberal policy inaugurated by Mr. Morton of excellent quality of entertainment combined with constant change. The present programme, of which the admirable "American Biograph" still forms the *pièce de résistance*, contains numerous turns of interest, prominent among which are those of Marie Dainton, with excellent mimicry after the manner made familiar by Cissy Loftus; Albert Chevalier, who has greatly amplified the histrionic rendering of his songs, the different characterisation employed in "'E can't take a roise out of Oi," "A Fallen Star" and "Our Bazaar" being very marked; Amann, the facial artist and impersonator, among whose admirable impersonations that of the able manager, Mr. Morton, is not the least excellent, and certainly not the least appreciated. Julie Mackey has a capital song anent T. E. Hooley, which is vigorously applauded, and a new one, "The Pebble on the Beach," which has also "caught on;" Saharet, the Australian dancer, is a marvel of agility; Edwin Latell, a new importation, is a very amusing musical clown; and mention must not be omitted of Herbert Campbell. When we add that the Palace is admirably ventilated, it may be inferred that an eminently comfortable as well as amusing evening can be "put in" at that establishment.

BUILDING AND BUILDERS.

THE church of St. Clement's Danes, Strand, was reopened after restoration on Wednesday afternoon.

A NEW Baptist chapel is about to be erected at Walkley, Sheffield.

THE foundation-stone of the Herts County Museum, St. Albans, was laid on Wednesday last.

THE congregation of the Hankinson Street United Methodist Free church, Pendleton, have decided to erect new premises, including a chapel and school, at a cost of 1,500*l.*

THE first stone of a monument to be erected in Dublin to the memory of Wolfe Tone and other United Irishmen who were executed in 1798 has been laid on the site of the old Newgate Prison.

AT the weekly meeting of the Salford Board of Guardians it was resolved to purchase about 20 acres of land at Weaste, near the Union Infirmary, as a site for the new workhouse, at a sum not exceeding 14,000*l.*

THE foundation-stone of a new Church institute and club attached to the parish church of St. Marylebone was laid on the 14th inst. The building is to cost about 8,000*l.* This is the fourth building of the kind in the parish.

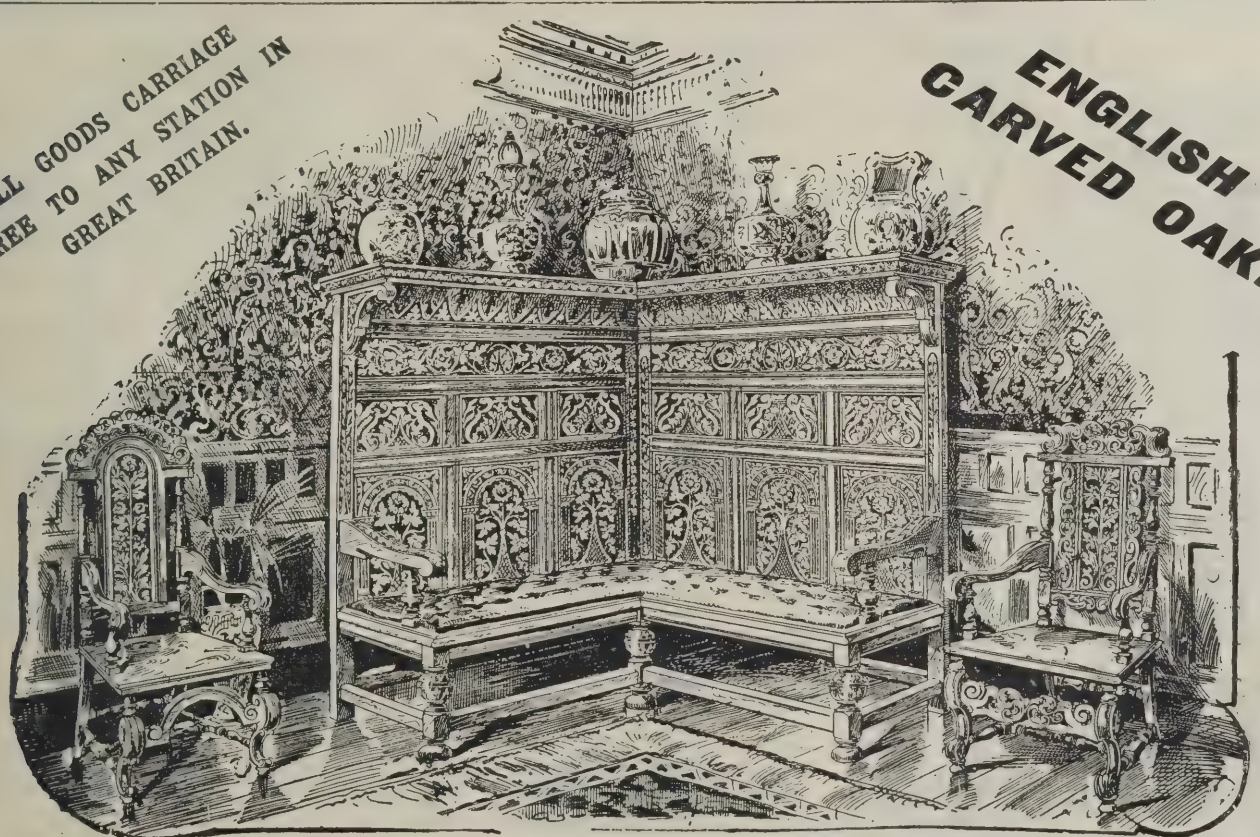
THE works of the City and South London Railway have made rapid progress lately, and the line will shortly be completed as far as its Moorgate Street station. One tunnel has, in fact, been completed, so that the company's Monument station is already in direct communication with the former.

AS some of the premises now rented by the County Council and occupied by their clerks are scheduled for Government offices, the Council are driven to find more accommodation, and it will be proposed at the next meeting that 25,000*l.* should be spent on the purchase of land and the erection of offices in Warwick Street, Pall Mall, to accommodate seventy clerks. It will be suggested that the Works Department should erect the new offices.

THE Birmingham markets and fairs committee have for some time past been contemplating the removal of the cattle market from Smithfield to Montague Street, in order to give room for the expansion of the wholesale fruit and vegetable market. The committee having consulted the cattle dealers who use the market as to the suitability of Montague Street for the purpose proposed, found that, subject to certain alterations, they were disposed to regard the suggested removal favourably,

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ENGLISH CARVED OAK.



A PAGE FROM HEWETSONS NEW ILLUSTRATED PRICED CATALOGUE.

No. 319.—The "WORTLEY" CARVED OAK ARM-CHAIR, £1 15s.

No. 320.—CARVED OAK HALL COSY CORNER, 6 ft. 6 in. high, £24 10s.

No. 321.—The "KNIGHT" CARVED OAK ARM-CHAIR, £4 5s.

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Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations.

and it was decided to recommend the Council to sanction the removal of the market.

CONTRACTS have been entered into by the Government for the erection of three powerful forts at Dover—one between Dover and St. Margaret's Bay and two near the western heights. The forts, which are for the protection of the national harbour, are to be completed, under very heavy penalties, in eighteen months, and were commenced this week. They are to be armed with some 9-inch breechloading wire guns, about 80 tons each, on barbette mountings.

THE Board of Trade have received the following communication *apropos* of the recent dispute in the building trade at Bristol :—

"Guildhall, Small Street, Bristol : July 13, 1898.

"To the Comptroller-General (Commercial, Labour and Statistical Departments), Board of Trade, 7 Whitehall Gardens, London, S.W.

"Sir,—As representing the Bristol Master Builders' Association and the Bristol Operative Federated Societies, we are requested to convey to your Department the heartiest thanks of the employers and employés for the promptitude with which you acceded to our request in the appointment of an arbitrator, and we also desire to convey our warmest thanks to you for appointing so able and impartial a gentleman as Mr. A. A. Hudson to officiate in that capacity. We can assure you that he discharged the duties to the entire satisfaction of both parties, and that his awards were received with great cordiality, and we trust that they will be the means of renewing the friendly relationship between the employers and employés.—We are, sir, your obedient servants,

"N. KRAUSS,
"JOHN CURLE,
"H. J. SPEAR, Secretary."

VARIETIES.

THE Great Eastern Railway Company are issuing a neat and serviceable little *brochure* giving particulars of the increased facilities for visiting Holland, Belgium, Germany, Switzerland, Norway, Denmark and Sweden during the present season, *viâ* the Royal Mail Harwich-Hook of Holland route and the Harwich-Antwerp route to the Continent.

THE beautiful ruin of Ardchattan Priory, on the north side of Loch Etive, Argyllshire, where Robert Bruce held a Parliament, is shortly to be offered for sale by auction in London. It was built by John MacDougal in the thirteenth century, and was burned by Colkitto during Montrose's wars.

THE erection of a monument to Mozart, Haydn and Beethoven, in Berlin, has been entrusted to the celebrated sculptor, Rudolf Siemering, who built the Washington Monument at Philadelphia.

THE Emperor William has conferred the large gold medal for excellence in art on the sculptor Herr Charles van der Stappen, of Brussels, and on Herr Schmitz, architect, of Charlottenburg.

THE first Baptist chapel in Switzerland has been opened. It is at Zurich, and is situated in one of the principal streets of the city. It has seating accommodation for 650, and contains a dwelling for the minister.

LADY HERSCHELL has laid the foundation-stone of a new mission hall in Essex Road, Islington, for the St. John's district. The freehold of the site is a gift, and the cost of erection and equipment of the hall will be about 3,700*l.*

AT a meeting of the museum and school of art committee, Birmingham, held on Monday at the Council House, plans for the branch municipal school of art in the Moseley Road, the erection of which was authorised recently by the City Council, were approved, and it was decided to send out invitations to eight selected firms to tender for the building.

THE Scunthorpe Urban District Council have appointed Messrs. Stevenson & Birstall, of London, engineers for their new gas and water works. The tender of Messrs. Vivian's Boring and Exploration Company, Whitehaven, for sinking the bore the required size and depth has been accepted, the amount being 4,495*l.*

ON the 16th inst. the chimney, 56 yards high, belonging to Grange Mill, Mytholmroyd, which was destroyed by fire, was razed to the ground, in the presence of five or six thousand persons. Mr. Joseph Smith, the well-known Lancashire steeple jack, had the work in hand. Three or four men had been engaged ten or twelve days in cutting out two-thirds of the base, and inserting stout wooden props in its place. This having been completed, a quantity of wood was piled round and saturated with paraffin oil, pitch, &c. These combustibles were set on fire by a number of gentlemen. Mr. Smith continued to feed the fire with paraffin oil for three or four minutes.

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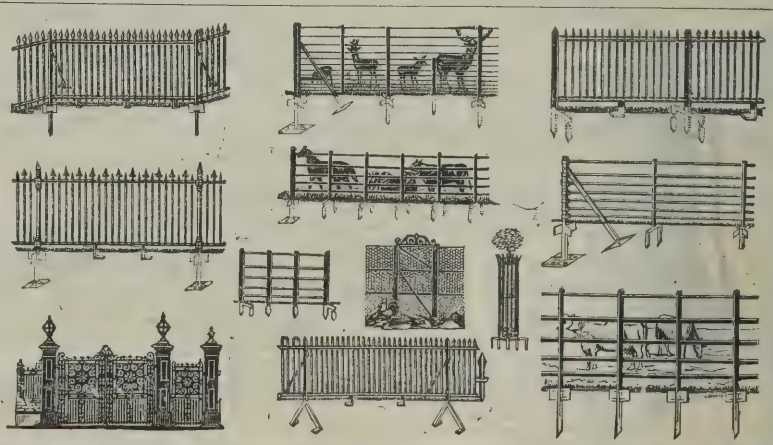
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N.B.—Please mention this publication. [1]

In eleven minutes the chimney tumbled over with a tremendous roar, falling in the exact place chosen by Mr. Smith.

FOR the convenience of holiday makers on the Continent cheap tickets will be issued to Brussels, available for eight days, *viâ* Harwich and Antwerp. A through carriage will run from Antwerp to Pepinster for Spa. Passengers leaving London in the evening reach Brussels next morning, after a comfortable night's rest on board the steamer. For visiting The Hague, Amsterdam and other parts of Holland, the Rhine, North and South Germany and Bale for Switzerland, special facilities are offered *viâ* the Great Eastern Railway Company's Royal Mail Harwich-Hook of Holland route, through carriages being run to Amsterdam and Berlin, and through carriages with restaurant cars also run to Cologne and Bale. The General Steam Navigation Company's fast passenger steamers will leave Harwich on July 27 and 30 for Hamburg, returning July 31 and August 3.

TO those who wish for a pleasant day's outing at a most reasonable outlay the trips by the General Steam Navigation Company's steamers are worth attention. Possibly the best run is by their steamers to Scotland. In the vessels of the company on the Edinburgh route the accommodation allotted to each passenger is unusually spacious and very comfortable. The cuisine is excellent and the charges moderate—comfort rather than an excessive rate of speed being the desideratum the company offers to passengers. The vessels arrive at convenient hours, and at Granton there are frequent trains to Edinburgh, which is a convenient centre from which to start for the Highlands, the Clyde, the Western Islands and all parts of Scotland; but for those who require a shorter trip we can recommend the run to Margate or Ostend, for which tickets are issued at a very low rate.

TRADE NOTES.

IN consequence of Messrs. Goddard, Massey & Warner, Nottingham, declining to proceed with their contract to supply the laundry machinery required at Ruchill Hospital, Glasgow, in terms of the specification, the next lowest offer, that of Messrs. D. & J. Tullis, Kilbowie, amounting to 3,696*l*., has been accepted, and the Nottingham firm have been notified that the Corporation hold them liable for 807*l*., the difference between the amount of their contract and the one which has now been accepted.

THE New Beaumont Park schools, Acton Green, are being warmed and ventilated by means of Shorland's patent Manchester grates.

FOR the new Carlton Hotel, which Messrs. Warings are decorating, Danville asbestic plaster will be used throughout, both for the plain and decorative work.

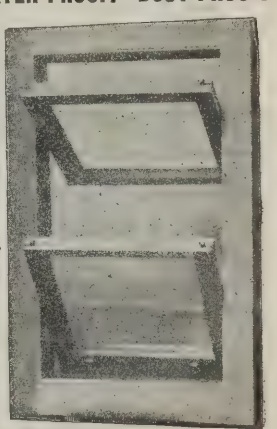
FOR many years architects and builders have wished that invention had enabled stone to be cut with the same uniformity, economy and expedition which is possible with timber. An attempt was made in the case of marble for mosaics, in which hand labour was almost impossible, but the machines were not adapted for general utility. The long-desired revolution has been accomplished by the Diamond Stone Working Company, Limited. Their machinery is now being recognised as the power which was needed. There is such an opening for it that large capital can be profitably employed in the enterprise. No one can be surprised that the contracts offered and accepted are sufficient to pay a dividend of 6 per cent. for three years on the Preference shares, and there appears to be no exaggeration in the assumption that Ordinary shares will secure a dividend of 20 per cent. It is rarely a business is announced which has such a field prepared for immediate operations, and one, too, from which large profits cannot fail to be realised.

ARTESIAN WELLS.

THE province of Artois, in the north of France, is credited with having given birth to the system of well-boring which bears the name of "artesian." This, however, is scarcely true, for in both the eastern and western hemispheres there are evidences of artesian wells having been sunk at a very early stage of the world's history. They were, of course, known to the Chinese, for among the discoveries which have yet to be made is the modern invention which was not known to that remarkable people.

There is no doubt, however, that in more modern times greater attention was paid to the discovery of subterranean springs in the province of Artois than in any other part of

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Europe. Hence the modern title "artesian" wells should seem to be not inappropriate. Indeed, they are very common on the Continent, and in France especially, where that which was long thought to be the largest in existence was bored some fifty years ago. This well is at Grenelle, near Paris, and has a depth of some 1,800 feet, and a diameter of 20 inches at its opening.

What the engineers of this well would have said to that which was recently bored by Mr. John Thom, of the Canal Works, Patricroft, Manchester, can only be surmised. This well has a diameter at the orifice of 7 feet, and is one of the largest—if not the largest—in the United Kingdom. This, however, is but one of the many large and important well-borings which Mr. Thom has carried out. For mining, manufacturing, brewing, dyeing, and indeed every other purpose for which water on a large scale is required, wells have been satisfactorily sunk by Mr. Thom, and this not only in every part of the United Kingdom, but in distant parts of the world. In the mines of Spain, as well as in those more recently developed in South Africa, on the rock of Gibraltar, and even as far off as Australasia—in these and other parts are Mr. Thom and his wells known.

Nor is this surprising, for not only is an artesian well the cheapest and best means of obtaining a large supply of water, but Mr. Thom has made well-boring his special study, and the invention and manufacture of the necessary tools and appliances his special business, and therefore those of our readers who may have occasion to advise or adopt an artesian well could not do better than place themselves in communication with him.

RAILWAY EXTENSION TO THE NORTH CORNWALL COAST.

IN the course of a few days the system of the London and South-Western Railway will be extended to Bude, on the romantic and picturesque coast of North Cornwall. The new line is a continuation of the branch railway from Okehampton to Holsworthy, the distance from Holsworthy to Bude being 10 miles 3 furlongs. Immediately after leaving Holsworthy the line crosses the Deer Valley, over which it is carried by a lofty viaduct of nine arches, each of 50 feet span, the height from the permanent way to the valley being 89 feet. There being no suitable building material in the district, it was decided to construct the viaduct wholly of concrete, and this has been done with conspicuous success, the result being a handsome structure which is the first of the kind in the country.

The piers and arches were built with blocks of concrete, and the foundations and abutments of concrete in mass, the whole of the material being made with broken stone found in the neighbourhood, mixed with inland sand brought from Plymouth and Bideford. At Woolston there is a second viaduct of similar design, but this is not more than 60 feet high, and the two represent a successful application of concrete which has never before been adopted.

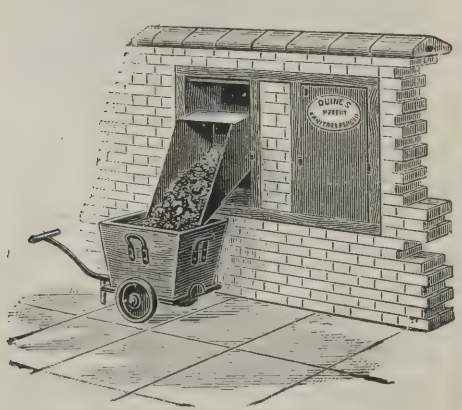
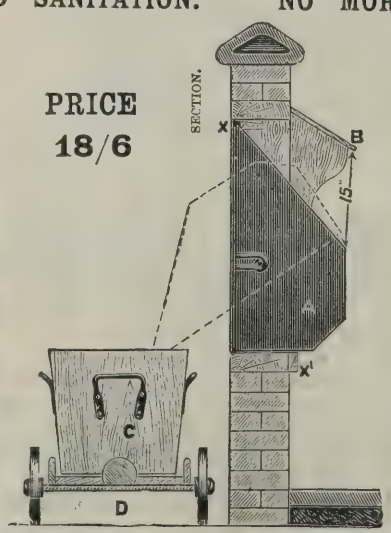
There is only one intermediate station, and this is placed at Whitstone, about midway between Holsworthy and Bude. An excellent position has been chosen for the site of the terminus in Bude, namely, quite close to the junction of the Bude and Stratton main roads, half a mile from the centre of the former town. The station is a handsome structure of red brick, relieved by white quoins. Here, as also at Holsworthy and Whitstone, ample platform accommodation has been provided, and in addition to cloak and retiring-rooms there is to be at Bude an excellent refreshment buffet.

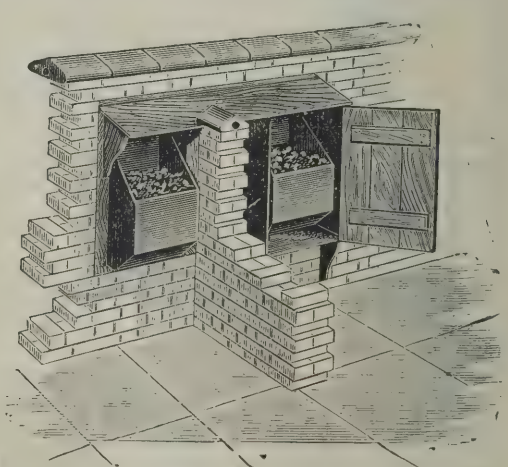
A branch line for the purposes of goods traffic has been laid to the basin of the Bude canal, and another branch may eventually be carried to Marhamchurch, within easy reach of the magnificent Widemouth Bay, which would convert it into a fashionable bathing-place, the stretch of sand on the shore being one of the finest in North Cornwall.

The railway from Holsworthy to Bude consists in the first instance of a single pair of rails, but land has been taken and viaducts have been constructed so as to permit of the introduction of a second set of metals, and the directors of the South-Western Company are prepared to double the line whenever the local requirements may necessitate larger provision for the traffic. The ruling gradient is 1 in 73, which for North Cornwall is comparatively good, and all the curves permit of fast running. Tyer's Tablet System will be used in working while the line remains single, and as the heaviest type of the South-Western permanent way has been employed in construction, high speeds can be maintained with perfect confidence.

Messrs. John Aird & Son are the contractors, and their work has been completed within eighteen months, thanks in a very large degree to the active and constant exertions of Mr. W. Granger, the local representative of the firm. The line was

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BERLIN PAVEMENTS.

IT appears from some statistics furnished by the United States Consul at Berlin respecting the carriage pavements of that city, that wood pavement does not find much favour there. The area of pavements is 6,500,405 square yards, and of this area a little less than 74 per cent. has stone pavements, about 25 per cent. asphalte, and a fraction over 1 per cent. wood. The Consul states that the proportion of asphalte is steadily increasing. The soil consists of coarse gritty sand, forming apparently an excellent foundation for the heavy 8-inch layer of gravel and cement, over which the 2-inch covering of asphalte is spread.

AUSTRALIAN FACTORY LEGISLATION.

IN New South Wales all industrial establishments in which steam or other mechanical power is not used, and employing four persons or upwards, also every room or workshop where two or more Chinese are employed, situated within the Sydney and surrounding district, embracing an area of 500 square miles, have been brought under the operation of a Factory and Workshops Act, passed in 1896, with a view to regulating the hours of employment for women and children and enforcing sanitary conditions where required. Three inspectors, two male and one female, are employed, and the report of the first year's operations is instructive and interesting. At the close of 1897 the number of registered industrial establishments within the area mentioned was 1,673; but there are many which have yet to be registered. In a large number of these the prevailing cleanliness and completeness are not to be excelled in older countries; in others the conditions are such as to necessitate a strict enforcement of the law. The Act requires all machinery to be fenced where dangerous, but the readiness with which employers regarded the necessity for something of the kind has prevented any friction. In every instance the factory inspectors were content to pass guards that substantially effected their object, although they might be somewhat rough in appearance. It was felt that employers ought not to be put to a larger outlay than was absolutely necessary to effectually secure their hands from the risk of accident. The utility of the guard was more thought of than its appearance. Despite this fact, many occupiers have gone to considerable expense in fitting neat and well-furnished guards to their machinery. In some places dining-rooms for the use of the employed have been provided; but in others, in view of the possible heavy cost to employers, their establishment is not being pressed at present.

FIREPROOF CONSTRUCTION IN AMERICA.*

THE closing years of the nineteenth century will, no doubt, be memorable in history for the rapid and remarkable developments in building construction. The empirical and wasteful methods of the past have been entirely revolutionised, and economy—in space, in time and in material—is the dominating feature of every design.

The modern high building with its steel skeleton frame is essentially the creation of the civil engineer. It was made feasible by the practical solution of many difficult and intricate problems, among which is that of fire-resisting or so-called "fireproof" construction.

The inefficiency of the ordinary fire-extinguishing apparatus at heights exceeding 125 feet made it necessary to employ incombustible materials in high buildings. These materials are used for the walls, floors and partitions in such a manner and in such quantities as to confine a fire from any cause to the apartment in which it originates, and thus prevent the destruction of the entire building. Owing to the fact that the strength of iron and steel is greatly diminished by heat, the problem of fireproofing a building is further complicated by the necessity of suitably protecting the structural ironwork.

Until recent years fireproofing methods were based solely upon theory and were largely in the experimental stage. Numerous elaborate tests made during the last three years on a scale sufficiently large to represent practical conditions were witnessed by the writer, and other similar tests were also made under his supervision. These have proved very instructive and have thrown considerable light upon a subject concerning which there has been hitherto an utter lack of precise know-

* By A. L. A. Himmelwright. Published in the *Polytechnic*.

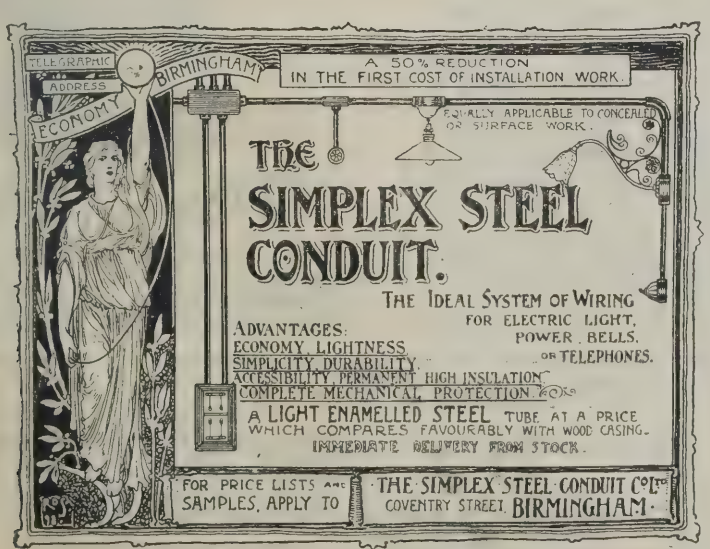
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ledge. The general facts and conclusions, as recited in this paper, represent some of the results of the writer's personal research and observation.

In the highest class of fireproof buildings all woodwork and other combustible material is carefully excluded. The interior finish in such buildings is wrought in stone, cement, plaster, metal or glass. In many buildings, however, the question of cost frequently precludes the use of the best or strictly non-combustible material, and until an equally low-priced substitute can be found more or less wood will be used for the interior finish. Although the use of wood or other combustible material is very undesirable in a fireproof building, it has been proved many times by actual conflagrations that it is entirely possible to employ fireproof materials in such a manner that the combustible finish and contents of an apartment may be consumed without causing other damage.

Fireproof buildings in which no steel or iron enters into the construction are so massive as to be monumental in character and too rare to receive further consideration. The exterior walls of steel skeleton fireproof buildings are usually constructed of brick or stone, but the floors and partitions, on account of special conditions, are built of a greater variety of materials. What follows will therefore relate more particularly to the fireproof floor construction between the steel beams and the protection of the steel skeleton frame.

Practical and efficient fireproof construction depends primarily upon, first, suitable materials; and second, correct methods or systems of employing such materials.

In order that a material may be fireproof in the broad sense in which the term is now used, it is not only necessary that it shall successfully withstand the highest temperatures that are obtained in actual conflagrations (2,000 deg to 2,300 deg. Fahr.), but it must also retain its strength and resist disintegration when suddenly cooled by a stream from a regulation fire-engine. In addition to these requirements, it is desirable that the material should be inexpensive, light, a good non-conductor of heat, and that it shall not discolour plaster.

No material has yet been discovered that fulfils all these requirements perfectly. Some of the materials in use at the present time, however, meet the requirements to such a degree as to make them practicable for fireproofing purposes. A few of these will be enumerated in the order of their merit, omitting such materials as are made by patented or secret processes.

First, Cinder Concrete.—In the elaborate series of fire and water tests conducted by the New York City Building and Fire Departments in 1896 and 1897 "cinder" concrete developed the highest fire and water-resisting efficiency of the various materials tested. The concrete consisted of one part of high-grade Portland cement to two parts of sand and five parts of cinder (the residue of anthracite coal consumed in boilers). Cinder concrete is, however, quite heavy, weighing 75 to 90 lbs. per cubic foot, depending upon manipulation, &c., and ranks below the plaster of Paris compositions as a non-conductor of heat.

Second, Burnt Clay Products.—These have been used for fireproofing purposes for many years. They consist of ordinary brick and hollow brick made of hard burnt clay, porous terra-cotta, terra-cotta lumber, &c. None of these materials as offered in the market are capable of withstanding as high temperatures as cinder concrete. Ordinary brick are exceedingly heavy, weighing 130 lbs. per cubic foot; the hollow bricks are lighter, but when highly heated and suddenly cooled by a fire stream, the under surfaces are disintegrated, exposing the cellular surfaces.

Third, Plaster of Paris Compositions.—Plaster of Paris is a well-known non-conductor of heat. When wood shavings are incorporated in it the composition is very light, weighing about 42 lbs. per cubic foot. Broken brick, cinder, &c., is sometimes used instead of wood shavings, but the resulting concretes are much heavier. All plaster of Paris compositions absorb moisture rapidly and dry slowly. They soften under the fire stream and are rapidly disintegrated by it.

Fourth, Stone Concrete.—Ordinary stone concrete is even heavier than common brick, and weighs about 140 lbs. per cubic foot. With sandstone aggregates it is capable of withstanding as high temperatures as the burnt-clay products, but if highly heated and suddenly cooled with a fire stream the material disintegrates on the surfaces so cooled, the disintegration continuing until a certain lower temperature is reached, which temperature varies with the character of the concrete.

Fireproof floors between the steel beams may be divided into three general classes:—1. Monolithic constructions. 2. Constructions consisting of assembled parts. 3. Constructions with light metal constituents.

First, Monolith Constructions.—These are erected in the form of segmental arches or flat slabs, between or over the steel floor-beams. The material is generally placed in position while in a plastic state on temporary wood or permanent metal centring, and allowed to "set" or harden. In the monolithic

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constructions the thrust is largely eliminated, and there is no liability of settling or displacement of parts.

Second, Constructions Consisting of Assembled Parts.—These are usually built in the form of segmental or flat arches. On account of the thrust which is always present in constructions of this character, the beams should be well tied together at intervals not exceeding eight times their depth. Great care should also be exercised in erecting the arches so as to make perfect joints and give the material full bearing over the entire surface of the joints. Special precautions should be taken in the case of "end construction" hollow tile, in which the cellular spaces and webs run in a transverse direction to the beams. The blocks should be accurately set so that adjacent ribs or webs come opposite each other and form a continuous rib or web from beam to beam, or skew-back to skew-back. With imperfect joints arches of this class will settle, causing cracks in mosaic or other expensive floor finish, and in the plastered ceilings if the plaster is applied directly to the under side of the arch. Wood centring is generally necessary to support the work until the mortar sets. As the thrust increases very rapidly with the span, the rise remaining the same, wide spacing of beams should be avoided. In arches adjacent to exterior walls, the tie rods should be carefully protected so as to prevent thrust against the walls in case of fire.

(*To be concluded.*)

PROPOSED WIDENING OF HOLBORN.

A PROPOSAL will shortly be made to the London County Council by its improvements committee for the widening of the portion of High Holborn between Southampton Row and Southampton Street. High Holborn at the spot in question is at present 55 feet wide, and it is proposed to increase this to 70 feet. The buildings fronting the portion of the street to be widened are now in course of demolition, and the freeholder and lessee have expressed their willingness to treat with the Council for the acquisition of the necessary land. The officers of the Council estimate the net cost of the improvement, including the necessary paving and other works, at 56,000*l.* The committee think the present opportunity for carrying out the work is a very favourable one, and that the improvement is desirable as a complement to the widening of Southampton Row now being undertaken by the Council. They point out that High Holborn, like the Strand, is and must continue to be one of the greatest east and west thoroughfares in London. The traffic at Southampton Row is frequently blocked, and they think the Council should readily avail itself of the opportunity of increasing the width of the road at such comparatively small cost. If this opportunity is not seized they state that new buildings will at once be erected, and the cost of carrying out the work in the future will be prohibitive.

ADVERTISEMENT HOARDINGS.

AT the meeting of the Metropolitan Asylums Board on Saturday, the 16th inst., the general purposes committee brought up a report containing a proposal to the effect that in future the letting of hoardings for advertisement purposes should be determined by the board. Mr. W. M. Acworth said he considered it a scandal that a body like the Metropolitan Asylums Board should, for the sake of a few hundreds of pounds, disfigure the Thames Embankment, on which the chief offices of the board were being erected, with abominable advertisements. If they walked down Whitehall, he said, they would find a large hoarding around some buildings which were being removed, but the Government had refused to allow the hoarding to be run up 20 feet or 30 feet simply in order that the space might be disfigured by huge advertisements. How, he asked, would the House of Commons look if when any portion of it was being repaired the hoarding was covered with advertisements of somebody's soap and whisky? He believed that many individual members of the board would rather pay an extra halfpenny on the rates than be a party to the disfigurement of a place like the Embankment. He moved as an amendment that, in the opinion of the board, hoardings around buildings should not be let for advertisement purposes. The amendment having been seconded, Mr. A. C. Scovell remarked that it seemed quite uncalled for. He was aware that there were a few people in London who were so æsthetic that they could not bear to look upon posters. It was quite possible that the day might come when advertisement posters would be suppressed by law, but for his part he thought the advertisement posters of the present day did a great deal more good than harm, as they gave instruction and amusement to a vast number of people whose means of instruction and amusement were very limited indeed. Mr. Scovell said he protested against the board posing before the public as a crusader against advertise-

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ment posters in the Metropolis. The amendment on being voted upon was lost by a large majority. The recommendation of the committee was then adopted.

THE SANITARY INSTITUTE.

THE following questions were proposed to the candidates for the certificate of the Sanitary Institute at the examination in Cardiff on July 8 and 9 :—

Define motion, velocity, force, matter and pressure.

What is the action of waters of varying compositions on lead pipes? What is the best method of dealing with the distribution of water known to take up lead? What quantity of lead in water is considered objectionable? and how would you ascertain its presence?

Define the expression "degrees of hardness" as applied to potable waters. How would you estimate the hardness of water?

What considerations would govern your selection of a site for an impounding reservoir in a mountainous district? How would you proceed to ascertain the quantity of water available for supply?

What are the constituents of Portland cement, and from what does it derive its hydraulicity? What is the setting of the cement due to? How would you proceed to test a sample of cement?

Under what conditions is carbon-monoxide gas sometimes found in the air of inhabited places? What is known about the physiological effects of this gas on human beings?

What process would you recommend for dealing with the sewage from an ordinary town previous to its discharge into a brook, the flow of which is twenty times that of the dry weather flow of the sewage?

Give the substance of the London County Council Bye-Laws in reference to the construction of new water-closets. How far do the same by-laws apply to the alteration of existing water-closets?

What head of water is sufficient for testing stoneware socket-jointed pipes, and what time should elapse between making the joint (Portland cement) and applying the test?

Give detailed directions for disinfecting the surfaces of a room with an area of 2,500 cubic feet by means of—(*a*) A liquid disinfectant ; (*b*) a gaseous disinfectant.

Describe the method you would use and the instruments you would employ if asked to make a complete and detailed report upon an ordinary house as to—(*a*) The ventilation ; (*b*) the drainage ; (*c*) the sanitary appliances ; (*d*) the general sanitary condition.

State the relative advantages and disadvantages of a combined and separate system of dealing with the sewage and rainfall of an urban district.

What statutory provisions relating to an adequate pure supply of water to premises are in force—(*a*) Under the Public Health Act, 1875? (*b*) Under the Public Health (London) Act, 1891?

SOCIETY OF ENGINEERS.

A PARTY of the members of the Society of Engineers on Wednesday, July 13, visited the L. B. and S. C. Ry. locomotive works at Brighton, the Brighton Marine Palace and Pier Works, Volk's Electric Railway, the Brighton and Rottingdean Seashore Electric Tramroad. Among those present were Mr. W. Worby Beaumont, president ; Mr. A. T. Walmisley, past president ; Messrs. J. C. Fell and Charles Mason, vice-presidents ; Messrs. George Burt, D. B. Butler, Percy Griffith and R. St. George Moore, members of Council ; F. W. Barclay, S. O. Cowper-Coles, T. F. Craddock, John Jones, N. Harker, Fred. Hovenden, E. Hulburd, R. J. G. Read, J. Waddington, W. G. Wales and Weatherburn, and Mr. G. A. Pryce Cuxson, secretary.

The visitors to the railway works, after arriving at the passenger station, passed along the east or "Kemp Town" platform to the entrance to the works, which is close to the north end of the platform. They then inspected the iron foundry, saw mills, carriage fitting and wheel shops, smith's shop, turnery and brass foundry, returning through the erecting shop, boiler shop and carriage building shop. Crossing the line to the west side, they passed through the waggon building and repairing shop to the trimming and paint shops, after which they returned viâ the running shed to the west or "Portsmouth departure" platform.

About 2,000 men are employed in these works, mainly for repairing and renewing rolling stock, which now consists of 461 engines, 2,970 carriages and 8,693 waggons. New stock is built here at the rate of about twenty engines, 100 carriages and upwards of 400 waggons per annum. Repairs to the machinery of the company's steamboats are also effected here, as well

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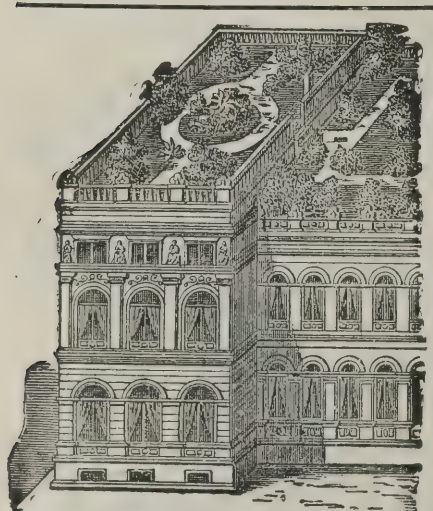
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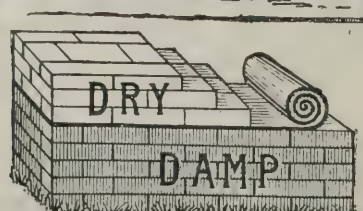
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as at the special workshop at Newhaven; also repairs to the hydraulic machinery in connection with the various goods depôts, together with work in connection with the numerous water supplies and pumping stations for supplying the line with water. Since the appointment of Mr. R. J. Billinton there has been an installation of hydraulic machinery in the boiler shop, which latter has also been enlarged, and the roof raised for receiving the 12-ton overhead travelling cranes driven by rope. The erecting shop has also been enlarged, and the overhead cranes, instead of being driven by shafting, have been altered and driven by rope, this work being carried out by Messrs. Craven Bros., Manchester.

Since the last visit of the Society of Engineers several new tools have been placed in the works for decreasing the cost of manufacture, and all of them have proved most efficient. The electric light has also been added to the station; this installation is worked from the shops, and the railway company is now about to lay down hydraulic machinery and cranes for working the enlarged goods yard. A large portion of the carriage stock is now lighted with compressed oil gas, and works have been erected for making and compressing this oil gas near the north end of the erecting shop.

The next visit was to the new pier, which is being constructed by Mr. John Howard, Westminster, from the designs and under the superintendence of Mr. R. St. George Moore, M.I.C.E., of Westminster. This pier is practically opposite the entrance to the Aquarium and about 150 yards west of the site of the Chain Pier, whose successor it really is, as the company had purchased the old Chain Pier and entered into an agreement to pull it down on the completion of the new pier. It will, when completed, be 1,750 feet, or practically one-third of a mile long—and 45 feet wide at the narrowest point. There will be sufficient water at the landing-stage to enable Channel steamers to come alongside at all states of the tide. It is also proposed to erect on the pier a handsome pavilion containing a concert-hall, dining and refreshment-rooms, shelter-seats and retiring-rooms. The steam machinery for screwing the piles is also worthy of note, being capable of screwing a 12-inch pile with a 2 feet 6-inch screw-blade 10 feet into the ground in an hour and a half. Mr. W. Collins, the foreman in charge of the work, has succeeded with this machinery in erecting 60 feet of the pier in seven days.

Volk's Electric Railway was also inspected. This railway is well known as the pioneer electric railway in the United Kingdom, having been opened before the Giant's Causeway Electric Railway. The line is three-quarters of a mile long, is worked on the third rail system, and has carried more than the whole population of the county of London.

The Brighton and Rottingdean seashore electric tramroad is one of the latest and most peculiar applications of electric traction. The line is situated on the foreshore entirely between high and low water, and extends from the Paston Place groyne, within the borough of Brighton, to Rottingdean—a distance of 2 miles 7 furlongs. At high-water of spring tides, at the deepest portion of the line, the rail-level is 15 feet below water-level.

The permanent way consists of four lines of 52 lbs. steel flange rails laid in pairs to a gauge of 2 feet 8½ inches, and to a total gauge between the outer rails of 18 feet. The sleepers of ordinary railway practice are substituted by concrete blocks and large cast-iron chairs, according to the nature of the ground. The car is carried on sixteen 33-inch wheels in four bogeys, two of which occupy each a line of road, and are held in position by a strong steel framing. On each bogey stands a main steel tube column, from which spring the arched girders supporting the deck, which is 25 feet above rail level, and is 46 feet long by 22 feet wide. There is a deck-house 25 feet long and 12 feet wide; when fully loaded it weighs about 50 tons. Mr. Magnus Volk, M.I.E.E., of Brighton, and Mr. R. St. George Moore, M.I.C.E., of Westminster, were jointly responsible for these works.

GEORGE WOOLISCROFT & SON, LIMITED, v. KIRK & RANDALL.

THIS motion was heard before Mr. Henning, Q.C., one of the official referees, from June 26 to July 2. It was an action brought by George Wooliscroft & Son, Limited, tile manufacturers, of Hanley, Staffs, against Messrs. Kirk & Randall, builders and contractors, of Woolwich, to recover the sum of 332*l.* 14*s.* 3*d.*, the balance alleged to be due to them in connection with the tiling of the Cleveland Road Board schools Ilford, as sub-contractors of the defendants, who were the building contractors. On the matter coming before the Master in Chambers, he gave leave to the plaintiffs to sign judgment against the defendants for the amount claimed, but stayed execution until the trial of a counterclaim set up by the defendants against the plaintiffs for a greater amount than that claimed by the plaintiffs; and it was this

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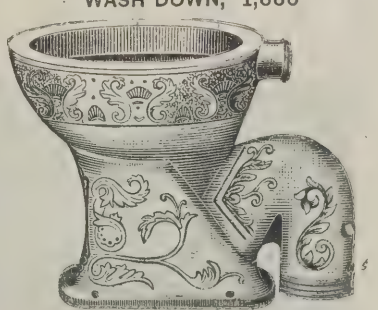
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"WASH-OUT," 234.



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"WASH-DOWN," 1,666



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CLOSETS, TRAPS, URINALS, LAVATORIES, SINKS AND OTHER SANITARY FITTINGS.

PRICE LISTS and FULL PARTICULARS on APPLICATION

counterclaim which has lately engaged the attention of the official referee. The contention of the defendants was to the effect that the plaintiffs had been dilatory and negligent in the execution and completion of their tiling, and so had caused damage and loss to the defendants by putting them in arrear and behindhand with their own work, and therefore preventing them from completing the job as expeditiously as they might otherwise have done, and they therefore claimed the sum of 417*l.* 7*s.* 1*d.*, of which 339*l.* 1*s.* 7*d.* was for damages, from the plaintiffs. The balance of 78*l.* 5*s.* 6*d.* was claimed by the defendants as a discount, which they contended they were entitled to deduct from the plaintiffs' claim; but the official referee held there was no agreement to allow it, although the plaintiffs had offered to do so if the account had been amicably settled. On the question of damages, the plaintiffs' counsel stated their case was that, by the terms of the contract the plaintiffs were only bound to complete their work within three weeks of the completion of the "floating" of each floor of the building, and which he submitted the plaintiffs had duly complied with. The plaintiffs also alleged delay on the part of the defendants and their sub-contractors in their work, which would have prevented the building being completed any earlier than it was even if the plaintiffs had finished the tiling earlier; and they also alleged that in the course of the building the size and shape of the tiles had been altered, but this the defendants denied. Evidence in support of the defendants' case was given by Mr. Randall, Mr. C. J. Dawson (the architect for the building), Mr. Henshaw and Mr. May, and at the conclusion of their evidence the plaintiffs' counsel submitted to the learned referee that no case was made out by the defendants. In reply to the official referee the plaintiffs' counsel said that, in order to save further costs by prolonging the inquiry and calling witnesses, he would be willing, without admitting liability, to give the defendants 32*l.* on their counterclaim, upon the basis that it was agreed by the defendants that the question of costs was left to the discretion of the official referee. This offer the defendants' counsel accepted, and accordingly judgment by consent was given for the defendants on the counterclaim. On the question of costs, the official referee said he should not order the plaintiffs to pay any costs of the counterclaim, as he thought the counterclaim preposterous. It ought never to have been set up, and it could not hold water. The plaintiffs' counsel, however, asked further that the defendants should be ordered to pay the plaintiffs' costs of the reference, contending that the counterclaim should never have been set up, and he called attention to the fact that before the counterclaim was delivered, the plaintiffs' solicitor had, in order to avoid the cost of the reference, offered to reduce the amount of the plaintiffs' judgment by a greater sum than the 32*l.* 10*s.* 8*d.*, which the defendants had then accepted, they would have had to pay the plaintiffs a lesser sum than was now recoverable by the plaintiffs. This application was resisted by the defendants' counsel. Ultimately the official referee decided the question of costs in favour of plaintiffs, and ordered the defendants Kirk & Randall to pay the plaintiffs, George Wooliscroft & Son, Limited, the costs of the reference and all the costs of the counterclaim.

Mr. Frank Gover, instructed by Mr. W. Saunders Fiske, of 10 Norfolk Street, Strand, W.C., appeared for the plaintiffs, and Mr. Hudson, instructed by Messrs. Mackrell & Co., of 21 Cannon Street, E.C., appeared for the defendants.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

14657. William Oates, for "Improvements in and appertaining to waste water-closets."

14880. James Scott, for "Improvements relating to ventilating, disinfecting, heating and cooling structures."

15103. John Hollis and Thomas Hollis, for "Improvements in wood-block flooring."

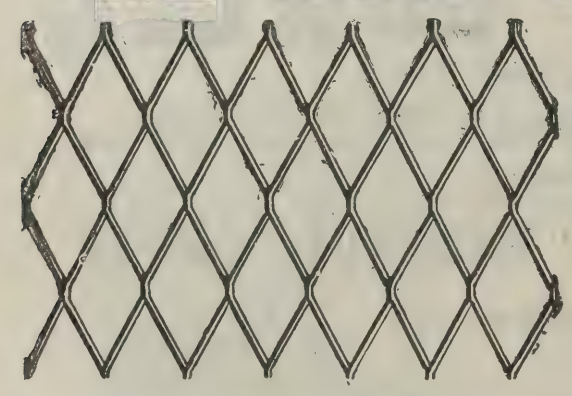
16027. Grayson, for "Bricks."

25734. Clark, for "Apparatus for moulding or forming bricks, tiles, earthenware pipes or the like."

4273. Sheppard, for "Smoke-preventer, being method of curing smoky chimneys."

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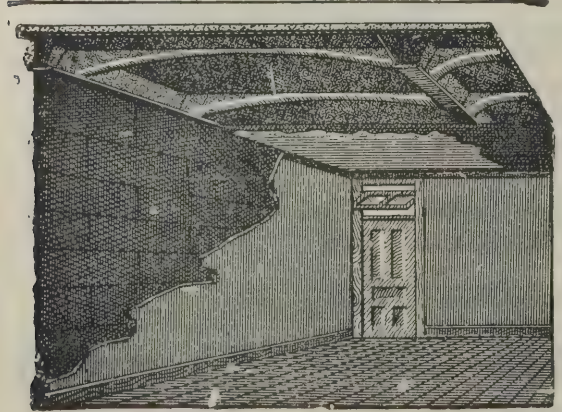
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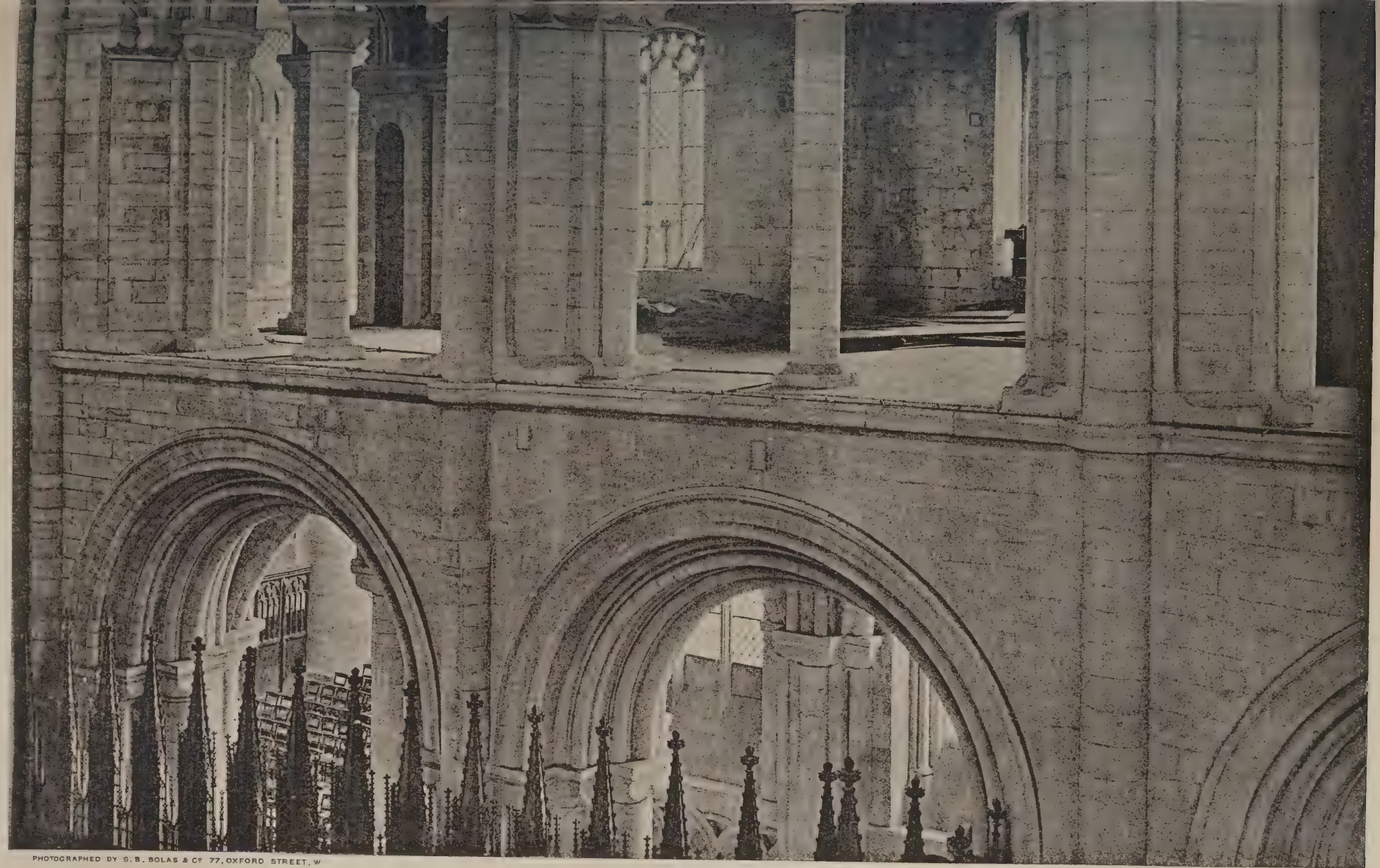
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CATHEDRAL SERIES, No. 150.—PETERBOROUGH: TRIFORIUM.



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Messrs. G. & L. OWER, F.R.I.B.A., Architects.



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INGLIS MEMORIAL HALL, EDZELL, N.B.: DETAIL OF PORCH.

Messrs. G. & L. OWER, F.R.I.B.A., Architects.

The Architect.

THE WEEK.

THE following strange story about the procedure adopted to discover an architect who would be qualified to design the proposed Government Offices is printed in the last *Journal* of the Royal Institute of British Architects :—"The selection of Mr. J. M. BRYDON [*F*] and Mr. WILLIAM YOUNG [*F.*] as the architects to be entrusted with the preparation of plans and drawings for the new Government Offices has relieved the Council of the duty of silence as to the relations between Her Majesty's Government and themselves. It has been considered desirable that a short account of these relations should be published for the information of members. In January a letter was received from the Secretary of Her Majesty's Office of Works requesting the Council of the Institute to suggest a 'limited list of architects of taste, skill and efficiency in Classical design' who could carry out the works in question. The Council were also requested, while submitting the list of architects, to furnish the Government with a list of the principal buildings erected by each, together with photographs and illustrations. At the same time the President received a semi-official communication requesting that the Council would regard all proceedings as strictly confidential. At the next meeting of the Council a committee, consisting of the President, a vice-president, Mr. JAMES BROOKS, Mr. ASTON WEBB and Mr. CAMPBELL DOUGLAS, was appointed to draw up and submit to the Council a list of names from which final selection could be made. Meanwhile, a guardedly expressed letter was addressed to each of the allied societies requesting each to nominate two Classic architects in their district, and forward to the Council photographs of their works. At the first meeting of the committee a selection was made among the provincial architects so nominated, and a list of London architects was drawn up, who were to be invited to send in photographs of one or two of their works executed in the Classic style. With a few notable exceptions the London architects responded to the invitation. A second meeting of the committee was held, the photographs were inspected, and out of the twenty-two names before them twelve were chosen by ballot to recommend to the Council. At a meeting of Council held on March 7, two names were added to the committee's list, and a ballot was taken for the selection of eight names. These were submitted, in alphabetical order, to the Government. A day or two later it was notified to the President that the Government would be glad to have one or two extra names, and that the matter was urgent. Accordingly the three names next on the voting list, which were bracketed together as having obtained one less vote than the last of the eight, were sent in. In each case the photographs submitted to the Council were forwarded to the Government."

BUILDING is a sure gauge of public security, and when we find in Johannesburg an extraordinary decline in the number of new works, it is evident there can be little confidence in the Government. In 1894 there were 967 new buildings, in 1895 the number was 1,978, the following year the number was 1,964, but in 1897 there were only 784 new buildings The alterations and additions have followed a similar rate of decline, the numbers being for the same period 269, 560, 527 and 274. The information is derived from the report of the town engineer, Mr. CHARLES ABURROW. What appears to be no less ominous is the indifference of the authorities as well as the inhabitants to the law. Draft regulations were drawn up and submitted respecting fire walls, theatres, balconies, staircases, &c., but although urgently required, the Government will not take the trouble to pass them. During the year 1897 there were no less than 997 notices sent out of contravention of building bylaws. In several instances buildings were erected in public thoroughfares. During the year 1897 about 5¼ miles of gas mains and branches were laid, the total length of mains being about 25 miles. The average price of gas was 18*s.* 8¾*d.* per 1,000 cubic feet. The total length of streets containing electric mains is about 25½ miles, representing 87 miles of wire. There are approximately 21,000 lamps connected to the mains. The price per unit was a fraction under 1*s.* 5*d.* Owing to the large number of indigent people who were unable to obtain employment, the engineer was instructed to engage white men instead of coolies for stone-breaking at the same rate of pay, but after a few days' trial it was found that the men were very dissatisfied with the arrangements and refused to proceed with the work unless they received from 35*s.* to 2*l.* per week. The employment then ceased.

IT is to be hoped that before the crowds arrive to visit the Paris Exhibition of 1900 some of the scaffolding will be removed from the public buildings in that city. There may of course be many builders and students of architecture to whom French scaffolding will be interesting. It is usually constructed of massive timbers united with great care. In fact a scaffolding had need to be substantial in Paris, for apparently nobody can tell how long it will have to remain The Madeleine wants some reparation, but it is anticipated that a forest of square timber will envelop the building in order that some of the Corinthian capitals may be made secure. We suppose the authorities consider there is some constructive virtue in the pieces which passes to the masonry, for it often happens that when set up the scaffolding is not used to support platforms for builders. The interesting church of the Sorbonne has been concealed by timber for over a couple of years, but as a mason is rarely seen upon it the advantages of so costly an example of timber construction are not evident.

THE consternation at the decision of the French Minister of Finances to sell a part of Mont Saint-Michel as a site for a casino will not be confined to French archæologists. Wherever picturesque beauty is admired, the group of buildings surmounting the rock is recognised as one of the works which would lose character by any novel feature in their vicinity. There seems, however, to be an epidemic among the present Government for selling the relics of ancient France. The Minister of War has also arranged to dispose of the fortifications of Aigues-Mortes, which in their way are no less remarkable than the monastic buildings. The Commission of Historic Monuments is not allowing the proposal to pass unnoticed. On Friday last a resolution was passed asking that the control of the fortifications in question should be made over to the Department of Fine Arts, in which case they would be preserved by the Commission. They have also unanimously protested against the sale of any part of Mont Saint-Michel. But as money is now much needed for armaments, it is feared the ministers will have their way.

THE three gorgeously sculptured crosses of Monasterboice, County Louth, are the finest in Ireland. They form part of a group which also contains two small churches, a round tower which is still 110 feet high, and several tombs and memorials. It is intended to have a cast of the tallest of the crosses in the Dublin Museum, and perhaps another at South Kensington. The rumour was spread that the workmen employed had scraped the surface with sharp instruments which had disfigured the carving, and a question on the subject was asked in the House of Commons. The Secretary of the Treasury, in reply, explained what was done. Before the plaster could be applied it was necessary to remove the moss and lichen from the hollows of the cross. This work was entrusted by the Science and Art Department to a skilled Italian workman of artistic training, who had been for some time in their service, and had always done his work with the greatest care. He at first used a steel instrument to clear the surface, but when attention was called by Mr. PENTLAND, a local antiquarian, to the risk of injury by the process, it was at once discontinued, and the remainder of the growth removed by washing. Skilled officers had been sent down both by the Department and the Irish Board of Works, and they had examined so much of the surface as was not already enclosed in plaster. No signs of injury appeared, and it was hoped that when the plaster was removed the remainder of the surface would be found to have taken no harm.

ARCHÆOLOGY AND ODDFELLOWSHIP.

ONE of the incidents of the congress of the British Archæological Association at Peterborough was the delivery of a sermon in the cathedral by the Bishop. It was not specially directed to the members. The Sunday happened to be the annual church parade of the local Oddfellows. They assembled in a style which must make any archæological society appear as commonplace. The Oddfellows had banners and bands, regalia, sashes, medals, gold chains, and as they entered the cathedral they brought back Mr. ORCHARDSON'S *Queen of Swords* to memory, for the stout sword-bearers of the Manchester Unity held their blades above the heads of the members. Some of the members of the Corporation were adorned with sashes and badges, and unless we are mistaken there were dignitaries of the cathedral who were proud to testify that they also were enrolled in the records of members. On such an occasion an archæologist must feel as subdued as JOE TODDYHIGH when, at the banquet of his quondam fellow-messenger who was Lord Mayor of London, he saw the exalted members of the Worshipful Company of Patten Makers around him, and dare not take the most modest share of their glorification to himself. Archæology is now of little account in England, and it has to give way to Oddfellowship in various forms.

The worshipful fellows—we hope they will pardon us if we have failed to apply to them the correct adjective—may have even as well as odd members among them, and the former were not, we trust, much humbled when the Bishop ventured to compare them with archæologists. The Association and the Manchester Unity, said his lordship, at first sight had not very cognate aims or homogeneous principles. One seemed almost entirely academic, the other practical. One seemed to be concerned only with what was past, and the other entered the domain of life to-day. One had to do with things; the other was entirely personal. But each exercised an educational influence. It could not be denied, continued the Bishop, that archæology had educated to a great extent their national life and character. When everything was measured by its market price, when men more often asked, "Will it pay?" than "Is it good?" they owed a debt to archæology. In our days, when progress was throbbing in the nation's life and competition pushed aside all obstacles, archæology kept before them their debt for what they had gained from a bygone past. In that cathedral they must all feel something of that debt. Archæology made the walls and stones call into life the history and heroes of the past. The science was acting nobly in checking that material selfishness and crushing that ignoble self-complacency—the hideous progeny of wealth and ignorance—which otherwise might make havoc of the nation and its life. Archæologists had much to give, and in giving would be their blessedness. But the share of the Oddfellows as educationists was also eulogised. In their lodges social questions were discussed, and men were trained for everyday business as well as for municipal and parliamentary life. Each society had something to give, and the knowledge of that fact should help to inspire mutual respect and to remove distrust.

It was a novel contrast of past and present, but could not be said to be overstrained. Of this pushing, presumptuous, but plucky age we suppose the Oddfellows in their unities are not unsuitable representatives. We understand they encourage temperance, saving, regularity and other excellent virtues. Altogether they are said to be up to date, and for all we know to the contrary the club meetings may afford an excellent training-ground for cabinet ministers and privy councillors. Apparently the proceedings lighten the burden of existence. If happiness can be attained by wearing a sash embroidered with tinsel, although we might wish there was less barbarism about form and colour, why should not men be allowed to wear as many as they can honestly obtain? Badges and regalia can also be effectual in persuading simple folks to look on themselves as notabilities. All the paraphernalia and offices appear to be an economical aid to excite imagination and to confer self-satisfaction, and they are likely to be no less effectual than the means which other men seek and purchase at infinitely more cost and labour.

But the Oddfellows can no more ignore the past than the archæologists. The procession into the cathedral recalled those of the Mediæval guilds. But in the old days there was more taste. The guildsmen wore robes which gave an appearance of unity, of a common purpose, and which were in keeping with the regularity of the piers and other parts of the building. The Sunday garb of the members of the Manchester Unity showed an independence which is without the decorative value required in the elements of a procession when it is seen in an ecclesiastical building of the importance of Peterborough. The badges, no doubt, entitled the wearers to respectful attention, but it could not be denied they assumed more of a gilt gingerbread character when seen against the massive piers which were erected so many hundreds of years ago. If, as the Bishop of PETERBOROUGH said, the friendly societies are doing an educational work, why does not some one who has influence with them persuade the Grand Masters, Chief Marshals, and the rest of the High Mightinesses to become patrons of art as far as they can? Savages would be shocked to wear some of the ornamental appendages which are supposed to dignify respectable citizens who may one day sit in Parliament. There are plenty of young artists who would not think it beneath them to supply designs for regalia and badges. The cost of handsome originals would be insignificant if distributed over the number of copies which have to be produced every year. The certificates of membership are also generally hideous, and if all the plates could be destroyed and others of a more becoming character substituted the advantage would not be easily estimated. Regalia are only to be seen occasionally on special occasions, like visits to cathedrals, and their power to affect the taste of those who look on them is therefore only partial. But certificates of membership are generally framed and hung on the walls of members' dwellings; they are seen daily by the young, and the constant gazing at the stiffest of "supporters" and the most vulgar ornamentation cannot be beneficial to their eyes. If the members would take counsel from archæologists in such things up-to-dateness would be improved.

There is no need to hesitate about deriving aid from antiquity. Few societies who seek to be privileged are free from claims to relationship with some of the old institutions. It may rest on imaginative grounds alone, for the affinity may be as remote as the river in Macedon was from the river in Monmouth, although to enthusiastic FLUELLENS it is all one. But men cannot help believing that antiquity confers dignity. Why, the whole display of dignities among Oddfellows and kindred organisations is no more than an imitation on a small scale of the privileges which the College of Arms claims the sole right to administer in England. Grand masters and marshals are titles which the nineteenth century never invented. Why should the present repudiate the past in other things, when it cannot devise a new heraldry that will not excite our risibility like the devices of the friendly societies? Nobody need feel more of a stranger in an old cathedral than in a co-operative store or an electric telegraph office. The Oddfellows in Peterborough might if they wished believe the great building in which they heard a bishop address them was their inheritance. But it is only a part of what antiquity has bequeathed, and archæologists have as much claim to gratitude as those who are at the trouble to advertise unclaimed property of unlimited value.

The excursions and papers must have revealed to many that in the Peterborough district there is an abundance of archæological wealth which, if it were not for the enthusiasm of a few, would soon become not unlike the illusory money which the fairies once were supposed to distribute. It is of little use to have old buildings unless their history and the qualities which make them valuable are known and appreciated. That end cannot be attained if archæology is neglected. It is right to study Classic remains, and as long as education is so much based on Greek and Roman literature, the arts which are described in the books should be made as familiar as possible. But studies of that kind should not force us to be oblivious of the claims of an antiquity which has more relation to us. English life and thought are not products of the Classics alone, and we can never emancipate ourselves from the influences which were exercised upon our ancestors by northern rovers, mystics, minstrels, stone-carvers and ballad-poets during the "dark ages," and of which we need not be ashamed.

ARCISSE DE CAUMONT.

A CONGRESS of French archæologists has just been held in Bourges, and one of the addresses was devoted to the memory of ARCISSE DE CAUMONT. It was only justice to recognise his claims on the consideration of his countrymen. About seventy years ago he delivered courses of lectures on the antiquities of France; he was director of the society for the conservation of historic monuments which is now merged in the Governmental department having a similar title, he was the founder of scientific congresses in France, and was long the principal secretary of the Society of Antiquaries of Normandy. He belonged to the French Institut, the Society of Antiquaries and various foreign academies. His books are numerous, and among them the "Abécédaire" is the best known in England.

DE CAUMONT made no secret of the inspiration he drew from English archæologists. They pointed out the way which he so sturdily followed. BATTY LANGLEY'S name is a byword among us; to DE CAUMONT it marked a pioneer who prepared men's minds to receive impressions from the works which followed his own. BENTHAM'S effort to explain the importance of Ely Cathedral was no less favourably considered. The profound erudition displayed by KING in his "Munimenta Antiqua" is acknowledged, but DE CAUMONT, as became a man who drew and measured old buildings and envied the birds who lived amidst the ruins, could not accept KING'S unrestrained suppositions. It is remarkable also that, being a Frenchman, and therefore a system-monger, he should condemn the English scholar for being constantly dominated by the spirit of system, which too often acted like a will-o'-the-wisp in leading him astray in his researches. He was no less appreciative of what was done by DALLAWAY, WARTON, GROSE, MILNER, HAWKINS, BRITTON, DAWSON TURNER, RICKMAN, WHITTINGTON, WHEWELL, &c.

The French works which DE CAUMONT studied appeared to him less important than the English. Nor is the cause of the difference very difficult to discover. The English writers were not artists, they were scholars, and when they undertook to treat of Gothic architecture it was with the intention of demonstrating individual theories. They were forced, therefore, to give more attention to the details of the buildings and the relations between the various parts than if they were engaged in making pretty pictures of them. The works on architecture published in France, wrote DE CAUMONT, consist of collections of engravings or lithographs; the text is considered merely as an accessory.

It might have been otherwise if fate were more kind to French Gothic. MONTFAUCON had prepared a work on the buildings which could not fail to be influential, but the manuscript was destroyed in the fire which arose in Saint-Germain des Près. MICHEL-GERMAIN'S "Monasticum Gallicanum" vanished in the same way. LE BŒUF was unable to finish his great work before his death. The Revolution made the study of ecclesiastical buildings a crime. It required courage to rescue fragments of Mediæval sculpture from the vandals. When more peaceful times arrived many politicians continued to look askance at French archæology. LE NOIR'S attempt to form a museum of the *débris* saved from the buildings on which the revolutionists wreaked vengeance was not long supported by the Government. There was a risk for a time that French Mediæval architecture would not be more prized by Frenchmen than the mysterious buildings of South America. The efforts of the English to make the Norman buildings better known infused a new spirit, and a small band of local students such as AUGUSTE LE PROVOST, LANGLOIS, DE GERVILLE, LAMBERT, JOLIMENT, and above all, DE CAUMONT, endeavoured to become rivals to the strangers. But the studies of the Normandy antiquaries were unknown until 1824, when a society was formed which men from various parts were glad to join. By degrees interest was taken in the work, and when VICTOR HUGO and the Romanticists appeared Mediævalism became the subject of one of those spasmodic efforts which are so characteristic of Frenchmen. ARCISSE DE CAUMONT and VIOLLET LE DUC mark the beginning and end, just as VITET and PROSPER MERIMÉE are its literary representatives.

It is hard to say how the term Gothic as a designation of Mediæval architecture arose. DE CAUMONT we believe considered that BATTY LANGLEY was the culprit who first employed or reintroduced the word in that sense. Neither Goths nor Vandals possessed a distinctive style, and the Gothic nations had disappeared before the Pointed arch was seen in Europe. DE CAUMONT maintained that the style should be known as "Architecture à Ogives," or "Style Ogival," because in that way the principal characteristic would be described, while nothing was implied about the origin of the form. The divisions or developments of the style he called "Primitive" (thirteenth century), "Secondaire" (fourteenth century), and "Tertiaire" (fifteenth century and first part of sixteenth century). Our "First Pointed," "Second Pointed" and "Third Pointed" are therefore derived from DE CAUMONT.

It was more easy to make divisions than to say how the style orginated. According to DE CAUMONT, that problem caused more worry to archæologists in England than in France. He had received a letter from M. LENORMANT, who had visited Egypt, in which it was said, "L'architecture à ogives vient directement de l'Orient," and the traveller believed that if he were able to study the Persian remains of the second empire he would meet with evidence of its habitual use. How did the Pointed arch arrive in the West? It was not, said M. LENORMANT, at any fixed date by any definite agency; it was rather by "infiltration" by military, religious and commercial means, by stuffs, by furniture, by travellers' tales, by the emigration of artists.

DE CAUMONT could not accept his friend's theory in its totality. If he said the style was employed in the East before the twelfth century, it was not generally employed. It is not seen in St. Mark's, Venice, in which some artists of renown from Constantinople co-operated, nor in the cathedrals of Pisa, Pavia and Verona, which are strangers' works. Moreover, the Eastern ogives were not identical with the French ogives of the thirteenth century, and if the latter are imitations there can be no doubt about the metamorphosis which took place. Among all the varieties DE CAUMONT believed that the work of the thirteenth century was the finest. He said there was afterwards less rectitude in the lines, less harmony in the ensemble. A man must be wanting in enthusiasm and sensibility who can contemplate surviving examples without emotion; the view of one of the churches overcomes the senses like a sublime poem or a beautiful melody. But to comprehend Mediæval architecture we must realise the power of the religious belief of the time. There was, says DE CAUMONT, a tendency to turn aside from physical nature and to seek proportions from models which were not of this world. In the soaring towards the sky, in the superabundance of carving we can see, as it were, the mysticism which possessed men's minds. If the architecture of the ancients is purer as art, the Mediæval work is more touching and religious. In DE CAUMONT'S pages we have a sort of mean between the rhapsodies of symbolists and enthusiasts and the scepticism of the later Renaissance. French common sense is never better exemplified than when employed to explain the difficulties which arise in tracing the history of an art.

On the subject of design DE CAUMONT adopted likewise a middle course. We have not the names of the architects, but he does not consider the indifference to fame arose from humility. It was a co-operative age, when not only money but life, hope, thought, experience and genius became common property, when, so to speak, there were no individuals, but guilds, monastic bodies and other institutions for laymen and clerics. The associations were not the same as the francs-maçons which were formed at a later time in the Rhine valley, but they had definite principles of construction which were transmitted orally to those who were admitted, and of which no record appears to exist in conventual libraries or similar storehouses of knowledge.

The second period DE CAUMONT considers to be an intermediate stage between perfection and decline. The characteristics are not always definite, but he impresses on his readers that modifications arose gradually, and were not all introduced simultaneously. The long wars with the English were not favourable to architecture, and when peace was restored there was so much to be repaired that unity is rarely apparent. The buildings accordingly lose some of

the effect which should be theirs, especially those of the third period. Too much value was placed on an excess of ornamentation and on the intricacy of parts. There was less of an endeavour to soar, and the profusion of pinnacles and pyramidal forms could not dissimulate the insufficient elevation. But it evidently pained DE CAUMONT to utter a word about the shortcomings of Gothic in its latter days.

Works like DE CAUMONT's depend for much of their interest on illustrations. We might add that the author is often stimulated to exertion when his artist becomes his rival. DE CAUMONT at first was able to derive no satisfaction from his illustrations. They were lithographs, so weakly drawn as to deserve to be used in order to prove from what humble beginnings the art has advanced. At a later time he was able to use woodcuts which were drawn by BLOUET, a draughtsman whose work was not unknown in England, for he was employed by Mr. PARKER, but during his primordial period DE CAUMONT was so badly served we wonder he did not abandon his undertaking.

The endeavour to make Mediæval architecture known to his countrymen by means of books should be enough to preserve DE CAUMONT's work from oblivion. But we imagine his name sounded strange to the majority of the people who heard his praises at Bourges. He did not belong to the ages of faith, but there was no bishop, monk or franc-maçon who was more loyal to architecture or more eager to see it recognised at its true value.

NATIONAL PORTRAIT GALLERY.

THE trustees of the National Portrait Gallery have during the last few weeks made the following acquisitions :—

By presentation :—

General Sir John Moore (1761-1809), the hero of Coruña, and Admiral Sir Graham Moore, his brother (1764-1843) ; two fine portraits painted by Sir Thomas Lawrence, P.R.A., presented by their grandniece, Miss Carrick Moore, in fulfilment of the wish of her late father, Mr. John Carrick Moore.

Sir John Peter Grant (1807-93), Governor of Jamaica ; painted by G. F. Watts, R.A., and part of the painter's munificent gift to the nation, the ten years' rule being suspended as on the occasion of his previous gifts.

Thomas Augustine Arne, Mus. Doc. (1710-78), the well known musical composer ; a caricature portrait based on a drawing attributed to F. Bartolozzi, R.A.

John William Norie (1772-1843), author of the well-known "Epitome of Navigation ;" a small portrait in water-colours by Buck, presented by his nephew, Mr. Henry H. Norie.

By purchase :—

Margaret Tudor (1489-1539), sister of Henry VIII. and Queen of Scotland ; attributed to Jan van Mabuse, but probably painted in the school of Bernaert van Orley. This portrait was exhibited as "Catharine of Aragon" at the winter exhibition at the Royal Academy in 1886.

Edward VI.; a small full-face portrait on panel, as Prince of Wales, painted in the school of Holbein.

Frederick, Prince of Wales (1707-51) ; an equestrian portrait, painted by B. Dandridge.

William IV.; a water-colour drawing, purchased to complete the series of portraits of English monarchs from Henry III. to Victoria (with the exception of Edward V.).

John Dryden (1631-1701), poet-laureate ; a small full-length portrait, painted by J. Maubert, formerly in the possession of Jacob Tonson, Grosvenor Bedford, Wentworth Dilke and the late John Murray, of Albemarle Street. A similar portrait from the Strawberry Hill collection is in the possession of the Earl of Derby at Knowsley.

James Craggs (1686-1721), Secretary of State and friend of Addison, painted by Sir Godfrey Kneller. This portrait was formerly in the possession of Addison at Bilton Hall.

At the sale of portrait-drawings by George Dance, R.A., by Messrs Christie, Manson & Woods, on July 1, the following twenty-eight portraits were purchased for the National Portrait Gallery :—Samuel Arnold, Mus.Doc. (1740-1802), musical composer ; John Bannister (1760-1836), comedian ; Sir George Beaumont (1753-1827), amateur, connoisseur and benefactor ; William Bligh (1754-1817), commander of the *Bounty*, admiral and Governor of New South Wales ; James Boswell (1740-95), biographer of Johnson ; Charles Burney, Mus.Doc. (1726-1814), musical composer and historian ; Sir Henry C. Englefield (1752-1822), philosopher, antiquary and man of letters ; John Hoole (1727-1803), translator of Tasso and Ariosto ; Mrs. Inchbald (1753-1821), dramatist ; Charles Incledon (1763-1826), vocalist ; Joseph Jekyll (1753-1837), wit and politician ; William Jessop (1745-1814), civil engineer and canal maker ; Robert Stewart, second Marquis of Londonderry, the famous statesman, as Viscount Castlereagh, 1794 ; John Moore, M.D. (1729-1802), physician and author, father of Sir John and Sir Graham Moore ; Joseph Shepherd Munden (1758-1822), actor ; Robert Mylne (1753-1811), civil engineer ; Hester Lynch Piozzi (1740-1821), as "Mrs. Thrale," friend of Dr. Johnson, and Gabriel Piozzi (1740-1821), her second husband ; James Rennell, F.R.S. (1742-1830), geographer ; John Rennie, F.R.S. (1761-1821), civil engineer ; Samuel Rogers (1763-1855), poet, aged thirty-two ; Sir William Scott, Lord Stowell (1745-1836), judge ; William Seward (1747-99), biographer ; Granville Sharp (1734-1813), abolitionist ; William Shield (1748-1829), musical composer ; George Steevens (1736-1800), editor of "Shakespeare" ; Horace Walpole, Earl of Orford (1717-97), aged seventy-six ; Arthur Young (1741-1820), agriculturist and traveller.

The following eight portraits have been deposited on loan in the National Portrait Gallery by the trustees and director of the National Gallery :—Izaak Walton, by Jacob Huysmans ; George, Prince of Wales, and Edward, Duke of York, with their tutor, Dr. Ayscough ; Thomas, second Lord Lyttelton, by Richard Brompton ; David Garrick, attributed to J. Zoffany, R.A.; William Godwin, by J. Opie, R.A.; Mary Wollstonecraft Godwin, by J. Opie, R.A.; Sir Samuel Romilly, by Sir Thomas Lawrence, P.R.A.; Charles Dickens, by Daniel Maclise, R.A.

These numerous additions will necessitate a considerable reorganisation of the collection, so that it may be some time before they can be all placed on public exhibition.

THE SILCHESTER REMAINS.

THE whole of the relics discovered during last year have recently been removed from Burlington House to Reading Museum, and are now in a great measure arranged in the cases in the Silchester Gallery. We are enabled to state (through Dr. Stevens, the hon. curator), says the *Reading Mercury*, that the series is not large, and consists of the ordinary articles in glass, pottery, iron, bronze, Kimmeridge clay, &c.; but some of the toilet objects, such as the brooches, are of peculiar beauty from the brilliancy of their enamels. The pottery is of the usual character, but there is one very large, graceful vessel which has been named the "Jubilee Pot." A very heavy top-stone of a quern, or rather a mill for grinding corn, is unlike any hitherto discovered. From its character it must have been worked by machinery. Two large tubs have also been received, which were taken from the bottoms of wells. The Romano-Britons appear to have been peculiar in the management of their water, what with tubs, linings of oak slabs and other methods of constructing their wells. The coins are distinctly worth noting from the number found of the usurper Carausius. His usurpation extended to about seven years, yet during that period more than 300 of his issues are known. Having power as commander of the Roman fleet he used it to establish his supremacy, and there is no doubt his large coinage was intended to make his assumption of imperial power widely known. It would be a great acquisition if among the Silchester coins a specimen can be found similar to one in the collection of the late Mrs. Roach Smith, where the head is rendered facing instead of in profile, and is considered as intended for a portrait of the emperor.

Several learned societies have visited the Silchester Collection during the last few weeks, including the Bucks Archæological Society and the Archæological Society of Bristol and Gloucester. Both these societies were accompanied by Mr. W. H St. John Hope, who gave excellent demonstrations on Silchester and on the collection generally.

THE CONSULTING ARCHITECT OF THE EDUCATION DEPARTMENT.

AN application has been made by Captain Grice-Hutchinson M.P., to the Education Department in reference to the scheme for the higher-grade school at Aston being sanctioned when a town's meeting to protest against the proposal had been announced, and also with regard to Mr. E. R. Robson, a Departmental official, acting as assessor to the Aston and other School Boards and receiving fees and other emoluments. In respect to the latter matter Captain Grice-Hutchinson has been informed that the method of allowing Mr. E. R. Robson, consulting architect to the Education Department, to act as arbitrator in competitions of plans for Board schools is not regarded as altogether satisfactory by the Education Department. But this system is part of the terms of Mr. Robson's engagement as architect, and it is stated that it could not be abrogated without doing him an injustice, unless his salary should be so increased as to include the amount now received by him from fees. The decision of competitions is not part of Mr. Robson's official duties. A School Board can select any architect they please for that purpose.

LAMBETH PALACE.

AT the last meeting of the Lambeth Vestry the following letter from Earl Stanhope was read:—"I am anxious to call attention to the great injury which is occasioned to the exterior of Lambeth Palace by the action of chemical smoke fumes from the neighbouring pottery works. The stone of which the palace is built is gradually peeling off, and has already considerably decayed. I, as one of the Ecclesiastical Commissioners, and therefore well acquainted with Lambeth Palace, have watched for some years the gradual destruction of the walls, and I have had several conversations on the subject with the late Archbishop of Canterbury. The particular works complained of are Messrs. Doulton's works and Messrs. Stiff's works. I cannot but think that the smoke issuing from their chimneys might be in some way further consumed, but I venture to hope the Vestry of Lambeth will kindly consider the whole question."

Lord Stanhope enclosed a communication received by him from the County Council, which stated that the duty of suppressing such nuisances did not rest with the Council, except in default of the local sanitary authority, which, in the present instance, was the Lambeth Vestry. The serious nuisance and injury caused by the Lambeth potteries had been before the Council and its predecessors for over a quarter of a century. Nearly all the trees planted on the Albert Embankment were destroyed by the fumes, and for some years past the Council had been pressing the Vestry upon the subject.

It was decided to inform Earl Stanhope that the only grounds upon which the sanitary authority can proceed are those of public health; that the medical officer is of opinion that the experience of the district does not show that the fumes issuing from the potteries are injurious to the health of the inhabitants of Lambeth, and that, on this ground, he has seen no reason to take any action against the owners of these potteries, but that he will give further attention to the special appliances used therein to reduce the fumes to a minimum and present a special report on the subject, with the view of having any further improvements, if necessary, carried out.

FRENCH AND BRITISH ART.

ON Saturday last the Lord Mayor gave a dinner "in honour of art," to which several French and English artists were invited. His lordship, in proposing "French and British art," said there were few present who were not either artists or those who favoured art. He had invited them together that they who loved and supported art should do honour to those who produced it. They had had many art exhibitions at the Guildhall, all of which had attracted large numbers of visitors. This year they had selected artists from France to exhibit their works, and the exhibition had been as successful as any of its predecessors. He was deeply grateful to the many French artists who had honoured him by their presence. He was sure that the members of the English Royal Academy were delighted to meet their brothers in art from France. England and France were the two nearest neighbours, and he saw no reason why they should not be the two greatest friends. He hoped that that meeting would not be a stumbling-block in the way of their being greater friends. England had had its great artists—artists from whom the French had taken many a lesson—their Constable, their Sir Joshua Reynolds, and many others, and they in England had taken many a lesson from those who had produced art in France.

M. Armand Dayot, as the delegate of the French Government, replied in his own language to the following effect:—When selecting me for the great honour of representing him, the French Minister of Public Instruction and Fine Arts charged me to express his regret for his inability to accept your lordship's invitation, and his regret is the more acute because your fête is a brilliant glorification of French art. I hope I may be permitted to express my desire, which is no doubt that of all my countrymen who are present, that a special exhibition of English art will also be held in Paris. I am confident it would obtain a success not less remarkable than that in the Guildhall. Of course we shall have the opportunity in 1900 to admire the results of the efforts of the modern English school that abounds in young and daring talent, as well as strong and original personality. I can anticipate that gratification, for I have always had a peculiar affection for the native elegance and fertile independence of the English school, a confession which I the more gladly make as my illustrious compatriot Sir Edward Poynter is before me, for Paris was his birthplace, for which Frenchmen have the right to feel flattered. But the exhibition of English art in 1900 would attain more interest and be more productive of instruction, if besides the works of living artists the French public were also able to admire a comprehensive collection of the older English masters, of which only an occasional exhibition is to be seen in French galleries. Such an exhibition of English art from your modern "primitifs" to your contemporary pre-Raphaelites is both needed in the interests of æsthetics and as an expression of gratitude. In order to display English works we shall have adequate buildings, and I have no doubt our two great societies of artists will endeavour to emulate the magnificent and successful example of the Corporation of London in honouring French art. From such interchanges of impressions under the most noble of forms, such intellectual fêtes, such pacific and brilliant manifestations of the genius of humanity, the people of the world, who were destined to live amidst peace, light and beauty, could not fail to derive courage, consolation and hope. In taking the initiative in the exhibition of French art you, my Lord Mayor, have enabled us to witness the triumph of our artists, and in their reception to find evidence of cordial sympathy which cannot be forgotten.

Sir Edward Poynter, P.R.A., said:—My Lord Mayor and gentlemen, I must confess that, in responding to the toast just proposed, while I thank you for the honour which you have done me in coupling my name with it, I feel a certain embarrassment—in the first place, an *embarras de richesses*, for I presume that you would not wish me to enter on the impossible task of exhausting the subject of British art on this occasion, and it is not easy to select from a theme so wide what may be appropriate to an after-dinner speech. In the next place I find myself in a difficulty in the presence of the numerous and highly-distinguished representatives of foreign art who are your guests to-night, for if I sound before them the praises of the British School of Painting, as is my obvious duty, as an Englishman and President of the Royal Academy, I can hardly help incurring the charge of national egotism. I would rather, therefore, that the task of responding for foreign art had fallen to me, and that that of dealing with the merits of our own school had been left to the generosity of M. Bouguereau, or M. Constant, or M. Carolus Duran, or some other of your distinguished guests. I should then have been able to dwell, with a plenitude of enthusiasm which comes of an intimate knowledge of French art and of personal acquaintance with some of its members, and which I must deny myself in speaking of our own artists, on the great qualities which enrich that great school—qualities so admirably displayed to us in the representative collection of French pictures which the liberality of the Corporation of London has enabled us to enjoy at the Guildhall. I must, however, perform the duty which you, my Lord Mayor, have imposed upon me, and make some reply to your wishes for the prosperity of British art, to which the toast you have proposed gives expression. There are two elements which have gone to form the British art of to-day. It has, to begin with, an originality and a sturdy independence of its own, but it also has another very marked characteristic in its readiness to adopt, to assimilate and make its own what is good—perhaps even sometimes what is not so good in the art of foreign countries. Thus, while we have seen in the last half-century artists of purely English habit form a school and rise to the highest eminence, on the one hand, through an ardent study of nature, as seen with English eyes amidst English surroundings, as in Millais, and, on the other hand, as in Rossetti and Burne-Jones, through a sympathy, also peculiarly English, with the exquisite traditions of the past in poetry and painting, we have also seen numerous earnest students who, less self-reliant, and feeling that the English art of Hogarth, of Reynolds, of Gainsborough and of Turner had so worked itself out in the course of years as to have degenerated by the middle of this century to a somewhat trivial mannerism, went abroad to Germany, to Belgium and to France—principally to France—to acquire the instruction which they perceived was not to be had at home. As, my Lord Mayor, you have said, our artists have taken many a lesson from our French friends. Among these I may cite, first, Dyce—an artist of the highest gifts, now almost unrecognised, whose style was inspired by the rather pedantic resuscitations of Overbeck and Cornelius; and more conspicuously Leighton, our great president, a distinguished example of an Englishman, whose studies were almost cosmopolitan, bringing to his own country and applying in his own way the brilliant and accomplished style which he had acquired abroad. Both these distinguished men took the best that was to be had from foreign sources in their time, but neither of them was a servile imitator of any school, and they always remained individual and English. But the greatest impetus to this desire for learning more than could be obtained at home was unquestionably by the exhibition at Paris in 1855, the first international exhibition of art. The exhibition opened the eyes of our countrymen to that brilliant school of painting then at its zenith in Paris, while it showed us, no doubt, some of our own shortcomings by the close comparison which could there be made with the splendid accomplishments of French art. It is hardly too much to say that to English artists of that time the names of Ingres, Flandrin, Gleyre and other distinguished representatives of the Classic school in Paris were virtually unknown; and still less known, if possible, were Delacroix, Decamps, Hébert, Marilhat, Robert-Fleury and a

host of others who formed the romantic school. I well remember the effect of that exhibition upon myself, and the enchantment of seeing for the first time the collected works of Decamps, a conspicuous feature of that exhibition, of Hébert, of Delacroix and of Hamon, that most delicately fantastic of the neo-classics. A new horizon was opened out before my eyes, their works were a revelation, and I was, I believe, the first of our artists who went to Paris to study. Soon others followed, more numerous as years went on, and drawing from that great school some of the qualities, both solid and brilliant, which characterised it and infused fresh vitality into English art. The art of landscape painting, also, in common with the rest of our school, had at that time lapsed into a conventionalism which smacked of the landscape of the stage, and had lost touch with nature; and it was contact with the powerful French school of that time, led by Rousseau, Daubigny, Corot, Dupré and others, quite as much as the more elaborate fidelity and earnest study of nature of the pre-Raphaelites at home, that so invigorated our landscape artists that they are now, I think I may say, second to none. Thus the art of Constable, to which you, my Lord Mayor, have already alluded, and to whose influence the French painters readily admit their own great school of landscape was due, has returned to us after long years from across the Channel in a new and invigorated form. The position which English art now occupies is a high one. I have carefully avoided any allusion to living artists, whether English or foreign, but I again mention the exhibition of British art at Brussels last year, being, as it was, more completely representative of our school than any collection of English paintings which has hitherto been seen abroad, as having gained us a free and liberal acknowledgment of this high position from foreign artists. Our English Luxembourg also, the gallery of British art on the Embankment, although far from completely representative of the modern school—our latest deceased great artist not being seen there at all, and others only inadequately—is a collection to be proud of. M. Armand Dayot has been good enough to express hope that we shall put forth our best efforts for the forthcoming exhibition of 1900 at Paris. If we do so I am certain that we need fear no competition, for I take it that British art can now make a display very different from that which we were able to put forth in 1855. If so, it will be due not only to the force of native genius as displayed in our greatest men, but to the English desire to learn wherever there is something to be learnt, and to the English capacity for adapting and appropriating what is best in the art of other lands, as we have adapted and appropriated to the best of our ability what we have learnt from our brilliant neighbours across the Channel. My Lord Mayor, I thank you again for connecting my name with this toast, and for your warm expressions with regard to British art.

After dinner the Lord Mayor was presented with the Order of Officer of the Legion of Honour.

THE HIGHEST OFFICE BUILDING IN NEW YORK.

THE steel cage construction of office buildings had its genesis less than a score of years ago, says the *Engineering Record*, and it may reasonably be assumed to have reached the zenith of its development, at least so far as height is concerned, in the building now under construction for the Ivins Syndicate, on Park Row, New York City, directly opposite the Post Office. From the head of its pile foundation to the top of the domes this structure will have the enormous height of 424½ feet, and it is probable that such a height will be rarely if ever hereafter found desirable and profitable for an office building. The plans for this building were prepared two or three years ago, and the preliminaries for construction were begun, but for various reasons were delayed and suspended for a long time. Recently, however, the obstacles have been surmounted, and the progress has been rapid. The steel framework, the erection of which was begun in 1897, is all in place, and the building may be ready for occupancy by the middle of the summer.

The foundation excavation was carried down 34 feet 4 inches below the curb, or to about 10 inches below ground water-level. Heavy sheet piling was first driven around the edge of the pit, and precautions were taken to avoid endangering the safety of the adjacent structures. The excavation and pile-driving disturbed the security of the adjacent old buildings, as their walls and foundations were not carried to any considerable depth nor built with sufficient strength to endure much vibration. Indeed, the six-storey building on one side proved so weak that it was necessary to remove the party wall, support the outer ends of the floor-beams on girders and shores, and rebuild the foundations and brickwork. To secure a stable support for these walls during and after the excavation of the new cellar they were carried on bottom sills which rested upon the tops of 6-inch wrought-iron pipes, 4 feet apart and about 20 feet long, which were jetted down under pressure until they were sufficiently below the proposed bottom of the excavation, and were considered to have developed enough skin friction to secure their stability. They were sunk in 10-feet sections, coupled together by outside screwed sleeves. Similar underpinning was required for a building on the opposite side of Theatre Alley, where nearly the whole street had to be excavated in order to permit a long and deep distributing plate girder, which weighed nearly 55 tons, to be lowered into place. The outer walls were supported in the ordinary manner by needle beams and crib work, while their original foundations were removed and solid new brick walls and footings were carried down slightly below the level of the new excavations. All of this work presented great difficulties, occasioned much anxiety and expense and caused considerable delay on the new building. After it was accomplished the construction of the steel work proceeded more rapidly, except as it was hindered by the occurrence of labour troubles.

Before the construction was begun an exploration of the site was made by water jet test-pipes, and this indicated the presence of a uniform bed of fine wet sand, extending 94½ feet or more to hard pan or bed rock, and in this sand about 3,900 14-inch spruce piles were driven to a refusal of 1 inch under a 2,000 lbs. hammer falling 20 feet. The piles were driven about 18 by 24 inches apart on centres in the closest position, and were calculated to receive a maximum load of 16 tons each. They are capped with granite blocks 10 inches thick and brick piers loaded to 15 tons per square foot. Some of the columns carry total loads of as much as 3,000,000 lbs. each, and single sections of them weigh 58,000 lbs. each. The whole structure covers an area of 15,000 square feet, upon which is distributed a total load of 65,200 tons. Of this about 3,740 tons is estimated for possible wind pressure resulting from a computed pressure of 30 lbs. per square inch upon the exposed surface of buildings and 9,000 tons for the weight of the steel framework. Concrete made of 1 of sand, 2 of Portland cement and 5 of 2½-inch stone was rammed to a depth of 1 foot around the top of the piles. The underpinning of the adjacent buildings was carried to a depth of 34½ feet. As soon as the excavation was begun, the sidewalks were carried over it by heavy timber bridges calculated to carry 300 lbs. per square foot, with a double-roofed storage platform above floored with three 3-inch plank, calculated to sustain a load of 500 lbs. per square foot. Two feet beneath this platform, and about 10 feet above the sidewalk, was a slightly pitched surface of thin matched boards that served to form a roof and protect pedestrians from any possible drip or dust. The upper platform was utilised for the storage of considerable quantities of cut stone and masons' supplies, as well as for the location of some of the contractors' offices, and afforded an opportunity for the carvers and other workmen to perform the necessary operations that could not well be done before the material was shipped.

The grillage beams are set on granite caps in a one-half inch bed of Portland cement mortar, and where spaces of more than one-half inch exist between the beams and the caps they are supported on layers and cross layers of thin flat steel bars, with the interstices filled with grout. They receive their proportionate parts of the weight of the superstructure either directly from the extended bases of single columns in the cases of small piers, or from sets of columns, through multiple webbed plate girders, distributing the loads over the larger piers. The general design of the building and its principles of construction are similar to those of the American Tract Society building. The sixty-six lines of columns are built of angles and plates in box section, heavily web-spliced in alternate lines at every second storey. The floor girders and beams are rigidly rivetted to them, and being trussed with systems of diagonal rods virtually form horizontal diaphragms, with a continuous hollow brick floor construction to resist lateral strains. There are also sets of diagonal braces in the vertical planes of some of the interior columns, which together constitute vertical trusses to resist the pressure of wind strains, against which the building is additionally stiffened by heavy latticed girders, built into the exterior walls and around the open courts. The walls are simply thin brick and stone curtains to enclose the interior, exclude the weather and afford surface for architectural treatment. The lanterns and domes have frameworks of steel columns, beams and curved rivetted ribs, and are covered with 18-ounce copper on steel frames, and the heavy cornices are made of stamped copper carried on iron brackets cantilevered out from the main construction.

The outside wall columns are carried 2 feet above the roof beams and connected with a belt course of 3-inch channels across their tops under the coping, into which the terra-cotta balustrade is securely dowelled. All of the columns throughout the building are fireproofed with 4 inches of brickwork. The inside of all walls below grade that are exposed to contact with natural or filled earth is faced with hollow brick bonded by headers extending into the main brick wall at every sixth course

and all of the substructure is covered to a height of 2 feet above the excavation with a triple layer of hot asphalte and paper. Four layers of the same waterproofing material are also laid on top of the ¾-inch tiles composing the roof surface. The floors are all built of 10 and 12-inch hard-burned, hollow-end construction tile, laid in cement mortar and filled in above with concrete composed of eight parts cinders, two parts sand and one part cement. The whole weighs 65 lbs. per square foot for the 15-inch beam construction, and 45 lbs. for the 10-inch beams. All floors are constructed to carry a load of 200 lbs. per square foot. The skew back tiles are lipped to protect the bottom flanges of the beams, and all partitions are built of hollow tiles, which are 3 inches thick. All the mortar used throughout the building is composed of washed sand, three parts, and Atlas Portland cement one part, mixed dry by machinery, and delivered in bags to the building where it was distributed as required and wet up to the proper consistency in tubs adjacent to the places where it was used. It is considered that satisfactory results were secured and the practice was found to be of advantage during the labour troubles which handicapped the construction.

The principal dimensions of the building are as follows:—Park Row front 104 feet, Anne Street front 20 feet, Theatre Alley front 48 feet; height, twenty-six storeys from curb to main roof, four storeys in each tower and one small storey in each dome, and lantern above domes, besides cellar, basement and sub-cellar below the curb, making a total of thirty-three storeys from foundation to the extreme portion of the accessible interior. The height from the head of the piles to the base of the flagstaff, which is the highest accessible portion of the building, is 424½ feet. From the street level to the same point is 390¾ feet. From the street level to the top of main cornice is 336 feet. The heights of the different storeys from floor to ceiling clear are as follows:—Cellar, 14 feet; basement, 10 feet; first storey, 16 feet 11 inches; second storey, 12 feet 11 inches; third storey, 11 feet 11 inches; fourth storey, 10 feet 11 inches; fifth to twenty-fifth storeys, 9 feet 11 inches; twenty-sixth storey, 12 feet; twenty-seventh, twenty-eighth and twenty-ninth storeys, 8 feet each. The main front on Park Row is of the Renaissance type, with a wide reveal in the centre which extends to a heavy overhanging main cornice at the roof, and is crossed by sub-cornices or belt courses at intermediate storeys. The two sides of the building form projecting pavilions, which terminate in circular towers above the roof line with smaller octagonal corner turrets surrounding them. Doric columns, three storeys high, ornament the front at the street level, and are capped by a Doric cornice. At the fourth storey there are four sculptured figures of heroic size. The front walls to the top of the third storey are of granite, thence to the top of the sixth storey of Indiana buff limestone, and thence to the top of the cornice they are of brick, with terra-cotta and stone trimmings. The roof is covered with concrete to a depth of 4 inches above the flanges of its girders.

The building will be heated to 70 degrees in zero weather by direct low-pressure or exhaust steam radiators, operated by a 16-inch main in the basement. To prevent undue heat radiation the boiler-room has a double ceiling, composed of T bars suspended from the main ceiling and covered with wire netting, on which sectional magnesia blocks 1½ inches thick are laid, and plastered with two coats of magnesia plaster, so as to enclose a 3-inch insulating air space. The plumbing system is of the ordinary modern equipment for high office buildings, with screwed galvanised steel pipe sewers that empty directly into the street sewers. For the sub-cellar the drainage is collected into a steel tank cesspool, and periodically pumped into the main sewer. The water-supply is derived through two 4-inch connections, with independent street mains, and after being filtered is pumped into 20,000-gallon storage tanks at the top of the building, whence it is distributed through a single system of down supplies controlled by a series of valves in the cellar. The extreme pressure for fixtures at the lower levels is reduced by special throttling of the outlets in the different fixtures. The building is equipped with ten main passenger electric elevators, one of which runs from the cellar floor and mine from the basement floor to the twenty-sixth floor, besides which there are two elevators, one in each tower, which will run from the twenty-sixth to the twenty-ninth floor. Each of these elevators is designed for a working speed of 500 feet per minute, or a possible speed of 700 feet per minute, and the test requirements were that each car containing 300 lbs. of live load should make 200 full round trips in ten hours. Mr. R. H. Robertson, New York, is the architect of the building, and Mr. A. Pauli, of his staff, has the general charge of the plans and details. Mr. W. H. Gorham is the architect-superintendent of the site. Mr. G. W. McNulty, M.Am.Soc.C.E., was retained as consulting engineer on foundation piling-work, and Mr. Nathaniel Roberts as consulting engineer of the iron construction.

ROYAL ARCHÆOLOGICAL INSTITUTE.

THE members of the Archæological Institute assembled on the 19th inst. at Lancaster for their annual meetings. The president is Sir Henry Howorth, M.P. for South Salford. The first meeting was held at noon, when the Mayor of Lancaster, attended by several members of the Corporation, received the members of the Society at the Town Hall and bade them hearty welcome to the county town. Sir Henry Howorth delivered his presidential address, in which he traced the history of Lancashire from the earliest times. He showed how the county had played an important part in the nation's history, and referred in detail to the part it had taken in the Wars of the Roses, the Great Rebellion and the Reformation. In the afternoon Mr. W. O. Roper, F.S.A., read a history of St. Mary's Church, and Mr. Austin gave a *résumé* of its architectural features, especial interest being centred in the doorway (discovered on Monday) in the west wall, which is a good example of the Decorative period. In the evening Dr. Robert Munro, secretary of the Society of Antiquarians in Scotland, lectured on "The Relations between Archæology, Chronology and Land Oscillation in Post-glacial Times."

The members on Wednesday visited the famous Furness Abbey, which was described by Mr. W. H. St. John Hope, assistant secretary of the Society of Antiquaries. Mr. Hope is an authority upon the monastic establishments of the Middle Ages, and his description included the result of the excavations carried on at the abbey during the past three years, including the discovery of what is believed to be the abbot's kitchen. It seems to have been of the thirteenth century, and to have had fireplaces with projecting stone hoods. It also had a groined roof springing from a central column. Later in the day the party visited the Peel of Fouldrey, which was also explained by Mr. St. John Hope. In the evening the historical section of the Institute was opened at Lancaster by an address by Mr. J. Holme Nicholson, a president of the Lancashire and Cheshire Antiquarian Society. A paper on the history of the Lancaster School was read by Mr. A. F. Leach, who visited Lancaster in connection with the Charity Commissioners' proceedings concerning the preparation of the scheme for the government of the school which has recently come into operation.

The members had another enjoyable excursion from Lancaster to Borwick Hall, near Carnforth, famous in Jacobean history, and Levens Hall, the seat of Captain Bagot, M.P.

Mr. Roper's remarks at the meeting of the historical section on the preceding evening created a good deal of interest. He controverted what had generally been accepted as facts in Lancaster history. He denied that Overton Church was the oldest in the district, contending that Heysham was far older and more interesting. He also said there was much doubt about the history of Lancaster Castle. There was not a scrap of Roman masonry about it. The keep was Norman, and the circular tower was not the oldest part, whilst the Well Tower and Adrian's Tower were still more modern. He suggested that John o' Gaunt had nothing to do with the building of the gateway tower as was popularly supposed, because the shields on the gateway showed they could not be older than 1407. John o' Gaunt had been dead some years then, and the gateway tower was probably erected by Henry V. when Prince of Wales.

From Borwick Hall the party drove to Levens Hall, where the Elizabethan mansion and Jacobean gardens were described by Mr. Curwen, of Kendal. On the way home Mr. Roper provided afternoon tea at his residence at Yealand.

The architectural section was opened in the evening with an address by Mr. J. T. Micklethwaite, vice-president of the Society of Antiquaries, and Mr. W. S. Calverley read a paper on "Pre-Norman Fragments."

WELSH ANTIQUITIES.

THE prehistoric stone walled camps of Pembrokeshire attracted considerable attention last year when the Rev. Baring Gould paid a visit to that county to inspect them, and to gather information in a locality which he is making the scene of a novel which he is now engaged upon, and which will deal with the period when the Norman occupation and power were fully established in this country. Mr. H. W. Williams, of Solva, Pembrokeshire, has recently been to see Mr. Baring Gould about the stone camps, and it is now announced that with a view of ascertaining what people were the builders of these ancient fortresses the Rev. S. Baring Gould, Mr. Robert Burnard, F.S.A., and Mr. Enys (of the Royal Cornish Institute), all members of the Dartmoor Exploration Society, will visit St. David's Head towards the end of the present month for the purpose of systematically exploring the stone fortifications and prehistoric habitations there. The ruins of the chapel of St. Non, the reputed mother of St. David, will be visited at the same time by these antiquarians.

NOTES AND COMMENTS.

THREE years ago Sir DAVID SALOMONS founded an engineering scholarship of the value of 40*l.* a year in connection with Gonville and Caius College, Cambridge. In order to celebrate the 550th anniversary of the foundation of the college the donor has increased the amount to 70*l.* a year. The Salomons Engineering Scholarship will henceforth be open to persons not yet in residence, and is tenable for three years. The person elected is to make a declaration that he *bonâ fide* intends to enter the engineering profession as a civil and electrical engineer, and will, if required by the governing body of the college, become a candidate for the Mechanical Sciences Tripos. The next examination will be held on Tuesday, November 1, 1898. Candidates must not be more than nineteen years of age on October 1, 1898. The successful candidate will be required to commence residence in October 1899. The subjects of examination will be Euclid, algebra, plane trigonometry, geometrical and analytical conic sections, elementary statics and dynamics and differential calculus, physics, including dynamics and hydrostatics, with practical work. Candidates must send their names, with testimonials of good conduct and certificate of birth, on or before Tuesday, October 25, 1898, to one of the tutors, the Rev. E. S. ROBERTS or Dr. J. S. REID.

IN New York the registration of plumbers is more of a necessity than it is likely to be in England. Unless plumbers of all classes, including masters, have their names and addresses recorded at the Board of Health, and can produce formal certificates to that effect, they are unable to recover in a law court any money which may be due to them. There is no doubt the arrangement is severe towards plumbers, and it is one which dishonest people can turn to account to evade payment of their debts; but sanitary requirements probably needed so Draconian an edict. Non-registered plumbers can be fleeced, but suppose a wooden casing is put over their pipes, or they employ other materials besides lead piping, does the edict apply? That is a question which for some time has puzzled the New York courts, and after going the round of them it cannot be considered as settled. The case arose in the following way. In December, 1894, a firm of plumbers contracted to execute work in a building in New York, and some carpentering and painting were included in the contract. After a sum of 5,229 dols. was paid, a mechanics' lien was lodged against the building for the balance of 2,625 dols. When the case was heard it was dismissed because the plaintiffs were unable to produce a certificate of registration. On appeal a majority of the judges confirmed that decision as regards plumbing, but ordered that it should be changed into one for the plaintiffs because there was plastering, masonry and painting, payment for which could not be affected by the registration edict. One of the judges not only approved of the reversal, but held that the law did not mean a forfeiture of materials and labour to an individual as a penalty for a neglect of registration. Work should be paid for. It was the duty of the authorities to have the penalties inflicted for violation of the law. As the reversal was only lately obtained the case may have to assume other phases before it comes to an end.

ANY one who has an interest in figures in connection with organic life will find gratification in the "Report on the Bacteriological Examination of London Crude Sewage" to the London County Council. At Barking 7,260,000 micro-organisms are found in a cubic centimetre of sewage; at Crossness the number was 5,290,000. One advantage of giving attention to such infinitesimal growths is that sewage contamination of natural waters can be detected with a delicacy to which no chemical process is equal. It may be some consolation to Londoners to learn that "a large number of bacteria, other than those already discussed, have been met with in the cultivations of the different samples of sewage. Many of these belong to species hitherto not described, or described in so incomplete a manner as to make comparison and identification difficult if not impossible. It is hoped that in further reports space may be found for the description of a few of these bacteria. As showing the great number of bacteria of different sorts in sewage it may be stated that in a cultivation of Crossness crude sewage, containing so minute a quantity as 0·00001 cubic centimetre of sewage, there were present at least five distinct species of micro-organisms out of a total of thirty-four colonies." There is a large plate to illustrate the report.

A SYNDICATE was lately formed in Birmingham for the purpose of purchasing some works of the late Sir E. BURNE-JONES which could be added to the collection in the Municipal Art Gallery. Five examples have been acquired. The largest is the design for a window at East Hampstead, having for subject "The Last Judgment." Another drawing has "Elijah in the Wilderness" for subject. A figure of "Mars" was probably intended for a series of the signs of the Zodiac. A design in pastel shows the "Three Graces." The fifth is an upright sketch called "Helen at the Burning of Troy," which from being unfinished suggests more power than is seen in all the perfected work of the artist. These additions to the gallery are supplemented by some pictures lent by Mr. J. T. MIDDLEMORE, viz. "The Garden of the Hesperides," "Miriam," "The Challenge in the Wilderness," "Christ Blessing Little Children," "The Dream of Lancelot," and studies for the Gorgon's head and for the MAGDALENE in the "Morning of the Resurrection." The peculiarity of the works suggests the advantage of having at least one room devoted to a man who, like DAVID COX, was a credit to Birmingham. The South Kensington Museum has been enriched by three of Sir E. BURNE-JONES'S designs. One is for the mosaic of the "Tree of Life" in the American church of St. Paul, Rome. The second design is part of a window at Castle Howard, and shows the Evangelistic symbols. Mr. C. FAIRFAX MURRAY has presented a model of the apse of the Roman church, with a sketch of the mosaic decoration, the subject being the "Heavenly Jerusalem." Unfortunately the model has been damaged, and two of the figures were obliterated.

THE competition for the Legislative Palace in the city of Mexico has been concluded. It was considered that not one of the designs was worthy of the first premium. Mr. ADAMO BOARI, formerly of Ferrara, but now of Chicago, has received the prize of 1,100*l.* One of 1,000*l.* was awarded to Messrs. BURNHAM & WEBER, Chicago. Messrs. PIO PIACONTI and FELIPO NATALETTI, of Rome, have gained the prize of 900*l.* The third prize of 700*l.* was won by Signor PIETRO PAOLO QUAGLIA, of Naples. Messrs. RAMSOO & Co., of Mexico, have obtained the gold medal with 100*l.*, and Signor GIACOMO MISARUGA, of Rome, the silver medal and 100*l.*

ALTHOUGH many Roman objects are found in Bath, it cannot be said that explorers are equally fortunate in discovering remains which are proofs that Christianity was a power in the district at an early time. Much interest is therefore attached to a relic which was lately discovered during some recent excavations at the Kingston Baths. It is a cross worked on a circular plaque about 3 inches in diameter, and bears the names of the four Evangelists together with a Latin inscription. It is in a perfect state of preservation, with the exception of the date, and is believed to be a consecration cross of the seventh century. It is the first specimen of Christian antiquity discovered in connection with the baths of Bath. At a late meeting of the baths committee the cross was produced by Major DAVIS, the city surveyor of works, who has been most fortunate in bringing to light important evidence of the state of Bath during the Roman occupation. He was requested to confer with the authorities of the British Museum with a view of obtaining an authentic report upon it. Major DAVIS stated that it was exceedingly valuable and that nothing like it had ever been found in England before.

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: LOOKING NORTH-WEST. NORTH TRANSEPT AND CHAPELS OF SS. JAMES AND JOHN.

VILLA AT CANNES, FRANCE.

EXHIBITION OF THE NATIONAL SCULPTURE SOCIETY, NEW YORK.—THE ENTRANCE GALLERY. IN THE ITALIAN GARDEN.

SCULPTURE IN AMERICA.

ART is so well encouraged in the United States, it is no more than reasonable for the sculptors to endeavour to obtain a fair share of the money expended. On both sides of the Atlantic paintings attract most attention, owing in many cases to the unsatisfactory conditions of seeing works in stone, bronze and clay. What can be done by sculptors is, therefore, not generally known. In order to remove some of the impediments to a more general appreciation of the art, the National Sculpture Society was founded three or four years ago in New York. Already the results are satisfactory. In a pamphlet published by Mr. Charles de Kay, the first vice-president, it is said :—

Plastic art has suddenly taken a part in the development of the art of the whole country which no one would have expected. To the Society, it may be said, the country owes the decorations of the Library of Congress. Through its labours the architects of the coming Public Library and Appellate Court of New York have been able to embody sculpture and sites for sculpture in their plans. Had the Society not existed, the chances are great that one of two things would have happened: these buildings would not have been adorned with sculpture at all or they would have been decorated by inferior European artists.

Be that as it may, the important thing to chronicle in connection with these exhibitions of sculpture is the widening of the working field for the sculptor, resulting from a broader view. Sculpture is seen under the most diverse aspects, using the most varied materials. Wood, bronze, silver, ivory and iron, terra-cotta and porcelain, purest Carrara and the splendid coloured marbles of America and Europe, all can be levied upon by the sculptor without fear that pedantic critics and dilettants shall raise the rumpus that deafened poor Gibson's ears. We have plenty of realistic portraiture in sculpture—bas-relief and bust, and standing and equestrian figure ; the time is ripe for ideal pieces as full of sentiment and poetry as a beautiful landscape or marine. We have no Medici to open a garden for the encouragement of our young sculptors. But the Sculpture Society looks forward with hope to the time when its finances will permit of the publication of small limited editions of ideal statuary fitted for the adornment of the drawing-room and the library, the merchant's office and the music room, the school and the boudoir. Such things are better calculated to quicken the love for sculpture than equestrian monuments and the more ambitious statuary of public squares and formal gardens.

A beginning has already been made by the casting of statuettes and small groups, the work of American sculptors, for sale at prices suited to ordinary purses. The reduction machine recently introduced permits of an exact duplication of large groups and statues on any scale, so that a sculptor can now enjoy the royalty on reductions of any work which carries enough weight with the public to warrant the expense. This should be another means of making the people familiar with good sculpture.

The National Sculpture Society is organised for men and women interested in sculpture as well as for professional sculptors. It is not only national, as the membership list shows, and as one sees by the presence of work from sculptors of Washington, Chicago, Boston, Baltimore, Philadelphia and of smaller cities of the Union, but up to a certain point it is international—witness the number of foreign-born sculptors in its ranks or merely exhibitors ; witness the sendings of European artists. Upon its short but useful life, upon its slowly growing membership, upon the tokens of confidence in its judgment received from the public, the Society looks with reasonable pride, trusting to continue to warrant that confidence all the more if placed in such a position as to widen its sphere of usefulness.

The Society is often asked to give, through committee, its advice on some public monument in New York or other city. And though its confidence and right to respectful treatment have been abused occasionally by men who first sought counsel and then overrode the advice received, the Society remains ready to do what it can to encourage a more economical and rational way of adorning cities and buildings with statuary. It stands ready to help monument committees in all parts of the Union, but very naturally it expects ordinary courtesy and consideration for its disinterested efforts.

We are glad to aid the National Sculpture Society by giving a couple of views of the exhibition of this year, which was held in the galleries of the American Fine Arts Society, New York. In the plate of the Italian Garden the central group is a part of Mr. D. C. French's monument to John Boyle O'Reilly, in Boston. It represents *Erin between Poetry and Patriotism.* O'Reilly was connected with some of the insurrectionary movements in Ireland, and was compelled, like many other able men, to become an exile. He found his way to Boston, and as a poet and editor was one of the intellectual forces of that city. On the right is a plaster model of the bronze statue of *Solon* for the Library of Congress, by Mr. Wellington Ruckstuhl, of New York. On the left is another figure from the same building, *Herodotus*, by Mr. D. C. French, of New York. Nearer the front is a group, *Boy with Geese*, forming part of a fountain, by Mr. K. T. F. Bitter, of Weehawken, N.J.

In the plate of the Entrance Gallery on the left is seen the bronze statue of *Hahnemann*, by Mr. C. H. Niehaus, of New York. The reliefs with delicate ornament which are utilised to flank a doorway are part of the memorial of the homœopathist. Near this work is another relief, a part of the Garfield Monument, Washington, showing the President as student. It is by J. Q. A. Ward, of New York, president of the Society. The bronze group in front of Hahnemann is called a *Symbol of Life*, by Mr. Charles Grafly, of Philadelphia. The seated statue on the left is a portrait of Dr. Pepper, by Mr. Bitter, and the large standing figure is Rufus Choate, a prominent politician, by Mr. French. The bronze doorway is from the Library of Congress, by the late O. L. Warner. The group of children is called *The Little Architect*, by Mr. Johannes Gelert, of Chicago. There are also portrait-busts, some of which were coloured ; small groups of various sorts, medallions, &c. The views alone are sufficient to prove that "the National Sculpture Society is doing public work of the highest educational sort, by showing how towns can fit with statuary their public squares and buildings, rich men adorn the gardens about their country seats, citizens decorate their winter gardens and conservatories ; it means at the same time to give to sculptors the chance to produce ideal statuary for the house, seals for corporations, stamp and coin designs for the Government, medals for days of commemoration."

ARCHÆOLOGY OF THE PETERBOROUGH DISTRICT.

THE first day of the congress of the British Archæological Association was occupied with Peterborough. On Friday, the 15th inst., the country excursions began.

Barnack Church.

The ancient church of Barnack was first visited. The Rev. Canon Syers, who received the members, also read a paper on the building. He explained that its exceptional interest from an archæological point of view lies in the wonderful example it gives of five distinct periods of Gothic architecture, the Saxon, Norman, Early English, Decorative and Perpendicular. In the transition from one stage to the other there is no sharp line of demarcation—it is a process of evolution and transition. The square tower is Saxon, but the octagonal spire is an Early English addition. The late Canon Argles, when pulling down the ancient masonry with which the Early English spire designer blocked up the west arch, discovered that the foundations were laid on *débris* believed to have been caused by the burning of the old Saxon church by Sweyn—a fact recorded by Ingulphus in 1013. There is some doubt as to the builder of Barnack Church. The most generally accepted version is that Wilfrith, an Archbishop or Bishop of York, was responsible for its erection, and this would bring the date out at about 670. Wilfrith's patron was Alfrith, Prince of Northumbria, who was connected with the district. The emblematical carvings on the tower—which are identical with known churches built by Wilfrith—strongly support the theory. SS. Peter, John the Evangelist and John the Baptist are the saints to whom he usually dedicated, and these are typified in the sculptures of the cock, the eagle and the dove. The outside walls of the church are Norman work, as is the arcade on the north side of the nave. There is also a Norman side chapel opening from the choir through a fine Norman arch. There are traces of a causeway connecting the church with the Manor House close by, which from 1189 to the time of Henry VIII. was in the possession of the abbots of Peterborough. The south arcade is in the Early English style, while the chancel belongs to the Decorative period. The east window is an almost unique example of crooked canopy work, a similar window existing in the chapel at Merton College, Oxford; and, lastly, the Perpendicular style is represented by a chapel dedicated to Our Lady, separated from the choir by an arch which claims special attention. Up to the caps of the pillars the arch is constructed of Barnack stone, while above the caps the stone is foreign. Canon Syers thinks the explanation is that the quarries of Barnack had given out, which would give the date of the chapel as *temp.* Henry VII.

The Manor House was next seen, where the relics of a Norman hall were inspected, and then the old rectory grounds, where lunch was served.

Wittering and Wansford.

At Wittering Church Mr. Charles Lynam, F.S.A., served as cicerone. It is a less pretentious building than Barnack, but apparently as old. The arch of the nave is typically Saxon, strong and rude. Wansford Church was afterwards seen, Mr. Lynam again conducting the congress over the church there. There are several remarkable features about the

church. It is Saxon, and has a tower. The chancel has disappeared, and the interior consists merely of a nave and a north arcade. Above the west end of the nave, abutting on the tower, has been constructed a quaint gallery, which is used for the choir.

Castor Church.

The fine Norman church of Castor was described by Mr. J. C. Traylen, of Stamford. The church is cruciform in plan, and dates primarily from early in the twelfth century. The finest feature of the Norman work is the tower, which is of the richest possible style of the period. Although the architecture is principally Norman, from time to time additions in the Early English and Decorative styles have been made. The fresco paintings on the north wall representing the three stages of the Christian Church were described with the aid of a paper by Mr. W. H. Saunders. The pillars of the southern arcade in the south transept were said to exhibit the finest possibilities of the Early English period. There is a curious inscription reputed to be Roman over the south chancel door.

Milton Hall.

At this house the members were received by Mr. George C. W. Fitzwilliam. The fine pictures and curiosities of the house were examined with interest. One of the most curious relics was a "christening screen," given by William the Conqueror to an ancestor of the present Earl Fitzwilliam.

Orton Longueville Church.

At the evening meeting in Peterborough a paper on the history of Orton Longueville Church was read by the Rev. Peter Royston, M.A. Orton is contracted from Overton, *i.e.* the village on the other side of the river Nene from Peterborough. The church of St. Botolph (this part of the parish is now known as "Bottle Bridge") having become a ruin, the parish was merged in Orton Longueville in 1721 by the deed of Bishop Gibson of Lincoln (Sweeting), and the stone removed from there went to enlarge the south aisle of a church for the accommodation of its parishioners. The site is marked by an upright gravestone. The parish church is dedicated to the Holy Trinity. It is an interesting structure of uniform date, being of Early Decorated character of about 1320 to 1330, and is unique. The first object which attracts attention is the fine east window, with its five lights, and an excellent specimen of the earliest form of what has been called "net tracery." The lights are cinquefoiled in the head, and a broad fillet extends round the innermost arch, with moulded interior arch and joints, with a base but no capital. The south-east window is of a very unusual type, of highly satisfactory design of the Decorated period, with three lights, cinquefoiled and having a double-feathered trefoil in the tracery. On the north wall is a single window of two lights with a quatrefoil in the head, a very beautiful design of fourteenth-century work. On the west side of the priest's door is a low sized window of three lights, now blocked, two of which were originally glazed and the third had a movable shutter. Adjacent is a stone seat from which the priest administered his alms, whilst near to this window are three "flower balls," of exquisite design, all different in appearance. On the opposite north side is a like seat to the one on the south, and it has often been conjectured why it should be there? Might it not have been for the priest who rang the sanctus bell? On the same side, just outside the altar rails, there is a sharply pointed recess, 7 inches wide and 2 feet 10 inches from the base to the apex of the arch. It has often been conjectured, what was its use? May it not have been for the depositing of the "pyx," the ornamental box with casket, in which the consecrated "Host" was preserved for the use of the sick? To the north and south of the reading-desk and pulpit have been two openings, the former of which is now blocked up. It is presumed that the ladders to the rood-screen were originally here. The south of the nave aisle has been enlarged. This was done for the accommodation of the parishioners living at St. Botolph's when the church there was abandoned. In the east are two windows of three lights of the same date as the church. Attached to the pillar in the south arcade, opposite the south door, is a brass money-box, which is generally used for offerings of women who have been churched. In the tower on the north side is a recess about 9 feet high and 4 feet in diameter, which has puzzled the brains of many archæologists as to what use it was put. It is arched at the apex, and was evidently not intended as a staircase to the belfry, as that is on the opposite side. The rector's opinion is that it was used as a confessional. On the north of the nave is a shallow cupboard in the wall. Upon opening the door there is displayed to view a painting of St. Christopher bearing Christ. It is in a very perfect condition, and is one of the largest known in this country. Beyond this is a marble tablet to the memory of Lord Douglas William Cope Gordon (by H. H. Armstead, R.A.), fourth son of the tenth Marquis of Huntly, who was M.P. for West Aberdeenshire from 1876 to 1880, and for the oun ty of Huntingdon from 1880 to 1885. In the chantry is an ab> rate monument to Lady Elizabeth Conyngham, daughter of the first Marquis of Conyngham and wife of the late Marquis of Huntly. There is also a window placed to his memory by the tenantry, and a monument erected by his wife and family. There is also a sitting figure, a beautiful tribute to Lady Mary Seymour, the wife of Lord Aboyne (by Chantrey). But we must not omit to mention the effigy of a cross-legged knight, somewhat mutilated, but very interesting as being of a date coeval with the erection of the church and probably representing the founder of it. Tradition says this was Sir Overton Longueville. The head and neck have the usual chain haulberk of the period (about 1330), a kite-shaped shield suspended by a strap from the shoulder, the baudrick or sword-belt holds also a dagger in a sheath, the figure has a long surcoat, the legs seem to be partly cased in plate armour, and the foot (only one remains) has the prick-spur. There is not a doubt that this effigy is of the date of Edward II. We must not omit to mention that above a magnificent slab of Alwalton marble is an extraordinary monument with sixteen quarterings, erected to Elizabeth Rayner, only daughter and heiress of William Rayner, of the county of Huntingdon, and wife of Henry Talbot, who died in 1629. He was a close connection of George, sixth Earl of Shrewsbury, who had the custody of Mary Queen of Scots committed to his charge in the eleventh of Elizabeth, when confined at Fotheringhay, and it is said that he passed through the old gateway at the south of the hall, and signed her death warrant the night before her execution. He had been appointed January 16, 1571-72, at the arraignment of the Duke of Norfolk, Lord High Steward of England, and after the execution of that nobleman Earl-Marshal. And now for a few words on the exterior. The tower has the appearance of being oblong rather than square, but this is due to the buttresses, which widen it somewhat on the north and south sides. The two niches on the south side of the chancel may have been used for the figures of saints, or, as someone has suggested, been originally a part of the sedilia, removed and placed there after some restoration of the church. The priest's door in the chancel has an excellent specimen of floriated iron-worked hinges. No doubt this is De Leghton's work of about 1294, and most probably belonged to an older door, and put on here when the church was built. They have the distinctive features of the stamped ornaments and the curious lappets in the inside and outside of the church at the terminations of the label mouldings and masks in notch heads which are well worthy of notice, for they are so designed as when viewed from a distance to resemble a grotesque head, no two being exactly alike in their outline. This feature is prevalent from the latter end of the thirteenth century. And to crown all, we must not omit to mention the fine wheel.

Stamford and Burghley.

On Saturday morning several members left for Stamford. Mr. J. C. Traylen, surveyor to the diocese, acted as cicerone for the day. On the bridge which spans the Welland Mr. Traylen gave a summary of the history of the town, which was considered by Sir Walter Scott to be the finest between Edinburgh and London. In the fourteenth century it was girt by a massive wall and beautified by no fewer than sixteen churches. Over the old bridge which was then thrown across the stream marched the 2,000 knights who wrung Magna Charta from King John. But the old place suffered greatly during the Wars of the Roses, and the men of the North pulled down the Mediæval beauties of the ancient city, so that most of the relics are unmistakably of the Decorated and Perpendicular styles. However, in spite of its vicissitudes, Stamford can probably trace its antiquity with more certainty than any town except London. Some of the finest churches were visited during the morning, and also Browne's Hospital. At the parish church permission was refused to enter either the chancel or the chapel of Our Lady. At Burghley House in the banqueting hall Mr. Gotch, F.S.A., gave a concise history of the building. The State apartments were afterwards visited, and the queenly relics examined.

Peterborough Gentlemen's Society.

At the evening meeting on Saturday, Mr. C. Dack read a paper on the "Peterborough Gentlemen's Society," reviewing its origin and foundation in 1730. It is now called the "Peterborough Book Society." Interesting extracts were read from the minute books of the Society. The local hon. sec. stated that the Spalding and Peterborough Gentlemen's Societies were, especially in their earlier history, much united, and are amongst the oldest societies of their kind in England. The local Society was founded on August 26, 1730, a few years after its parent society of Spalding, which was born in 1719. Mr. J. Rowell was the first president of the Society, which was formed "for the improvement of literature, and the promotion of good-fellowship and good neighbourhood." For fifteen years the Society flourished, and there was a constant interchange of valuable literature, &c., between the two kindred institutions, several gentlemen being members of both societies. A member—the Rev. Marshall—was entered as being "very con-

tentious," and in view of certain alleged misbehaviour on his part he was expelled from the Society. Further contention resulted, and the upshot was legal proceedings ; but the record unfortunately ends here, the result being omitted. From 1750 the minuting secretary seems to have been very dilatory, and from 1760 to 1770 the Society appears to have been languishing more and more. In 1803 a committee of five was appointed, and new rules and regulations were made, and from the record it appeared that two ladies had previously been admitted. It was determined, however, that no such ladies should be admitted in the future. The Society now merged into the title of the "Peterborough Book Society," which might be described as a "limited circulating library." A discussion followed in which it was pointed out that the original minute book was in the hands of the Dean and Chapter of Peterborough, though it was rather a mystery to many how it ever came into their possession. Although the Society changed from the "Gentlemen's" Society to the "Book" Society in 1830 it was still conducted something after the old lines, but it was feared that unless some greater enthusiasm were shown it would soon become defunct. It was demonstrated that in its present condition, when access to the books seemed "quite a favour," it would be better than if the treasures were handed over and locked up in the cathedral library.

Mr. J. T. Irvine said that he did not believe that anyone who approached the proper person in the proper manner would be denied the privilege of access to the literary treasures stored by the Society, for it must remain a public library. If the church were disestablished to-morrow and the treasures of the Society had been handed over to the Dean and Chapter, he supposed the Mayor and Corporation of Peterborough would claim the library just as they would claim the parish burial ground which surrounds it.

Spalding.

On Monday the 18th inst. Spalding was visited. The party were received by Dr. Marten Perry, president of the Spalding Gentlemen's Society. The first building to be visited was the church of SS. Mary and Nicholas, which, from its known history and the completeness of its plan, is of considerable interest. The present church (leaving later restorations out of the question) was built in 1284, and it had its origin in a dispute between the Prior and the parishioners of Spalding. The parishioners, it seems, annoyed the monks at their devotions by ringing the bell of the parish church at "unseasonable hours," so a contract was entered into between both parties. The parishioners on their part agreed to pay 100*l.*, and the Prior and monks on their part agreed to build a church on the site of the old cemetery. And so, in 1284, the present church of SS. Mary and Nicholas came into existence. Previous to this date there evidently was a chapel on the site dedicated to St. Nicholas. This is known, and it is corroborated—if corroboration be needed—by the fact that one of the walls of the chancel is out of the square, having evidently been built on the foundations of the more ancient Norman chapel. The church was undoubtedly cruciform originally, with a chancel, transept and nave. The transept had an east and west aisle, while the nave had a north and south aisle. There still remains a perfect specimen of the rood-loft, which is approached by a flight of circular stairs leading from the nave. The rood-screen dates from 1315, but it has been restored by Sir Gilbert Scott. He has, however, preserved the ancient form admirably, having based his restoration designs upon drawings of the original screen, and the result is a harmonious and interesting whole. The church owes a good deal to one Sir Nicholas Aldwyn, whose insignia—that of a wool-stapler—is in evidence, for he was a benefactor to no small extent. The chapel of St. Thomas à Beckett, which stands on the south of the chancel, was erected in 1315. The windows in this chapel have the distinction of being only equalled in Ely Cathedral. Otherwise they are unique. In 1360 the south transept and aisles were erected, the north porch—still standing, a monument in its entirety to his memory—being added in 1495 by another scion of the Aldwyn family. Much of the shell of the original fabric has been removed in the process of restoration. Galleries once existed all round the church, but these have been mercifully removed. The quarterly meeting of the Spalding Gentlemen's Society, an archæological, antiquarian and literary society, was attended. Dr. Perry, president, gave the history of the Association, which owes its inception to Maurice Johnstone. The library contains a collection of old books, registers and manuscripts. The visitors also examined the library attached to the church of SS. Mary and Nicholas, consisting of 600 ancient volumes, antique and of consuming interest.

St. John's Church, Peterborough.

On the return to Peterborough the members visited St. John's Church. The vicar, Rev. L. T. Jones, M.A., conducted them over the church and called attention to the ancient embroidery—late fifteenth-century work. Admiration was expressed for the lofty and delicate run of nave arching, and much interest caused by the fact of the church having been rebuilt (originally it was in the eastern portion of the city, where the inhabitants were prevented from attending Mass by reason of the excessive floods) between the years 1402 and 1407—a somewhat remarkable fact of an ancient church having been completed so quickly. It was very unfortunate that the tower arches had been blocked up to support the tower, as opening into this church as they originally did lent great dignity to the edifice.

Lathom's Hospital at Oundle.

At the evening meeting Lord Melville read a paper on the history of Lathom's Hospital—an institution for the reception of eighteen aged women, founded and endowed by the Rev. Nicholas Lathom, rector of Barnwell St. Andrew, in 1597, the income of which is nearly 500*l.* per annum. This hospital, his lordship explained, appears to have been founded on the lines of the old bede-houses which existed before the Reformation, and something upon the system of Browne's Hospital at Stamford. The rules by which the institution was governed were curious. No inmate, for instance, was to be "a common swearer or profane atheist." Those who received benefit from the charity were to go to church whenever the bell rang, "or pay a penny." If any woman were discovered to have been guilty of "sossery" (sorcery) she was "to lose her place forever." Some lessons may be learned from charities dispensed by generations long since passed away. It has been the fashion in modern days to scoff at the charities of past times and the works of the past founder and the dead hand ; but when confronted with the original documents for the establishing of such institutions most right-minded persons will scarcely withhold their meed of admiration at the works of men who have left their footprints on the sands of time, traces of which still remain among us.

Caedmon the Poet.

Canon Rawnsley read a paper on "Caedmon, the first English Christian Poet"—the herdman of Hilda's Abbey at Whitby to whom we owe our very vocabulary, and of whom many authors—from Bede to Stopford Brooke—had written eulogistically. The latter said of him, "He was the first who put into verse the new passions and ideas which Christianity had brought to England." Canon Rawnsley went into details—illustrating his remarks by excellent diagrams—concerning the erection of an Anglo-Saxon cross to the dead poet's memory in Whitby churchyard. This memorial was now in course of erection, and would be a beautiful and lasting tribute to the fame of the father of English verse.

Mr. J. S. Phené read a paper on "The Commercial Importance of Peterborough in pre-Roman Times."

Knights Templars at Gidding.

The Rev. W. M. Noble (Wistow) read a paper on the ecclesiastical association of Little Gidding with the Knights Templars and the gallant soldier who fought in Palestine, and who went down into a nameless grave far from his ancestral home.

The Monk's Stone.

Mr. Mark Bullen referred to the stone said to be erected by Godricus of Crowland over the grave of Abbot Hedda and his eighty-four slaughtered monks. Mr. Bloxam had sought to prove, at a former meeting of the Society, that the stone belonged to a period many years later, and was not a commemoration stone at all, but Dean Ingram, in conducting the 1898 congress around the cathedral, had expressed the conviction that this was the original stone, claiming, moreover, that this opinion was shared by every one whose opinion was worth anything at all. He (Mr. Bullen) could not accept Dean Ingram's contention ; but as the very rev. gentleman had stated that he had good reasons with which to support his argument, he trusted that the congress might be favoured with this same information. If eighty monks and an abbot were buried in that one grave, then, taking the memorial-stone in bulk, it worked out at an extremely small proportion of memorial per monk. There would be about $3\frac{1}{2}$ cubic inches for each monk, and an extra half-inch for the abbot. That proportion would do credit to Her Majesty's Board of Works to-day.

Glatton Church.

On Tuesday many members arranged to share in the excursion. Glatton Church was visited under the guidance of the rector, Rev. Mr. Lea, Rev. W. D. Sweeting, Rev. J. K. Archer, Mr. Traylen, Mr. J. T. Irvine and others. The church dates from 1460, but the remains of an earlier building are still evident, and these indicate the handicraft of the thirteenth century. A little door, which by the kindness of the vicar was taken down to give admittance, leads up to the rood-loft, and from thence to a monk's chamber. The church, as a whole, is both handsome and striking. A good deal of the stonework, both inside and outside the church, belongs quite to the Transition period. The outside of the church is worthy of

notice. There is Early English tracery with Perpendicular work above, and in the windows there is a Decorated moulding added to windows of earlier date. A feature of the church is the fine clerestory, which is carried right through the tower, and the wall of the tower is pierced with Perpendicular windows in perfect accord with the windows of the clerestory. This lends dignity to the church and an unusual richness to the tower. The tower, surmounted with its four griffins similar in character to that on the porch of the parish church at Peterborough, is of Barnack rag stone, and similar in date to Kettering, where the same cusped panelling is much used for decorative purposes.

Little Gidding Nunnery.

Of all the quaint little churches in the district there is none like Little Gidding, remotely situated as it is on the frontier line of Hunts. and Norths., in a silent world of its own. The estate on which the little chapel stands was purchased some time ago by the uncle of Rev. W. Hopkinson, purely out of admiration for Nicholas Ferrar, and it has since descended to the rev. gentleman himself. His uncle found the church had been left by the Puritan assault in a ruined condition; he restored its old oak panelling and pillared arcading, quaint old-world furniture and "dim religious light." The Rev. H. Hilton delivered a panegyric on the life and work of Nicholas Ferrar—a man "of great experience, of boundless opportunities. He was no cloistered monk, a brilliant scholar, a Fellow of Clare, a Cambridge professor, an accomplished traveller and linguist, an acceptable companion to royalty, a keen man of business, a wise administrator, a man of advanced liberal views, an M.P. who had made his mark, the rising hope of his Parliament, let alone a man of considerable means; he throws it all over, retires to Little Gidding, lives the life of a recluse, and founded the religious establishment connected with his name."

Conington and Yaxley churches were afterwards visited. Mr. H. M. Townsend described the interior of the church, remarking that the chancel, which was the oldest part of the church, must have been built about 1240 or 1260. The traceries of some of the windows were very beautiful, particularly the lancet windows in the north chancel aisle. The roof of the church was the original one. At the west end was the "parish fire-engine"—a pole with a double hook, used for pulling down burning thatch. It was by no means uncommon to find such pieces of furniture in churches in the Midlands. Perhaps the most interesting feature in the church was a small stone sculptured in relief in the north transept, representing a heart held between two hands. There are only six similar memorials known in England. Tradition, the vicar stated, represented it to be the heart of William of Yaxley, a celebrated abbot of Thorney, who built and endowed this transept. He directed that his heart should be built in the wall of Yaxley Church, and his body buried at Thorney; and, so far as the former direction went, it appeared to have been carried out, as curiosity led a former vicar to make an examination behind the monument, and there he discovered a small cylindrical wooden box containing inside a human heart, quite perfect, but which crumbled to dust in a few moments. The dust was restored to its former place, and the roughly cut box (which was exhibited) was deposited in a cabinet at the vicarage.

The party called in at Old Fletton churchyard on the way back. The tooled cross outside the church was supposed to be Saxon, but, according to Mr. Lynam, was decidedly Norman.

St. Guthlac and the Devils.

At Tuesday's evening meeting a paper was read by Miss Edith Bradley on "Crowland and the Legend of St. Guthlac." It was illustrated by limelight pictures, which were reproductions of drawings from ancient manuscripts in the Harley collection produced under the supervision of Dr. Birch. Miss Bradley first gave a general description of the abbey and of the bridge from information gleaned from ancient and modern sources, and afterwards confined her attention to brief sketches of the lives of the three men whose careers were directly associated with the abbey—Guthlac, Ingulphus and Thurcytel. The series of slides illustrated the history of Guthlac, and represented his journey to Crowland, his tormenting by the fiends, his release by angelic intervention and his death. One very quaint picture showed Guthlac being carried by the imps up to the gates of heaven and down to the jaws of hell. The mouth of hell was depicted, and the figures therein included two monks, a king and an archbishop. Another picture showed Guthlac thrashing a fiend with a whip, while two or three other fiends looked on with undisguised glee at their ill-looking comrade's discomfiture. In another plate one of the figures was shown to be wearing a pair of spectacles. This, Miss Bradley pointed out, was obviously an anachronism—most likely a practical joke on the part of someone who had tampered with the picture. Dealing with the character of St. Guthlac, the speaker said that he possessed those qualities which had from the eighth to the fourteenth centuries made Englishmen—tenacity of purpose and strength of will. In common with Joan of Arc he believed that he received heavenly guidance in his earthly work. He was an austere ascetic, but in the eighth century, within three years of his death, so great was his spiritual reputation that one of the most magnificent of churches was raised to his memory, and he was spoken of as a saint.

Maxey Church and Parish.

Rev. W. D. Sweeting, M.A., read a paper on "Maxey Church and Parish," in which was carefully traced the history of the parish from the earliest records down to the present day. The first mention of the place was in 1013, but there was no mention of Maxey in Domesday. From 1220 the list of ecclesiastics in the parish was complete, though the name of the first could not be discovered. The vicarage house had always occupied the same site, indeed, all the Mediæval residence had been incorporated in the modern structure. The upper chambers of the present house were formerly used as a granary, and when he (Mr. Sweeting) first went to the parish there were parishioners who could remember having carried corn thereto. Referring to the apparently inexplicable distance of the church from the village of Maxey, Mr. Sweeting controverted the theory that there had formerly been a village around the foot of the church, and that the houses had now disappeared. He explained that in remote times there were three hamlets in the parish—Maxey, Lolham and Nunton—and that the location of the church was due to the desire to place the fabric equidistant from the three. Maxey showed at least three—possibly four—distinct periods of Norman work.

Biggin House.

In a paper on Bury-cum-Hepmangrove, the village which now goes by the simple name of Bury, Mr. A. J. Poulter, of Bury, said that at one time the limits of this manor must have been greater than at present, for it is credited with possessing two churches, one only of them remaining, forming a prominent feature in the landscape, as it stands upon the high ground overlooking the Fen towards Ramsey. If, as probably was the case, the manor of Bury-cum-Hepmangrove extended so far as to include the site of what is locally known as the Biggin, it is here we should look for the church, or rather chapel, for this name Biggin is probably the corruption of the name which the place originally bore. It is recorded that a nunnery at one time existed near Ramsey, which was suppressed. If this were a Beguin establishment—these being very numerous in the Middle Ages—the corruption of this name into Biggin is an easy one, not without precedent elsewhere. But that it was a religious establishment of some kind is an opinion greatly strengthened by the finding of fragments of carved stone which formed part of the mullion of a traceried window of a chapel, which would necessarily form an adjunct of such an establishment. These fragments of an earlier building had been incorporated in the walls of the later one, and dislodged by the destruction which goes on in this as in most other old remains. The suppression of this nunnery, if it were one, must have taken place considerably before the dissolution of monasteries, as this building, judging from its style, must have become a secular building and been adapted to domestic purposes early in the Tudor period. What now remains of the domestic Tudor building which followed the ecclesiastical one are but the outer offices and defences of the main structure; the house itself has long since disappeared. It was designated by a writer of the time as a "handsome pile."

The house itself surrounded by the moat, enclosed within walls and buildings sufficiently strong to be defensive, entrance to the enclosed courtyard was obtained through the door in the outer buildings, and from thence access was obtained to the bridge over the moat, and by this means entrance to the house. What little is known of this house is given in Wise and Noble's History of Ramsey (at pp. 207-209). It appears that Sir Philip Cromwell resided here. A writer in 1787 says, "The seat where he resided was a handsome pile, moated round, and not many years since taken down." Biggin House must have been demolished as early as 1757.

On Wednesday the excursions were resumed.

Woodcroft Castle,

the residence of Baron de Lussan, was the first to be examined. The Rev. W. D. Sweeting briefly described the building and a portion of its history. The castle is at present undergoing rebuilding and renovation, an additional storey being added, there having been only two in the original structure. The boundary wall and the round tower are being left intact, but the interior and roofing construction is being entirely altered. There is a substantial moat encircling the castle, except at the point where the old portcullis and drawbridge originally existed. Mr. Sweeting attributed the building to the latter part of the thirteenth century, and explained that the round tower had probably been utilised as a prison or something of that kind, as there were no means of access to it from the interior of the castle. The small square

trefoiled windows were sufficient evidence to justify the belief that the castle had been constructed under foreign supervision, if not by a foreign master builder or architect. The rev. gentleman briefly referred to one well substantiated incident connected with the place. In 1648 the castle was attacked and besieged. Within the castle was a Dr. Hudson, rector of Uffington, near Stamford, and a few gallant men who made a desperate resistance, but ultimately hauled down their colours on promise of quarter. This was not granted, and Dr. Hudson endeavoured to escape by the tower. His assailants pursued him, however, and the doctor climbed over the battlements of the round tower, and hung by a stone water-spout projection over the moat. His inhuman tormentors hacked at his hands as he hung, and maimed and bleeding he fell with a thud into the moat below. He managed to swim to the side, but only to be despatched with spear and pike. An inspection of the castle, as far as was practicable, then followed.

Helpstone Church.

This was the next building visited. The Rev. W. D. Sweeting pointed out the more particular objects of antiquarian interest, especially drawing attention to the unique octagonal tower and the quaint Mediæval tiles at the foot of the altar rails, several patterns of which are in their original setting, whilst others have been rearranged.

Maxey Church.

The vicar (Rev. W. D. Sweeting) addressed the assembly from an ancient tombstone, and gave an interesting history of the adjacent cottage building, known as the Church Hall, once occupied by a Mr. John Smith, on whose tomb, with Latin inscription, he stood. The building, he said, was undoubtedly of fifteenth-century origin, but had been altered into three separate cottages. He also referred to an undoubted discovery he had recently made on his recognising in a secluded place by the river side a cockpit, the existence of which he was previously unaware. The interior of the church was then inspected, the vicar reading extracts from a paper he had delivered the previous evening at Peterborough. He characterised the edifice as a splendid specimen of architecture, showing three or four distinct periods of Norman work. The tower was evidently by the same master builder as that of Castor Church. There were also some specimens of Early Norman work in that church, similar to which none could be traced in Peterborough Cathedral, which showed pretty conclusively that Maxey Church was erected before the date of the more lordly pile. There were also strong evidences of the previous existence of a Saxon church. He concluded that the magnificent Norman arch at the entrance to the lady chapel was of date about 1367.

The party then visited the vicarage, and were shown several interesting curios, including four quaint iron brands for marking cattle, some specimens of Roman pottery made evidently in the neighbourhood, &c.

Northborough Castle and Church.

The historic castle or manor house and church of Northborough came next. Rev. H. J. Dukinfield Astley described the historical and architectural features of the castle, which is historically interesting from the fact that Cromwell had a liking for the place, and spent a great deal of time there. His supposed suite of rooms are now the rendezous of fowls of the air. His widow is said to have passed her last days in the castle with her daughter Mrs. Claypole. There are some beautiful Norman arches over the entrance to the portion of the building now devoted to the pantry and kitchens; there are also oak panelling and fine oak doors. The entrance to the castle is most imposing, having much fine Norman arch work. Northborough Church was described by Mr. Ashley, who said that in its architecture it exhibits the style of the twelfth, thirteenth and fourteenth centuries, but in each case the building as originally planned was never completed, perhaps because funds fell short, or because each succeeding builder planned so boldly that he was never able to carry out either his own or his predecessors' ideas. It is not only a piece of ancient history displaying the progress of Gothic architecture during those periods, but it is also a monument of disappointed hopes and unfulfilled ambitions. The carved oak choir stalls in Peterborough Cathedral were copied very closely from two examples of dressed stone in that church fixed in the wall at the east end of the south side.

The churches of Peakirk, where the late Norman merges into Early English architecture, and Glinton, which has a long slender spire, were the last seen during the excursion.

The closing meeting of the congress, through the kindness of Mrs. Terrot, was held at Woodstone Manor. The Rev. H. J. D. Astley read a paper on Northborough Manor House or Castle and Northborough Church, which had been visited in the afternoon. He confined his remarks more particularly to the castle, the old residence of the Claypoles. In 1646 John Claypole brought his bride there, she being a daughter of Oliver Cromwell, and only seventeen at the time of her marriage. There was a son by this marriage, but he died young and unmarried, so there the line with Cromwell ends, and no Claypole of the present day can lay claim to direct descendancy from the great Protector. The speaker laid particular stress upon the probable resting-place of the great Cromwell's bones. He argued and deduced, and collected evidence and sifted it, until he became partially convinced that Northborough Church was the spot where Oliver Cromwell's remains lie, or at any rate that there is more evidence to suggest his lying there than anywhere else.

Votes of thanks were passed to all who had made the congress successful.

NEW BOARD SCHOOL, EDINBURGH.

THE new day industrial school in Edinburgh, which has been erected by the School Board for the compulsory treatment of truant children under their care, is now completed, and will be opened on September 6 next. Occupying an airy site in St. John's Hill, where the Holyrood Free Church manse formerly stood, the buildings are in the old Scottish style, and in harmony with the architecture of the old town. The frontage is to the north, and to the rear there is a clear view of Salisbury Crags. From its elevated position the school is well off in the matter of light and fresh air, and is conveniently situated in the Dumbiedykes neighbourhood, whence the majority of the day "prisoners" will probably come. Being a mixed school, there are separate entrances from St. John's Hill for boys and girls, and the interior is appointed in such a way that when necessary the sexes may be taught or disciplined separately or together. The school is substantially built, the masonry being faced with Corncockle stone; the partitions in the interior are of red brick, the lower part being glazed; the staircases are wide and convenient, and the fittings elaborate throughout. On the ground floor is situated the office of the school, where the children will be received on admission, and adjoining there is a small bath-room, which will be used for the purpose of the "first wash." To the right of the entrance are the large play-rooms, divided by a folding partition, so that on certain occasions the rooms may be formed into one large hall. Off these play-rooms are the boys and girls' lavatories, fitted with wash-hand basins, baths, and a hot and cold service. There is also a large plunge bath. For the girls, who will do the washing and cleaning required in the school, there is a commodious wash-house, with boiler and fixed tubs, &c. Order and cleanliness will be scrupulously taught, and provision is made for the observance of strict discipline in this direction for both sexes. In the basement there are the hot-water boilers, one for supplying the baths, another for feeding the water pipes which heat the building, and the third the boiler for supplying water for domestic purposes. Corridors run from one end of the building to the other on the first and second floors. In the former is the scholars' dining hall, which is large, well lighted and cheerful, and is furnished with wooden tables and forms, all of which the occupants will require to keep clean. The kitchen adjoining has a service window communicating with the dining-hall, and is fitted up with a large cooking range and porridge and soup boilers. The scullery and store-rooms open off the kitchen, and are supplied with the necessary utensils, the larders being specially fitted up with galvanised bins for keeping the stores of meal, flour, &c. Other conveniences have been arranged, and all enter from the girls' side of the school. On the other side of the corridor are two classrooms, capable of holding forty children each, and separated by means of a folding partition. They are fitted with substantial folding desks, and are well ventilated. On the same floor are also the board-room, which the officials will also use as a dining-room, the lady superintendent's private room, and the officials' cloak-room and lavatories. The top storey contains a couple of classrooms corresponding to the ones below, a large workroom, which will probably be fitted up as a joinery, and other spare rooms, in which will be carried on any other industry, such as mat-making, which the Board may prescribe. The janitor's house is also on this flat. Altogether the school seems admirably adapted for the purpose the Board have in view. The building has been properly appointed, and is thoroughly ventilated by the extract system, the ventilating fan being driven by a gas-engine. As yet there is nothing to relieve the monotony of the bare walls, but three interesting relics of the old manse have been rescued and placed in the corridors. They are frescoes of rustic scenery, and are supposed to be the work of Nasmyth. Outside are large concreted playgrounds and offices. Mr. Robert Wilson, architect, Queen Street, designed the buildings, which were erected by Mr. James Kinnear, builder. The cost of the building, which is certified to accommodate 160 scholars, is a little over 9,000*l.*, and the price of the site about 2,000*l.*—together over 11,000*l.*

TESSERÆ.

Michel Angelo as a Colourist.

FRESCO, which does not admit of that refined variety of tints that are the privilege of oil painting, and from the rapidity with which the earths, its chief materials, are absorbed, requires nearly immediate termination, is for those very reasons the immediate minister and the aptest vehicle of a great design. Its element is purity and breadth of tint. In no other style of painting could the generic form of Michel Angelo have been divided, like night and day, into that breadth of light and shade which stamps their character. The silver purity of Correggio is the offspring of fresco; his oil-paintings are faint and tainted emanations of the freshness and "limpidezza" in his frescoes. The master of the colour we see in the Sistine Chapel could have no other, for though colour be the least considerable of that constellation of powers that blaze in its compartments, it is not the last or least accomplishment of the work. The flesh of the academic figures on the frames of the ceiling is a flesh even now superior to all the flesh of Annibale Carracci in the Farnese, generally pale though not cold, and never bricky though sometimes sanguine. The "Jeremiah among the Prophets" glows with the glow of Titian, but in a breadth unknown to Giorgione and to him. The "Eve under the Tree" has the bland pearly harmony of Correggio, and some of the bodies in air on the lower part of the "Last Judgment," less impaired by time or accident than the rest, for juice and warmth may still defy all competition. His colour sometimes even borders on characteristic variety, as in the composition of the "Brazen Serpent." That a man who mastered his materials with such power did reject the certain impediments and the precarious and inferior beauties of oil, which Sebastian del Piombo proposed for the execution of the "Last Judgment," and who punished him for the proposal with his disdain for life, cannot be wondered at. The object of admiration in Michel Angelo's colour is the tone, that comprehensive union of tint and hue spread over the whole, which seems less the effect of successive labour than a sudden and instantaneous exhalation, one principle of light, local colour, demi-tint and shade. Even the colours of the draperies, though perhaps too distinct, and often gayer than the gravity of their wearers or the subject allowed, are absorbed by the general tone, and appear so only on repeated inspection or separation from the rest. Raphael did not come to his great work with the finished system, the absolute power over the materials, and the conscious authority of Michel Angelo. Though the august plan which his mind had conceived admitted of lyric and allegoric ornament, it was upon the whole a drama and characteristic; he could not, therefore, apply to its mass the generic colour of the Sistine.

Canons of Proportion.

There is no form, perhaps, in nature which admits of such variety, both in appearance and proportion of parts, as the body of man, and which therefore seems so little capable of being reduced to any definite system of proportion. The proportions of the form of the infant are different from those of youth, these again from those of manhood, and these again perhaps still more from those of old age and decay. If there were any instinctive sense of beauty in form in this long history there would be one age only in which this sense could be gratified. Yet everyone knows not only that each of these periods is susceptible of beautiful form, but what is much more, that the actual beauty in every period consists in the preservation of the proportions peculiar to that period, and that these differ in every article almost from those that are beautiful in other periods of the life of the same individual. The same observation is yet still more obvious with regard to the difference of sex. In every part of the form the proportions which are beautiful in the two sexes are different, and the application of the proportions of the one to the form of the other is everywhere felt as painful and disgusting. If, however, there were any original and essential beauty in some definite proportion of parts, such effects could never happen. This definite proportion in every case would be solely beautiful, and every variation from it would affect us as a deviation or opposition to the genuine form of beauty. It may be observed, in the same manner, that if the beauty of form consisted in any original proportion, the productions of the fine arts would everywhere have testified it, and that in the works of the statuary and the painter we should have found only this sole and sacred system of proportion. The fact, however, is (as everyone knows) that in such productions no such rule is observed; that there is no one proportion of parts which belongs to the most beautiful productions of these arts; that the proportions of the Apollo, for instance, are different from those of the Hercules, the Antinous, the Gladiator, &c.; and that there are not in the whole catalogue of ancient statues two perhaps of which the proportions are actually the same. Against the hypothesis of an instinctive beauty in proportion no fact can be so decisive as this. If here were any original beauty in peculiar proportions of the human form the artists of antiquity must have perceived it, when it was so easy a matter to ascertain it only by the labour of measurement and calculation; and that their productions are independent of such definite proportions, and that their effect is still produced amid all this variation of proportion, are irrefragable proofs not only that the beauty of their works is not dependent upon such a theory of proportion, but that it arises from some higher causes and from some more profound attention to those feelings of human nature in which the sentiment of beauty is to be found.

The Theban Corinthian Order.

In the church of St. Demetrius at Thebes may be seen several beautiful capitals of that most ancient pattern of the Corinthian order which is entirely without volutes at the corners, and has a single wreath of the simplest acanthus foliage to crown its base. It is only known to those persons who have seen the very few examples of it which exist among the ruins of the Grecian cities. There is no trace of it among the remains at Rome, yet in point of taste it is so exceedingly superior to the more ornamented and crowded capitals which were afterwards introduced, that both the rival *connoscenti* at Athens, Lusieri and Fauvel, have drawn and modelled it, and they have spoken of its discovery as forming an epoch in the history of art. In one or two instances the attention of the ancient sculptor to simplicity has been so severe that even the edges of the foliage have not been ruffled, but expressed in gross; and consequently the admirers of excessive minuteness in the detail of little parts will call such capitals unfinished, although the grandeur of design, when viewed at the distance in which such objects were intended to be seen, especially in the majestic temples of Greece, be thereby considerably augmented. It is to this cause that the Doric, in buildings of so much vastness, owes its superiority over all other orders of architecture; to that simplicity which is the very soul of grandeur, where nothing that is little can be tolerated for an instant. Excessive minuteness of design may suit the puny imitation of Grecian architecture seen in the buildings of modern cities, upon the same principle that it is allowable in a piece of Chinese carving in ivory, because works of this kind are intended for a small scope of observation, but when such minuteness is introduced into the vast features of a gigantic style, it becomes superfluous and contemptible.

Symbols on Tombs.

The Greeks, instead of the inscription, sometimes engraved the instruments of the profession of the defunct; often, also, emblems which marked their temper and character, or symbols and figures of that which they liked best. To heroes they raised tombs of superior execution, in which they placed their ashes, and put upon them a column bearing the marks and symbols of the deceased. The instructions which Trimalchio, in Petronius, gives for the bas-reliefs of his own tomb, and the immense collection of Boissard, show that the Romans followed these rules and lead to an inference that such sepulchres are subsequent to the Roman conquest of Greece. The pretended monument of the Curiatii, consisting of a square base supporting one large cone in the middle and four others smaller, one at each angle, was probably a much earlier fashion, for a pyramid was placed on the top of the celebrated mausoleum of Artemisia. The bas-reliefs upon tombs were sometimes arbitrary, but frequently had a meaning complimentary to the deceased. Trimalchio desires that the likeness of his dog may be formed at the feet of his statue, and the monument be adorned with garlands and representations of the combats which should take place at his funeral. Upon the monument was to be carved a ship under full sail to show that he obtained his wealth as a merchant, in which ship he should be represented sitting, clothed in magisterial robes and insignia, pouring out riches upon the multitude; also a triclinium, and the people feasting therein. At his right hand was to be placed his wife Fortunata, with a Sicilian dove, and holding a dog by a chain, also amphoræ well secured, while one was to appear broken and upon it a boy weeping for the misfortune. The whole was to be surmounted by a sun-dial, that the eye of the traveller, willing or unwilling, might be attracted to the inscription recording his name. Elpenor says to Ulysses, "Put an oar upon this sepulchre with which I used to row with my companions," and though many decorations of tombs were capricious, yet there are some which may be considered as symbolical.

Cyclopean Walls.

The general character of the Cyclopean style is immense blocks without cement, and though the walls are now irregular, from smaller stones which filled up the interstices having disappeared, yet they were once so compact as to seem an entire mass. The stones at the foundation were smaller than those above. Schneider, editor of "Vitruvius," contends that the style called by that author "insertum" does not mean small stones thrown into cement, but large stones, among which smaller

were inserted—a style called "antiquum" also by Vitruvius because it was the most ancient manner of building. Hamilton divides the style into four periods, viz. the first or oldest is that used at Tiryns and Mycenæ, consisting of blocks of various sizes, of which the interstices are or were filled up with small stones. The second, as at Iulis and Delphi, is marked by polygonal stones, which nevertheless fit into each other with great nicety. In this style there are no courses. The third, as in the Phocian cities, and in some of Bœotia and Argolis, is distinguished by the work being made in courses, and the stones, though of unequal size, being of the same height. The fourth and youngest style presents horizontal courses of masonry, not always of the same height, but formed of stones, which are all rectangular. This style was chiefly confined to Attica. Tiryns is the first-known specimen of military architecture or improvement upon earthworks, for Pliny says that the Cyclops are affirmed to have been the inventors of the fortifications of towns and also of towers in these identical instances, of Tiryns and Mycenæ. Sir William Gell adds that Tiryns is the best specimen of the military architecture of the heroic ages. Homer calls it the well-walled Tirynthus.

Invention in Painting.

The invention of a painter consists not in inventing the subject, but in a capacity of forming in his imagination the subject in a manner best accommodated to his art, though wholly borrowed from poets, historians or popular tradition. For this purpose he has full as much to do, and perhaps more, than if the very story was invented, for he is bound to follow the ideas which he has received, and to translate them into another art. In this translation the painter's invention lies; he must in a manner new-cast the whole, and model it in his own imagination; to make it a painter's nourishment it must pass through a painter's mind. Having received an idea of the pathetic and grand in intellect, he has next to consider how to make it correspond with what is touching and awful to the eye, which is a business by itself. But here begins what in the language of painters is called invention, which includes not only the composition or the putting the whole together, and the disposition of every individual part, but likewise the management of the background, the effect of light and shadow and the attitude of every figure or animal that is introduced or makes a part of the work. Composition, which is the principal part of the invention of a painter, is by far the greatest difficulty he has to encounter. Every man that can paint at all can execute individual parts, but to keep those parts in due subordination as relative to a whole requires a comprehensive view of the art, that more strongly implies genius than perhaps any other quality whatever.

Plant Forms and Ornament.

There appears to be no form which is peculiarly or solely beautiful, and as in winding or curvilinear forms the general nature of language seems to ascribe this beauty to their expression of delicacy and not to the mere circumstance of form itself, it appears probable that the beauty of such forms arises from this expression and not from any original fitness in such forms to excite this emotion. When winding or curvilinear forms cease to be expressive of tenderness or delicacy it will be found that they cease also to be felt as beautiful. The greater part of beautiful forms in nature are to be found in the vegetable kingdom, in the form of flowers, of foliage, of shrubs and in those assumed by the young shoots of trees. It is from them, accordingly, that almost all those forms have been imitated which have been employed by artists for the purposes of ornament, and whoever will take the trouble of reviewing the different ornamental forms will find that they are almost invariably the forms of such vegetables or of such parts of vegetables as are distinguished by the delicacy and tenderness of their texture. There are many parts, however, of the vegetable kingdom which are not distinguished by this character of delicacy. The stem of some species of flowers and of almost all shrubs, the trunk and branches of trees, are distinguished by opposite characters and would indeed be unfit for the purposes of vegetation if they were not. In these subjects, accordingly, the winding or serpentine form is very far from being beautiful, as it has no longer its usual expression of fineness or delicacy. In the smaller and feebler tribe of flowers, for instance, as in the violet, the daisy or the lily of the valley, the bending of the stem constitutes a very beautiful form, because we immediately perceive that it is the consequence of the weakness and delicacy of the flower. In the rose, on the contrary, and the white lily, and in the tribe of flowering shrubs, a class of vegetables of greater strength, the same form assumed by the stem is felt as a defect, and instead of impressing us with the idea of delicacy leads us to believe the operation of some force to twist it into this direction. In the young and feeble branches of such plants, however, this form is again beautiful, when we perceive that it is the consequence of the delicacy of their texture and of their being overpowered by the weight of the flower. In the vine or ivy, in the same manner, the winding of the young shoots and feebler branches constitutes very beautiful forms. In the direction of the stem, on the other hand, such forms are felt as a defect, as no longer expressive of delicacy, but of force. In the growth of the stronger vegetables, as of trees, where we know and expect great strength, nothing can be so far from being beautiful, as any winding or serpentine form assumed by the trunk. The beautiful form of such objects is of so very different a kind that it is in the opposite form only that we perceive it. In the direction of the branches the same character is expected, and a similar defect would be felt in their assuming any regularly winding or curvilinear form. It is only when we arrive at the young shoots, and that only in their infant season, in spring, that we discover again the serpentine form to be beautiful, because it is then only that we perceive it to be really expressive of tenderness or delicacy. Observations of this kind are within every person's reach, and it will be found that in the vegetable kingdom the winding or serpentine form is no longer beautiful than while it is expressive of some degree of delicacy or fineness, and that it ceases to be beautiful whenever it is assumed by bodies of a different kind.

Sandro Botticelli.

Sandro was a man of singularly inventive genius and endowed with an ardent and highly poetic temperament, which often betrayed him into an excess of phantasy. But the sense of life which glows through all his productions extenuates the frequent fault of over-vehement action in his figures. If he seldom attained the dignity of his master, Fra Filippo Lippi, in pose, and generally fell short of him in majesty and simplicity of drapery, as well as in refinement of colour, he nevertheless reached a high degree of excellence in both of these last qualities. Where Fra Filippo was all repose Sandro was all movement. His range of subjects was immense, according to the calls of his patrons and the untamable energy of his own nature. It extended from great scriptural compositions, as in his frescoes in the Sistine Chapel and large altar-pieces treated with great power, through the most touching scenes in the life of the Virgin, to events in classic history, including allegorical and mythological subjects. All these he treated in a form which was the natural outcome of the Renaissance, but with a verve, naïveté and pathos peculiar to himself. He was a profound student of Dante, whose "Divine Comedy" he illustrated, and even annotated; and there can be little doubt that the "Convito" was suggestive to him in many of his conceptions. He became a follower of Savonarola, and no doubt suffered from it. The contemporaneous reputation of Botticelli stood high, and Vasari reckons him as the best painter in Florence on the death of Fra Filippo. The same writer makes him the instructor of Filippino Lippi. Having been a man of careless habits as regards money, and erratic in his work, he finally fell into a state of poverty, and was supported in his declining days by the Medici and other friends until his death, May 17, 1510. He was buried in a tomb, constructed by his father, in the church of Ognissanti, Florence. His extant works are numerous, although many bearing his name can only be considered as having issued from his *bottega*.

Merton College Glass.

The glass in Merton library, Oxford, exhibits a mixture of Decorated and Perpendicular features. For instance, the character of the borders of the lights is Decorated, and the "smear shading" of the Agnus Dei is a Decorated feature; whilst the smooth and even tint of the ruby, and the thinness of its colouring matter (which will easily be perceived on a close examination of the circle containing the Agnus Dei on the red ground), and the design of some of the quarries, as clearly characterise the Perpendicular style.

CITY IMPROVEMENTS.

At the meeting of the Court of Common Council on the 21st inst., the finance and improvements committee submitted for approval a plan for continuing the improvement of Fleet Street by making it 60 feet wide westward of St. Dunstan's Church to the City boundary. They recommended that on the London County Council signifying its intention of contributing half the net cost of carrying out that section of the improvement, notice be served to acquire the ground needed in front of Messrs. Gosling's bank, and that they (the Corporation) be authorised to take the necessary steps for taking back the other premises as opportunities occurred. The report was approved.

A report was presented from the City lands committee enclosing a letter from the Secretary of State for the Home Department, stating the terms upon which Her Majesty's Government would co-operate in the scheme for the rebuilding of the Sessions House, Old Bailey. The Government would be ready to hand over to the Corporation the male wing of

Newgate Prison in consideration of the sum of 40,000*l.* No demand would be made on the Corporation to provide prison accommodation in lieu of that wing or to provide extra cells at Holloway, but some sleeping cells and a kitchen should be added to the new Sessions House. The committee in their report asked the Court of Common Council to sanction the proposal set forth in the letter, and to refer the matter back to them to carry into execution.

Mr. Baddeley, the chairman of the committee, said it was a source of great gratification to know that after twenty years' negotiation with successive Governments they had got from the present Government this very good offer. They were now within measurable distance of having a Sessions House worthy of the City of London.

Mr. Alderman Alliston congratulated the committee upon the successful result of their negotiations. He hoped that the new Sessions House would be a credit to the City, because the administration of justice was not only one of the duties, but one of the privileges of the Corporation.

The report was agreed to, and the Court adjourned for the vacation.

NEW THEATRE FOR KENNINGTON.

ON the 25th inst. Sir Henry Irving laid the commemoration stone of the new theatre which is in course of construction in the Kennington Park Road, on the site which was once occupied by the palace of the Bishops of Rochester. The Princess of Wales Theatre, as this new temple of the drama is to be designated, has been designed by Mr. W. G. R. Sprague, and will occupy an excellent site, having frontage of about 80 feet to Kennington Park Road, 130 feet to South Place, 90 feet to De Laune Street.

The whole of the main frontage will be executed in white Portland stone. The elevations are of rich Italian Renaissance character. The more expensive parts of the house will be entered from Kennington Road by a few broad steps running the entire length of the 50 feet wide stone colonnade, into a vestibule or lobby, and thence to the grand crush-room. This apartment will be one of the features of the building, having a length of 42 feet and a width of 22 feet. The wall will be of a specially selected Italian marble and recessed marble columns will add to its beauty, whilst specially designed and deeply recessed fireplaces at each end will enhance the general effect of comfort and luxury. From this crush-room ascends a bold marble staircase 27 feet wide, branching off on each side to the dress circle, with a separate entry to each side of the stalls.

Directly above the main crush-room will be a ladies' foyer and the grand saloon, both of those apartments being quite separate and treated in the same rich style of decoration. The ornamentation throughout the interior will be French Renaissance with a free introduction of paintings on ceilings and panellings, whilst the draperies and colourings throughout will be of harmonious and soft tints with a free use of gold, so that the utmost effect of richness and harmony may be obtained without the making of any one colour obtrusive.

The auditorium, constructed on the cantilever system without a single pillar to obstruct the view from any part of the house, will have an average depth of 70 feet and a clear width of 60 feet. It is arranged in two tiers, viz. stalls, pit-stalls and pit on the ground-floor, dress-circle forming the first tier or balcony, and the gallery and amphitheatre being the second tier. The decorations of the auditorium throughout will be rich and the electric light will be employed in the scheme of decoration.

Exceptionally large and richly-decorated saloons are adjacent to each part of the theatre, the pit-saloon having the walls entirely covered by fancy tiling. The lavatory accommodation has received special care, and will be as perfect as modern science can make it. In every case the walls are lined with white or fancy tiles. The gallery staircase and pit entries and exits, &c., will be lined with white or other glazed bricks.

The theatre throughout will be heated and ventilated on the plenum system, and fresh air of the required temperature will be distributed by flues and channels to the different parts, the foul or used-up air being gently forced through powerful exhausts. A complete set of hydrants and fire appliances is arranged, and the stage will be fitted with a special double steel and asbestos fireproof curtain, controllable by one man. The stage will be about 80 feet wide and 50 feet deep. The electric light will be generated by steam plant, and will be of sufficient power to give any possible electrical stage effects without diminishing the other lighting of the house, &c. The dressing-rooms are numerous, are fitted with all the latest sanitary appliances, are heated throughout and well ventilated, and are entirely separated from the stage by stout brick walls and iron doors. Large scenery stores, painting-rooms, property-rooms, &c., are all included in the scheme.

As giving some idea of the thoroughly up-to-date nature of the structure, it should be mentioned that the iron girders which support the upper parts of the auditorium on the cantilever system, are the largest that have been used in any theatre in the country.

The contractors are Messrs. Walter Wallis & Co., contractors, Balham.

For this new playhouse South Londoners are indebted to the enterprise of Mr. Robert Arthur, who, if not already well known in the Metropolis, has achieved a well-deserved reputation in the provinces, where the limited liability company of which he is the chief manages the theatres at Aberdeen and Dundee, the Royal, Newcastle, Royal Court, Liverpool, and Royal, Nottingham, the Kennington Theatre is entirely a private enterprise of Mr. Arthur's, who has also secured the English rights of M. Messager's new opera, "Les Petites Michu," which he expects to produce at a West-end theatre at no distant date.

GENERAL.

Mr. A. G. Temple, F.S.A., director of the Corporation Art Gallery, has received the decoration of Officier de l'Instruction Publique, in commemoration of the exhibition of the French art collection at Guildhall and the hospitality extended to French art and artists in connection with it.

The Municipality of Malo-les-Bains have offered prizes of 500 francs, 300 francs and 200 francs for the best designs for a "poster" suggestive of the attractions of the watering-place.

The Late Mr. Nicholas Carter, the first mayor of Harrogate, granted to the Corporation at a nominal price, about fourteen years ago, about two acres of building ground in the centre of the town for a town-hall. His intention was never realised. It is now urged that the Corporation should fulfil the trusts of the bequest.

Mr. C. T. Part has resigned his seat on the Herts County Council. In his letter he says, "It appears that although I may sell road material to the highways committee, of which I am a member, I may not be a partner in a bank which has the account of the asylums committee, of which I am not a member."

The Edinburgh School Board have decided to erect three new schools. The sites selected are at Comely Bank, in the north-western part of the city, New Market Street and Parson's Green. The cost will probably be from 70,000*l.* to 75,000*l.*

The Prize Distribution at the Royal College of Art, South Kensington, which was to have taken place on July 29, has been postponed.

A Museum of Casts from Antique Sculpture has been opened in the Louvre. The riding school of the late Prince Imperial has been appropriated to accommodate it.

A Design by Herr Thiersch has been adopted for the German palace at the Paris Exhibition of 1900.

The Final Meeting of the British Commission for the Brussels International Exhibition has been held. It was reported that the gross surplus remaining out of the Government grant of 5,500*l.* was 2,475*l.* 7*s.* 8*d.*, and the net surplus, after meeting certain appropriations, was upwards of 700*l.* It was resolved to authorise the treasurer, Sir Edward H. Carbutt, to remit this amount to the Chancellor of the Exchequer.

M. Lucien Merlet, the French archæologist, has died in Chartres in his seventy-second year. He was the author of several works, and besides served the State as keeper of archives.

M. Bourgeois, the French Minister of Public Instruction, in opening the new galleries of the Jardin des Plantes congratulated M. Dutert, the architect, and M. Cormon, the painter.

The New Synagogue in Strassburg, which is approaching completion, was designed by Professor Ludwig Levy, of Carlsruhe.

Mr. Hamo Thornycroft, R.A., has visited Dublin to consider question of site and other subjects connected with the statue of the late Lord Plunket, archbishop of the diocese.

The Hope Collection has been disposed of to Mr. Wertheimer for the sum of 121,550*l.* There are eighty-three pictures by Dutch and Flemish artists. Five years ago the collection was valued at 80,000*l.*

The Lord Provost's committee of the Edinburgh Town Council have recommended the Council to approve of the elevation and plans for the southern portion of the site in North Bridge Street, purchased by the Commercial Bank of Scotland, Limited.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

BIRMINGHAM.—Designs for manufacturing buildings, area 3,000 square yards, with basement, sub-basement and four or five storeys, in Birmingham. Particulars from Mr. H. L. Müller, Birmingham.

GLASGOW.—Aug. 15.—Designs are invited for the exhibition buildings to be erected on sites in the Kelvingrove Park and Bunhouse Ground. A premium of 200*l.* will be awarded to the author of the design considered first in merit, second and third premiums of 150*l.* and 100*l.* respectively. Mr. H. A. Hedley, general manager and secretary, 141 Buchanan Street, Glasgow.

LEAMINGTON.—Free library and institute. 100 guineas (merged), 50 guineas. Particulars from Mr. H. Consett Passman, town clerk, Leamington.

LIVERPOOL.—Oct. 3 (time extended).—Designs for new buildings for Royal Institution. 50 guineas, 20 guineas. Mr. Harold Waterhouse, hon. sec., 3 Cook Street, Liverpool.

PLYMOUTH.—Buildings in Tavistock Street (250*l.*). Particulars from Mr. J. H. Ellis, town clerk, Plymouth.

ROTHERHAM.—Plans are invited for proposed extensions of the Baptist schoolroom, Westgate, Rotherham, at a cost of about 600*l.* Mr. A. Crowcroft, Clifton Crescent South, Rotherham.

SALFORD.—Aug. 16.—Designs for three chapels, offices, lodge, entrance gates and boundary walls at proposed cemetery in Langley Road and Agecroft Road, Pendlebury. Premiums of 50*l.*, 30*l.* and 20*l.* respectively. Borough Engineer, Town Hall, Salford.

STOCKHOLM.—Aug. 31.—Designs for railway station Particulars from the Offices of the Consulate, 27 Great Winchester Street, London.

CONTRACTS OPEN.

ABERDEEN.—Aug. 5.—For erection of a parish church hall, Kintore. Mr. Roger, session clerk.

ABERDEEN.—For erection of a cottage at Glasgoego, Blackburn. Mr. James Kemp, 621 George Street, Aberdeen.

ALDERLEY EDGE.—Aug. 2.—For erection of a generating station and electric-lighting works at Belmont. Mr. W. E. Rowcliffe, 30 Cross Street, Manchester.

BATLEY CARR.—Aug. 8.—For erection of a branch store in Warwick Road. Messrs. Holtom & Fox, architects, Northgate, Dewsbury.

BEXHILL.—Aug. 15.—For erection of boundary-walls, railing, kerbing, paving and channelling the footpaths and other works opposite the town hall. Mr. Geo. Ball, surveyor, Town Hall, Bexhill.

BLETCHLEY.—Aug. 2.—For erection of two cottages and a shop, with alterations to existing shop, in Albert Street. Mr. A. E. Wade, 1 Albert Street, Bletchley.

BRADFORD.—Aug. 4.—For erection of a store and five houses in Gilpin Street, Barkerend Road. Messrs. Rycroft & Firth, architects, Bank Buildings, Manchester Road, Bradford.

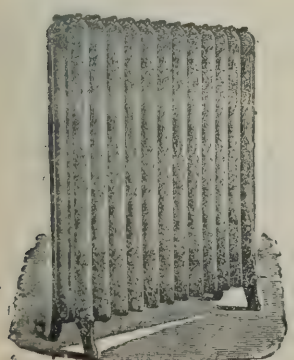
BRADFORD.—Aug. 4.—For erection of eleven through houses, Newburn Road, Great Horton. Mr. Sam. Spencer, architect, 244 Great Horton Road, Great Horton, Bradford.

BRIDGEND.—Aug. 2.—For erection of closets and lavatories to the Pontyrhyl Board schools. Mr. D. Edmonds, clerk, Bettws.

BRIDLINGTON QUAY.—Aug. 2.—For alterations and additions to Carnaby House and premises. Mr. J. Earnshaw, architect, Wellington Road, Bridlington Quay.

BRIGHTON.—Aug. 2.—For alterations and additions to the gentlemen's cloakroom and lavatory at the Royal Pavilion. Mr. Francis J. C. May, Town Hall, Brighton.

BRISTOL.—Aug. 6.—For erection of a police-station at Staple Hill, near Bristol, for the Gloucestershire Standing Joint Committee. Mr. M. H. Medland, architect, 15 Clarence Street, Gloucester.



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ESTIMATES FREE.



BURNLEY.—Aug. 13—For erection of imbecile wards in the grounds of the workhouse. Mr. S. Keighley, architect, Nicholas Street, Burnley.

BURY.—For erection of premises for the *Bury Guardian* Company, Limited. Mr. Alfred Hopkinson, architect, 15 Agur Street, Bury.

CAMBERWELL.—For alterations and additions to the Manor Laundry, George Street. Messrs. Johnstone Bros., architects, 39 Lowther Street, Carlisle.

CARDIFF.—Aug. 3.—For erection of an infants' school, manual instruction centre and other work at Severn Road school. Messrs. J. P. Jones, Richards & Budgen, architects, 18 St. Mary Street, Cardiff.

CHOLLERTON.—Aug. 3—For additions and alterations to the Chollerton parochial schools. Right Rev. Bishop W. B. Hornby, Chollerton.

CLACTON-ON-SEA.—Aug. 6.—For erection of a cottage hospital. Mr. J. W. Martin, architect, Station Chambers, Clacton-on-Sea.

CLAYTON.—Aug. 2.—For alterations, &c., to the wash-house and laundry at the workhouse. Mr. Sam Spencer, architect, 344 Great Horton Road, Great Horton, Bradford.

COLNE.—Aug. 3.—For erection of Board schools on the Park site. Mr. H. Holgate, architect, Market Street, Colne.

CONSETT.—Aug. 31—For erection of the new institute buildings in Park Road, Consett. Messrs. Plummer & Burrell, architects, 13 Grey Street, Newcastle-upon-Tyne.

DEVONPORT.—Aug. 4.—For erection of a rectory house at Stoke Damerel. Mr. W. D. Caroe, 8A Whitehall Place, London, S.W.

DEVON.—Aug. 4.—For repairs to house and buildings at Forda Farm, Ashwater. Messrs. Thompson & Co., surveyors, 24 Gandy Street, Exeter.

DEVONPORT.—Aug. 4.—For erection of an additional storey to the workhouse infirmary, for the Guardians of Stoke Damerel. Mr. H. G. Luff, architect, 64 Chapel Street, Devonport.

DONCASTER.—Aug. 3.—For erection of an isolation hospital adjoining Common Lane, Balby. Mr. William H. R. Crabtree, borough surveyor, 3 Priory Place, Doncaster.

ELGIN.—Aug. 1.—For erection of an hotel and offices at Archiestown. Mr. James Jamieson, architect, Elgin.

ELGIN.—Aug. 2.—For erection of refreshment-room at the Elgin Auction Mart. Mr. Charles C. Doig, architect, Elgin.

FOLESHILL.—For erection of three dwelling-houses, Lockhurst Lane. Mr. T. F. Tickner, architect, 7 Bishop Street, Coventry.

GILDERSOME.—Aug. 3.—For alteration and addition to Street Lane Board schools. Messrs. Buttery & Birds, architects, Queen Street, Morley.

GLOUCESTER.—Aug. 15.—For erection of infectious diseases hospital and buildings in connection therewith at Over. Messrs. Evans & Son, 7 John Street, Adelphi.

HALIFAX.—Aug. 6.—For erection of caretaker's house, for Halifax Cricket and Football Club. Mr. Medley Hall, architect, 29 Northgate, Halifax.

HALIFAX.—Aug. 12.—For alterations and additions to Pioneer Tool Works. Mr. Medley Hall, architect, 29 Northgate, Halifax.

HALIFAX.—Aug. 11.—For erection of a house, shop and offices, West Vale. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HAMMERSMITH.—Aug. 4.—For distempering and other works at the infirmary, St. Dunstan's Road. Mr. T. Aplin Marsh, 75 Fulham Palace Road, Hammersmith, W.

HAMPTON WICK.—Aug. 3.—For repairs and painting offices and lamp standards generally, for the Hampton Wick Urban District Council. Mr. J. Nixon Horsfield, surveyor, Hampton Wick.

HANDSWORTH.—Aug. 8.—For erection of new schools at Woodhouse (West). Mr. John D. Webster, architect, Cairns Chambers, 19 St. James's Street, Sheffield.

HEREFORD.—Aug. 2.—For enlargement of the main room of Letton School. Rev. R. Bishop, Letton Rectory, Hereford.

HUDDERSFIELD.—Aug. 2.—For erection of three shops, Station Road. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

ILKLEY.—Aug. 9.—For erection of a block of three villas. Messrs. Isitt, Adkin & Hill, architects, Prudential Buildings, Bradford.

IRELAND.—Aug. 1.—For alterations and additions to Drumragh Catholic church, and for erection of a caretaker's residence. Mr. James L. Donnelly, architect, 8 Castle Street, Omagh.

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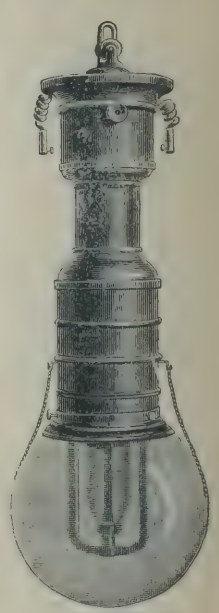
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KERRY.—Aug. 1.—For erection of choir and other works. Plans and specification at the Presentation Convent, Mount St. Joseph's, Rathmore, co. Kerry.

KILKENNY.—Aug. 1.—For erection of a shop and dwelling-house in Rose Inn Street. Mr. James F. Reade, John Street, Kilkenny.

KILKENNY.—Aug. 11.—For erection of a dormitory annexe and other works at the workhouse. Mr. James F. Reade, John Street, Kilkenny.

LEEDS.—Aug. 3.—For erection of the St. Augustine Schools, Harehills Road. Mr. W. Carby Hall, architect, Prudential Buildings, Park Row, Leeds.

LOWESTOFT.—Aug. 4.—For erection of five houses at Corton. Mr. Arthur S. Hewitt, architect, 15 King Street, Yarmouth.

MARKET DEEPING.—Aug. 3.—For erection of classroom and alterations at the Maxey school. Mr. Stallebrass, architect, North Street, Peterborough.

MIDDLESBROUGH.—Aug. 3.—For alterations and additions to the Zetland Hotel. Mr. Wm. Duncan, architect, 43 Albert Road, Middlesbrough.

NOTTINGHAM.—Aug. 5.—For erection of the superstructure of the workhouse, infirmary and appurtenant buildings for 1,600 inmates and staff at Bagthorpe. Mr. Arthur Marshall, King Street, Nottingham.

OLDHAM.—Aug. 3.—For erection of a shed for steam road-roller at Tamewater, near Dobcross. Mr. Joseph Bradbury, clerk, Union Offices, Uppermill, near Oldham.

PRESTON.—Aug. 8.—For alterations and additions to buildings at the east wing, and heating and ventilation of buildings at the east wing. Mr. Whitwell, engineer, Fulwood Workhouse.

ROCHESTER.—Aug. 9.—For additions and alterations to the Wainscott schools, for the Frindsbury School Board. Mr. G. E. Bond, architect, High Street, Rochester.

ROTHERHAM.—Aug. 2.—For erection of cloak-rooms, outbuildings, &c., to the National schools in Aldwarke Road, Parkgate. Mr. J. Platts, architect, Rotherham.

SANDWICH.—Aug. 10.—For alterations and additions to the U.D. Schools. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

SCOTLAND.—Aug. 1.—For erection of a classroom to accommodate thirty scholars, to be built as an addition to the existing school buildings at Kilerivagh in Benbecula, for the South Uist School Board. Mr. Andrew M'Elfrish, clerk to the Board, Lochmaddy.

SCOTLAND.—Aug. 1.—For erection of a double cottage at Invererne Road, Forres. Messrs. A. & W. Reid & Wittet, architects, Elgin.

SCOTLAND.—For building walls and constructing carriageways and walks at the new burial-ground, Ratho. Messrs. Belfrage & Carfrae, 1 Erskine Place, Edinburgh.

SCOTLAND.—Aug. 1.—For erection of a cottage at Sanquhar Feus, Forres. Messrs. A. & W. Reid & Wittet, architects, Elgin.

SHAW.—Aug. 1.—For erection of public baths in Farrow Street. Messrs. Wild, Collins & Wild, architects, 15 Clegg Street, Oldham.

SHEFFIELD.—Aug. 15.—For erection of seven cottages at The Cross, Ecclesfield. Mr. G. A. Wilson, architect, Hartshead Chambers, Sheffield.

SHOREDITCH.—Aug. 15.—For erection of a new battery-room, boiler-house and extension of offices at the electric supply station, Coronet Street. Messrs. Kincaid, Waller & Manville, engineers, 29 Great George Street, Westminster.

SHOREDITCH.—Aug. 3.—For construction of an underground public convenience in Hoxton Street, opposite the workhouse infirmary. Mr. J. Rush Dixon, engineer, Vestry Town Hall, Old Street, E.C.

STOKE-UPON-TRENT.—Aug. 3.—For erection of new bath-rooms at the workhouse infirmary, and repairs and repainting at the relief and other offices. Mr. C. Lynham, architect, Stoke-upon-Trent.

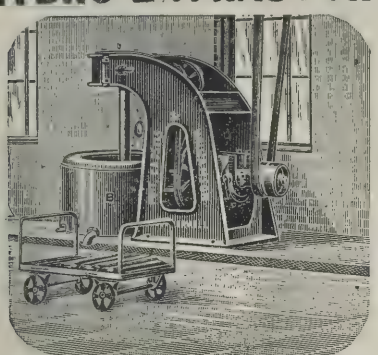
STROOD.—Aug. 2.—For erection of the assembly hall in connection with the Wesleyan Sunday-schools, Cliffe Road. Messrs. J. W. Nash & Son, architects, Rochester.

SWANSEA.—For erection of four shops and premises opposite the Great Western Railway station, High Street. Messrs. J. P. Jones & Rowlands, architects, 58 Wind Street, Swansea.

SWANSEA.—Sept. 19.—For erection of Manselton school, Mr. C. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

THROCKLEY.—For erection of ten cottages. Mr. Fred. C. Charlton, Throckley.

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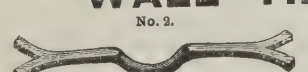
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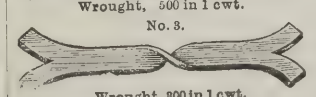


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ULVERSTON.—Aug. 10.—For erection of caretaker's house, supper-room, &c., to the Jubilee Institute, Lakeside. Messrs. J. W. Grundy & Son, Brogden Street, Ulverston.

ULVERSTON.—Aug. 3.—For erection of porter's lodge, receiving wards, &c. Messrs. J. W. Grundy & Son, architects, Ulverston.

UPPER EDMONTON.—Aug. 2.—For building four blocks of projections at the workhouse, Silver Street, Messrs. W. S. Cross & Kekwick, architects, 18 Outer Temple, Strand, W.C.

WALES.—Aug. 9.—For construction of a new goods-shed, engine-shed and other works at Llantrisant, Glamorganshire, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

WALES.—Aug. 8.—For erection of a block of shops at Brynmawr. Mr. J. R. Williams, Railway Hotel.

WREKENTON.—Aug. 8.—For erection of an infants' school. Mr. Edwin Bowman, architect, County Chambers, Westgate Road, Newcastle.

WREXHAM.—Aug. 18.—For erection of a bridge over the river Gwenfro, at Stryt-y-bidden. Mr. John Strachan, Crispin Lodge, Wrexham.

WREXHAM.—Aug. 10.—For erection of a bridge over the river Gwenfro, at Stryt y bidden, in the township of Broughton. Mr. John Strachan, Crispin Lodge, Wrexham.

WITH the completion of a new line of railway connecting Dinant and the Meuse Valley with Rochefort and the main line to Luxemburg, the Great Eastern Railway Company are now enabled to issue *viâ* Harwich-Antwerp cheap circular tickets, including Brussels, Namur, Dinant and the Meuse, and thence up the Lesse Valley by the new railway to Rochefort for the Grottos of Han, &c. This tour covers some of the finest scenery in the Belgian Ardennes. The cost of the circular ticket from London and back is 65*s.* first class and 43*s.* 9*d.* second class, available for thirty days. For the convenience of passengers travelling through to Spa *viâ* Harwich-Antwerp the Great Eastern Railway have arranged for a through carriage from Antwerp to Verviers, and passengers for Spa travel in this carriage, changing at Pepinster.

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For furnishings to the new offices of the Parish Council, Union Terrace. Mr. A. MARSHALL MACKENZIE, architect, 1 Bon Accord Street, Aberdeen.

J. & A. OGILVIE, Union Street (*accepted*)	£1,175 0 0

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S. HUTTON, Ashley Road, Peel Causeway (*accepted*)	£237 0 0

BELFAST.

For extension of the electric-lighting station, Abercorn Basin. J. & W. STEWART, Adelaide Street (*accepted*).

BILSDALE.

For taking-down and re-erecting Raisdale bridge. Mr. W. H. DIXON, surveyor, Kirby-in-Cleveland.

T. Clarkson	£395 0 0
W. BROTTON, jun., Middlesbrough (*accepted*)	210 0 0

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R. Pearson, slater	115 18 0
R. Pearson, plasterer	66 11 0
J. Sumpton, plumber	46 10 0
J. H. Tyson, painter	10 15 0

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PORTER (*accepted*) £50 0 0

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For sewering, levelling and ballasting new roads on the Fortis Green estate. Mr. GEORGE H. PAINE, architect.

R. Jackson	£2,888 0 0
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T. Adams	2,494 0 0
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H. Cross & Son, three schools.
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G. Burgoine, two schools.
W. & P. Holroyd, one school.
Lindley Bros., two schools.
Lunn & Cardno, one school.
Haigh & Shaw, one school.
F. Gledhill, one school.
A. Beevers, one school.
E. Coldwell, one school.

For alterations to the Old Co-operative Stores, Westgate. Mr. J. BERRY, architect, 9 Queen Street, Huddersfield.
Accepted tenders.
S. Bates, Lindley, mason.
J. B. Brooke, West Parade, joiner.
G. Garton, Market Place, plumber and glazier.
H. Brook & Co., Colne Road, ironwork.
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For sewering, levelling and ballasting about 3,000 feet of roads on the Fortis Green estate. Mr. GEORGE H. PAINE, surveyor, 6 Stoke Newington Road, N.

R. Jackson	£2,888 0 0
C. W. Killingback & Co.	2,709 0 0
J. A. Dunmore	2,544 0 0
T. Adams	2,494 0 0
W. Wadey	2,395 0 0
Williamson & Son	2,340 0 0
R. Ballard, Limited *	1,897 0 0

* Recommended for acceptance.

HULL.

For alterations to 83 Charles Street. Mr. T. BROWNLOW THOMPSON, architect, 15 Parliament Street, Hull.

Accepted tenders.

A. Hewitt, joiner	£193 12 0
F. Bilton, bricklayer	145 10 8
J. Beal, plumber	98 15 0
S. Healey, painter	36 0 0
Smith & Hunter, slater	17 17 6

INVERNESS.

erection of houses and shop, Telford Street. Mr. T. MUNRO, architect, Inverness.

Accepted tenders.

Fraser & Macdonald, mason.
A. Noble, carpenter.
A. Taylor, slater.
R. Ferrie & Son, plumber.
W. McAndie, plasterer.
K. Chisholm, painter.
Rosestreet Foundry Company, blacksmith.
Total, £900.

For erection of a pair of semi-detached houses, Rangemore Road. Mr. T. MUNRO, architect, Inverness.

H. R. M'Vinish, mason.
J. Fraser, carpenter.
J. Gray & Son, slater.
R. Fernie & Sons, plumber.
D. Mackintosh, plasterer.
Total, £850.

KIRKCALDY.

For additions to Pathhead public hall. Mr. J. L. LUMSDEN surveyor.

Mason.

A. Fraser, jun.	£72 4 7
D. Wilkie	67 12 0
W. BROWN (*accepted*)	66 7 5

Plumber.

G. Dougall	27 11 9
J. Johnston	23 10 0
A. Michie	23 5 0
A. Kirk	22 18 0
J. Wood & Son	21 13 10
A. DARLING (*accepted*)	21 9 4

Painter.

J. Hitchin	15 4 5
J. L. Stewart	9 0 0
D. Blewes	5 11 8
A. Lornie	5 9 0
D. LOWDEN (*accepted*)	5 0 11

Joiner.

A. Gray & Co.	97 1 3
J. Smith	96 8 8
D. Simpson	87 9 7
T. Millar	77 0 0
R. Thomson	77 0 7
A. CARMICHAEL (*accepted*)	75 0 0

Plasterer.

A. Hutchinson	11 0 0
J. EASTON (*accepted*)	10 4 3

Slater.

T. Hood	13 15 4
CURRIE & CANT (*accepted*)	10 18 9

KEIGHLEY.

For erection of a block of shops, arcade and offices in North Street. Messrs. JOHN JUDSON & MOORE, architects, Keighley.

Accepted tenders.

C. Murgatroyd, Idle, contractor.
I. Taylor, Lees, joiner.
W. & D. Harrison, plumber.
J. King, plasterer.
Emmott Bros., concreter.
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LONDON SCHOOL BOARD.

For painting interior, Sherbrooke Road, Chelsea.

E. Flood	£541	5	0
Lathey Bros.	529	0	0
Marchant & Hirst	467	0	0
T. Cruwys	456	0	0
W. Hammond	425	0	0
F. T. Chinchen	398	0	0
W. Johnson & Co., Limited	395	10	0
CHAS. GURLING (*accepted*)	375	0	0

For painting exterior (infants' and P.T. Centre), William Street, Chelsea.

G. H. Sealy	£139	10	0
H. Brown	120	0	0
O. Craske	105	0	0
E. B. Tucker	88	10	0
W. Johnson & Co, Limited	86	16	0
W. Brown	80	0	0
BRISTOW & EATWELL (*accepted*)	67	7	0

For painting interior, Wornington Road, Chelsea.

G. Foxley	£416	0	0
F. T. Chinchen	398	0	0
W. R. & A. Hide	397	0	0
W. Chappell	395	0	0
W. Brown	384	0	0
H. C. Clifton	379	0	0
Bristow & Eatwell	359	3	9
F. CHIDLEY (*accepted*)	260	0	0

For painting exterior, Clyde Street, Greenwich.

W. Banks	£227	10	6
C. G. Jones	223	13	0
Jones & Groves	222	6	0
E. Proctor	210	0	0
W. Brown	190	0	0
S. MUSGROVE (*accepted*)	172	4	0

For painting interior and exterior, Elizabeth Street, Greenwich.

Thomas & Edge	£459	0	0
C. Foreman	444	0	0
Holliday & Greenwood	349	0	0
Johnson & Co.	334	0	0
E. PROCTOR (*accepted*)	298	0	0

LONDON SCHOOL BOARD—*continued.*

For painting interior and exterior, Gayhurst Road, Hackney.

Collis Willmott	£491	0	0
J. Kiddle & Son	489	12	6
Marchant & Hirst	476	0	0
Snewin Bros. & Co.	467	0	0
McCormick & Sons	445	0	0
W. Silk & Son	423	0	0
Stevens Bros.	398	0	0
S. H. CORFIELD (*accepted*)	325	0	0

For painting interior and exterior, Woolwich P.T. centre, Greenwich.

Thomas & Edge	£261	0	0
C. Foreman	219	0	0
W. Banks	197	17	6
J. H. Hodgin	187	10	0
Jones & Groves	176	16	0
E. PROCTOR (*accepted*)	136	0	0

For painting interior and exterior, Mulgrave Place, Greenwich.

Thomas & Edge	£490	0	0
C. Foreman	465	0	0
W. Holding & Son	364	0	0
C. S. Jones	338	0	0
W. BANKS (*accepted*)	335	19	6
E. Proctor	308	0	0

For painting interior, Ponton Road, West Lambeth.

T. Gregory & Co.	£362	15	0
E. Flood	314	0	0
Lathey Bros.	311	0	0
H. & G. Mallett	294	0	0
Holloway Bros.	275	0	0
E. B. Tucker	251	0	0
J. Garrett & Son	233	0	0
B. E. Nightingale	233	0	0
RICE & SON (*accepted*)	210	0	0

For painting interior, Gloucester Road, East Lambeth.

Rice & Son	£659	0	0
W. Hornett	645	0	0
W. Akers & Co.	602	0	0
W. Banks	534	10	6
Geo. Kemp	515	0	0
JONES & GROVES (*accepted*)	463	5	0
C. S. Jones	460	0	0

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LONDON SCHOOL BOARD—*continued.*

For cleaning interior, Mansford Street, Hackney.

Stevens Bros.	£347 0 0
C. Willmott	280 0 0
G. Wales	272 16 0
G. Barker	249 0 0
S. H. CORFIELD (*accepted*)	222 0 0

For painting exterior of school and painting interior and exterior of P.T. Centre, the Alma, Southwark.

Johnson & Co.	£635 0 0
W. & H. CASTLE (*accepted*)	615 0 0
J. Kiddle & Son	581 6 0
A. White & Co.	450 0 0

For painting interior, Goodrich Road, East Lambeth.

T. Freeman & Son	£790 0 0
W. Akers & Co.	651 0 0
C. G. Jones	645 8 0
Rice & Son	608 0 0
Jones & Groves	585 17 0
J. & C. Bowyer	545 0 0
Frampton & Co.	540 0 0
H. LINE (*accepted*)	492 0 0

For painting interior and exterior, Penrose Street, East Lambeth.

W. Hornett	£715 0 0
Lathey Bros.	588 10 0
E. TRIGGS (*accepted*)	540 0 0

For painting interior, Crawford Street, West Lambeth.

T. Freeman & Son	£695 0 0
W. V. Goad	665 0 0
J. F. Ford	648 0 0
Holloway Bros.	521 0 0
Star & Son	505 0 0
Maxwell Bros., Limited	480 0 0
RICE & SON (*accepted*)	461 0 0
H. Line	431 0 0

For painting interior and exterior, Eardley Road, West Lambeth.

Maxwell Bros., Limited	£350 0 0
W. Johnson & Co., Limited	320 0 0
Rice & Son	297 0 0
J. GARRETT & SON (*accepted*)	290 0 0

LONDON SCHOOL BOARD—*continued.*

For painting interior, Aldenham Street, Marylebone.

T. Cruwys	£405 0 0
W. Hornett	397 0 0
Stevens Bros.	369 10 0
Marchant & Hirst	298 0 0
Geo. Foxley	283 0 0
W. Brown	281 10 0
W. CHAPPELL (*accepted*)	260 0 0

For painting interior, Burghley Road, Marylebone.

Stevens Bros.	£615 0 0
McCormick & Sons	603 0 0
J. Haydon	588 10 0
Marchant & Hirst	575 0 0
W. Chappell	525 0 0
J. N. TRY (*accepted*)	406 0 0

For painting exterior, Hackford Road, West Lambeth.

E. B. Tucker	£133 0 0
Maxwell Bros.	123 0 0
H. & G. Mallett	105 0 0
R. E. Williams & Sons	100 0 0
H. Somerford & Son	81 0 0
STAR & SON (*accepted*)	78 10 0

For painting interior, Surrey Lane, West Lambeth.

T. Gregory & Co.	£602 10 0
E. B. Tucker	534 0 0
B. E. Nightingale	529 0 0
Holloway Bros.	496 0 0
J. Garrett & Son	465 0 0
C. Gurling	430 12 0
E. TRIGGS (*accepted*)	427 0 0
R. E. Williams & Sons	390 0 0

For painting interior and exterior, Enfield Road, Hackney.

F. Britton	£544 10 0
J. Kiddle & Son	456 5 0
Stevens Bros.	437 0 0
J. Morrison	425 0 0
J. Grover & Son	392 0 0
McCormick & Sons	389 0 0
Gardner & Hazell	384 0 0
MARCHANT & HIRST (*accepted*)	376 0 0
G. Wales	345 17 0

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LONDON SCHOOL BOARD—*continued.*

For providing various fittings, improved ventilation and executing sundry other works, Clerkenwell stores.

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Johnson & Co.	£210 0 0	£20 0 0
Stevens Bros.	198 0 0	23 0 0
T. Cruwys	190 0 0	18 0 0
F. Britton	187 0 0	18 0 0
E. Lawrance & Sons	186 0 0	16 0 0
Staines & Son	178 0 0	17 0 0
G. S. S. Williams & Son	169 0 0	18 0 0
McCORMICK & SONS (*accepted*)	138 0 0	14 0 0

A.—Amount which will be deducted from tender if framing and forming lobby to doorway of clerk's room be omitted.

For providing and fixing low-pressure hot-water apparatus and boiler, and converting gas radiators into hot-water coils for halls, corridors and cloak-rooms, Flora Gardens, Chelsea.

Comyn Ching & Co.	£454 16 0
G. Davis	370 0 0
Vaughan & Brown, Limited	367 11 6
Turner & Co.	356 10 0
W. G. Cannon & Sons	350 0 0
Dargue, Griffiths and Co., Limited	344 0 0
J. C. & J. S. Ellis, Limited	337 0 0
J. Defries & Sons, Limited	287 10 0
WIPPELL BROS. & ROW (*accepted*)	265 0 0

For providing and fixing additional mains and heating surface to improve working of existing low-pressure hot-water apparatus in two classrooms, Richard Street, Finsbury.

Duffield & Co.	£140 0 0
J. & F. May	89 0 0
J. Esson	78 0 0
W. G. Cannon & Sons	71 0 0
Vaughan & Brown, Limited	66 14 0
J. Grundy	55 2 6
G. DAVIS (*accepted*)	45 10 0

For painting interior and exterior, Sussex Road, West Lambeth.

E. Flood	£672 6 0
Maxwell Bros., Limited	597 0 0
H. & G. Mallett	592 15 0
Rice & Son	577 0 0
Lathey Bros.	576 0 0
E. TRIGGS (*accepted*)	417 10 0

LONDON SCHOOL BOARD—*continued.*

For providing and fixing boiler and providing auxiliary heating, Pulteney, Westminster.

Wenham & Waters, Limited	£380 0 0
J. C. & J. S. Ellis, Limited	349 0 0
Teale & Somers	336 0 0
B. Harlow & Son	330 0 0
H. C. Price Lea & Co.	321 0 0
Wright Bros.	320 0 0
J. Wontner-Smith, Gray & Co.	299 16 0
J. Esson	298 0 0
Purcell & Nobbs	296 0 0
LEWIS HILL (*accepted*)	219 10 0

For providing and fixing additional pipes on stepped flooring, Sandford Row, East Lambeth.

J. Esson	£75 0 0
J. & F. May	67 0 0
H. C. Price Lea & Co.	59 0 0
J. Wontner-Smith, Gray & Co.	54 0 0
J. Grundy	49 0 0
G. Davis	42 18 0
VAUGHAN & BROWN, LIMITED (*accepted*)	40 0 0

For painting exterior and portion of interior and cleaning interior, Winchester Street, Finsbury.

L. H. & R. Roberts	£901 0 0
W. H. Wagstaff & Sons	853 0 0
Gardner & Hazell	852 0 0
McCormick & Sons	830 0 0
E. Lawrance & Sons	795 0 0
Stevens Bros.	743 13 6
W. Hornett	692 10 0
F. Britton	662 10 0
J. KIDDLE & SON (*accepted*)	572 0 0

For painting interior, Queen's Head Street, Finsbury.

F. Britton	£562 7 0
Gardner & Hazell	524 0 0
L. H. & R. Roberts	499 0 0
W. H. Wagstaff & Sons	498 0 0
J. Grover & Son	478 0 0
McCormick & Sons	478 0 0
J. Kiddle & Son	396 5 0
G. Barker	335 0 0
J. MORRISON (*accepted*)	307 0 0

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LONDON SCHOOL BOARD—*continued.*

For painting interior, Detmold Road, Hackney.

McCormick & Sons	£340	0	0
Snewin Bros. & Co.	329	0	0
Stevens Bros.	296	0	0
W. Silk & Son	287	0	0
G. WALES (*accepted*)	193	15	0

For providing and fixing boiler and providing auxiliary heating, Tooting Graveney, West Lambeth.

Vaughan & Brown, Limited	£323	6	0
W. G. Cannon & Son	305	0	0
J. Grundy	276	0	0
J. & F. May	273	0	0
C. Seward & Co.	264	0	0
Dargue, Griffiths & Co., Limited	247	0	0
WIPPELL BROS. & ROW (*accepted*)	227	10	0

For providing and fixing complete low-pressure hot-water apparatus and Trentham boiler, Marlborough Street, Southwark.

J. Fraser & Son	£723	0	0
J. & F. May	679	0	0
E. Oldroyd & Co., Limited	635	0	0
Duffield & Co.	623	0	0
H. C. Price Lea & Co.	610	0	0
G. Davis	586	0	0
J. ESSON (*accepted*)	485	0	0

For providing and fixing complete low-pressure hot-water apparatus and Trentham boiler, Monnow Road, Southwark.

Teale & Somers	£535	0	0
A. Dougill & Co., Limited	447	13	2
Wenham & Waters, Limited	440	0	0
W. G. Cannon & Sons	435	0	0
Duffield & Co.	388	0	0
C. Seward & Co.	372	0	0
J. C. & J. S. ELLIS, Limited (*accepted*)	368	0	0

For painting interior (old and new portions), Plassy Road, Greenwich.

C. G. Jones	£377	10	0
G. Kemp	365	0	0
W. Banks	327	10	6
Jones & Groves	260	15	0
C. S. JONES (*accepted*)	247	0	0

LONDON SCHOOL BOARD—*continued.*

For painting interior and exterior (old and new portions), Duncombe Road, Finsbury.

Stevens Bros.	£1,040	0	0
McCormick & Sons	919	0	0
J. Grover & Son	882	0	0
E. LAWRANCE & SONS (*accepted*)	805	0	0

For painting exterior and cleaning interior (old portion), Hargrave Park, Finsbury.

Stevens Bros.	£278	0	0
Gardner & Hazell	240	0	0
MCCORMICK & SONS (*accepted*)	222	0	0

For painting interior, Wood Street, Greenwich.

C. G. Jones	£446	7	10
E. Proctor	382	0	0
Thomas & Edge	379	0	0
W. Banks	367	12	6
C. Foreman	364	0	0
C. S. Jones	362	0	0
W. HOLDING & SON (*accepted*)	328	0	0

For painting interior (old and new portions), Ackmar Road, Chelsea.

F. G. Minter	£530	0	0
Marchant & Hirst	493	0	0
T. Cruwys	460	0	0
W. Hornett	448	0	0
W. Hammond	440	0	0
F. T. CHINCHEN (*accepted*)	414	0	0
C. Gurling	402	6	0

For painting interior, the Ashburnham, Chelsea.

O. Craske	£456	10	0
T. Cruwys	440	0	0
Lathey Bros.	433	0	0
E. Flood	420	10	0
W. Hammond	379	10	0
G. Foxley	370	0	0
C. GURLING (*accepted*)	358	0	0

For erecting an outside porch, Ellerslie Road, Chelsea.

W. R. & A. Hide	£73	5	0
F. T. Chinchen	66	15	0
W. Brown	62	0	0
H. C. CLIFTON (*accepted*)	60	0	0



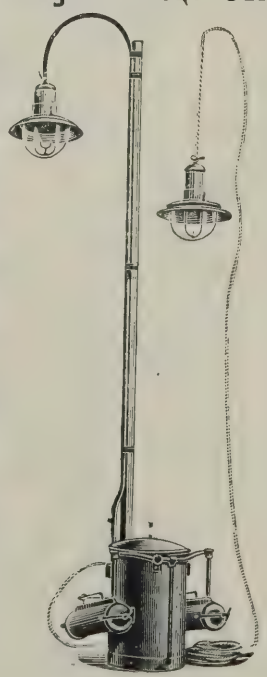
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LONDON SCHOOL BOARD—*continued.*

For painting interior, Middle Row, Chelsea.

W. R. & A. Hide	£369	0	0
Marchant & Hirst	348	0	0
F. T. Chinchen	309	0	0
G. Foxley	295	10	0
W. Brown	265	18	0
G. H. Sealy	241	0	0
BRISTOW & EATWELL (*accepted*)	237	13	10

For erecting special school for ninety children, and enclosing, draining and tar-paving the additional land, Langford Road, Chelsea.

R. A. Yerbury & Sons	£4,349	0	0
Leslie & Co., Limited	3,979	0	0
W. Scrivener & Co.	3,879	0	0
L. H. & R. Roberts	3,780	0	0
E. Lawrance & Sons	3,430	0	0
B. E. Nightingale	3,386	0	0
Stimpson & Co.	3,349	0	0
Edwards & Medway	3,321	0	0
Treasure & Son	3,318	0	0
O. Craske	3,209	0	0
S. Hart	3,197	0	0
Lathey Bros.	3,177	0	0
E. TRIGGS (*accepted*)	3,106	0	0

For providing and fixing sliding glazed partition, Victoria, Chelsea.

G. H. Sealy	£113	8	0
Lathey Bros.	102	0	0
W. R. & A. Hide	98	10	0
W. Brown	82	0	0
G. NEAL (*accepted*)	79	0	0

LONDON SCHOOL BOARD—*continued.*

For improvements. Revised accommodation on seat basis. Boys, 382; girls, 382; infants, 445. Medburn Street, Marylebone.

E. Triggs	£17,961	0	0
F. Gough & Co.	17,815	0	0
Leslie & Co., Limited	17,637	0	0
W. Scrivener & Co.	17,623	0	0
F. & H. F. Higgs	17,523	0	0
Holliday & Greenwood	17,250	0	0
E. Lawrance & Sons	17,161	0	0
Lathey Bros.	16,168	0	0
B. E. Nightingale	15,980	0	0
C. COX (*accepted*)	15,636	0	0
L. H. & R. Roberts	15,080	0	0

For providing two additional fume closets in laboratory, Mansford Street, Hackney.

Johnson & Co.	£75	0	0
G. S. S. WILLIAMS & SON (*accepted*)	56	0	0

For refitting the boys' offices with separate pan closets and providing a new urinal, erecting offices for girls with similar fittings, providing washhouse for schoolkeeper and new drainage scheme, William Street, Chelsea.

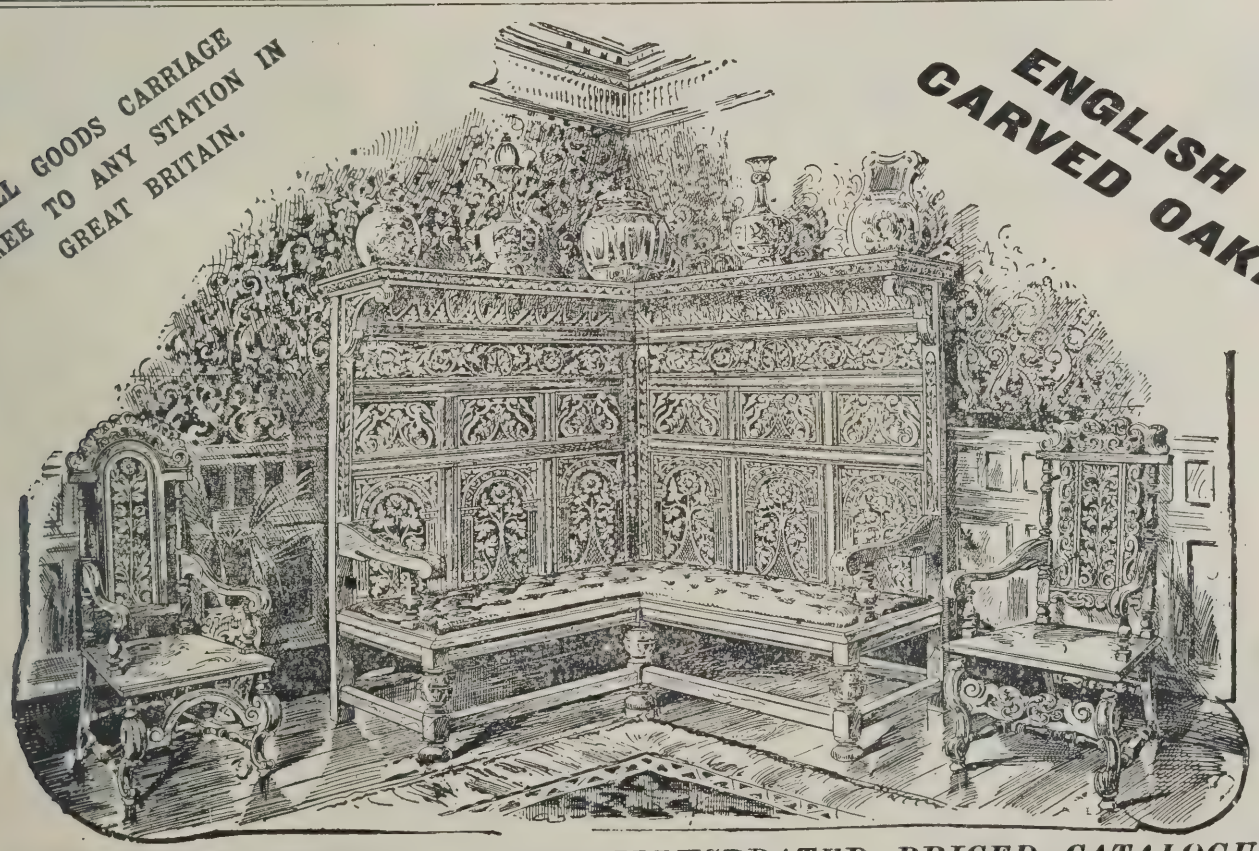
F. G. Minter	£1,770	0	0
J. & C. Bowyer	1,768	0	0
J. Garrett & Son	1,739	0	0
E. Triggs	1,675	0	0
Lathey Bros.	1,639	0	0
Stimpson & Co.	1,587	0	0
W. JOHNSON & CO., LIMITED (*accepted*)	1,544	0	0

For rearranging and refitting offices (all departments) with separate pans and traps, improving the lighting and ventilation in the basement lavatories (boys and infants'), constructing new urinal for boys and infants and providing new drainage scheme, Carlton Road, Marylebone.

Cowley & Drake	£3,200	10	0
L. H. & R. Roberts	3,145	0	0
R. A. Yerbury & Sons	3,122	0	0
G. S. S. Williams & Sons	2,924	0	0
E. Lawrance & Sons	2,915	0	0
W. Akers & Co.	2,886	0	0
E. TRIGGS (*accepted*)	2,819	0	0

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LONDON SCHOOL BOARD—*continued.*

For alterations in girls' department, and cleaning and painting the school, Southampton Street, East Lambeth.

T. Freeman & Son	£785 0 0
Rice & Son	676 0 0
Frampton & Co.	589 0 0
Johnson & Co.	542 0 0
E. Triggs	488 10 0
W. & H. Castle	471 0 0
G. Kemp	470 0 0
B. E. Nightingale	455 0 0
J. GARRETT & SON (*accepted*)	443 0 0

For fitting-up room (now used as a M.T. centre) for a physical laboratory, also a classroom on second floor as a demonstration room, Blackheath Road, Greenwich.

S. Musgrove	£521 16 0
T. Freeman & Son	398 0 0
T. Cruwys	363 10 0
Jones & Groves	279 0 0
B. E. NIGHTINGALE (*accepted*)	269 0 0

For providing and fixing a sliding glazed partition in each of the large rooms of the boys and girls' departments, Bonner Street, Hackney.

J. F. Holliday	£247 0 0
Johnson & Co.	220 0 0
J. Kiddle & Son	203 0 0
E. Jackson & Son	138 11 0
MCCORMICK & SONS (*accepted*)	138 0 0

For providing and fixing two sliding glazed partitions, Teesdale Street, Hackney.

G. Barker	£252 0 0
Johnson & Co.	235 0 0
W. Irwin	230 0 0
MCCORMICK & SONS (*accepted*)	185 0 0
E. Jackson and Son	163 0 0

For providing and fixing sliding glazed partition, &c., Larkhall Lane, West Lambeth.

E. P. Bulled & Co.	£70 0 0
Rice & Son	68 0 0
E. B. Tucker	65 0 0
E. Triggs	56 0 0
J. GARRETT & SON (*accepted*)	50 0 0

LONDON SCHOOL BOARD—*continued.*

For removing spoil heap, enclosing additional land, &c., Lyham Road, West Lambeth.

W. & H. Castle	£943 0 0
F. & H. F. Higgs	826 0 0
Lathey Bros.	777 0 0
Holliday & Greenwood	770 0 0
E. Triggs	750 0 0
J. Garrett & Son	711 0 0
B. E. Nightingale	648 0 0
Rice & Son	608 0 0
MAXWELL BROS., LIMITED (*accepted*)	595 0 0

For providing two partitions to divide large schoolroom into three rooms, Fortess Road, Marylebone.

T. Cruwys	£319 0 0
G. Chase & Son	278 0 0
W. Bunce	245 0 0
G. Ball	230 15 0
F. Britton	197 10 0
F. T. Chinchen	165 0 0
Marchant & Hirst	159 0 0
J. STONES (*accepted*)	134 0 0

For providing a sliding glazed partition and two dormer windows, Byron and Bright Street, Tower Hamlets.

A. E. Symes	£220 0 0
Wake & Dean	190 13 6
G. Barker	190 0 0
S. H. Corfield	182 0 0

For adapting Stepney Meeting Day School for a temporary school, Garden Street, Tower Hamlets.

Johnson & Co.	£720 0 0
J. T. Robey	598 0 0
A. E. Symes	585 0 0
E. Jackson & Son	584 15 0
W. Shurmur	560 0 0
G. BARKER (*accepted*)	534 10 0

For providing and fixing sliding glazed partition, Vere Street, Westminster.

T. Cruwys	£130 0 0
W. MARTIN (*accepted*)	59 12 0
Unsigned	59 5 0

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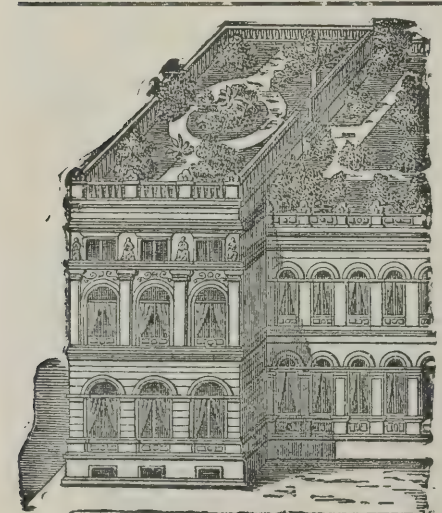
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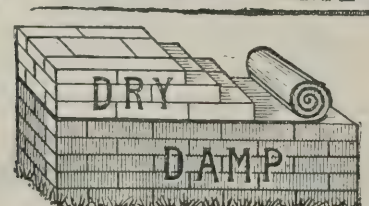
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LONDON SCHOOL BOARD—*continued.*

For providing and fixing sliding glazed partition and altering widths of stepped flooring, &c., Upper North Street, Tower Hamlets.

W. Shurmur	£135 0 0
J. Haydon	125 0 0
J. Kybett	125 0 0
G. Barker	115 0 0
Johnson & Co.	115 0 0
S. H. Corfield	93 0 0
W. Martin*	90 16 0
E. Jackson & Son	80 0 0

* Tender withdrawn.

For forming roads and paths, levelling and preparing surface and providing new gate, &c., Shaftesbury Infirmary.

T. Bruty	£297 0 0
H. J. Carter	280 0 0
H. R. RONS (*accepted*)	254 0 0

For painting interior and exterior, Carlton Road, Marylebone.

Marchant & Hirst	£942 0 0
Stevens Bros.	888 0 0
E. Triggs	853 0 0
J. N. TRY (*accepted*)	782 0 0

For painting interior, Great College Street, Marylebone.

Gardner & Hazell	£557 0 0
T. Cruwys	410 0 0
Marchant & Hirst	394 0 0
George Foxley	393 0 0
W. Hornett	391 10 0
F. T. Chinchen	380 0 0
W. Chappell	325 0 0
W. BROWN (*accepted*)	314 10 0

For painting interior, Buck's Row, Tower Hamlets.

W. Hornett	£375 0 0
G. Barker	285 0 0
A. E. SYMES (*accepted*)	270 0 0
J. Kybett	235 0 0

For painting exterior, Essex Street, Tower Hamlets.

A. E. Symes	£273 0 0
A. W. Derby	264 0 0
G. Wales	239 7 0
G. BARKER (*accepted*)	208 0 0

LONDON SCHOOL BOARD—*continued.*

For painting interior and exterior, Woolmore Street, Tower Hamlets.

A. W. Derby	£768 0 0
J. Kybett	544 0 0
J. T. Robey	510 9 6
Geo. Wales	453 5 0
S. H. CORFIELD (*accepted*)	430 0 0

For painting interior and exterior, Keeton's Road, Southwark.

W. & H. Castle	£1,097 0 0
Johnson & Co.	915 0 0
E. Triggs	835 0 0
A. WHITE & Co. (*accepted*)	825 0 0

For painting interior of boys and girls' departments, and painting interior and exterior of divisional offices, Ben Jonson, Tower Hamlets.

Johnson & Co.	Schedule + 10 per cent.
Unsigned	£797 0 0
Geo. Barker	690 0 0
Geo. Wales	550 8 0
J. KYBETT (*accepted*)	543 0 0
S. H. Corfield	527 0 0

For painting interior and exterior, Settles Street, Tower Hamlets.

A. W. Derby	£748 0 0
A. E. Symes	743 0 0
W. Shurmur	670 0 0
J. Kybett	619 0 0
GEO. BARKER (*accepted*)	611 0 0
Geo. Wales	581 2 0

For painting interior, Baker Street, Tower Hamlets.

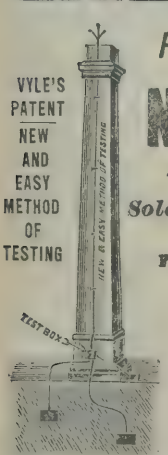
Heinemann & Brown	£460 0 0
J. Garrett & Son	357 0 0
J. T. Robey	316 0 0
G. Barker	308 0 0
J. Kybett	306 0 0
A. W. DERBY (*accepted*)	305 0 0

For painting interior, Broad Street, Tower Hamlets.

A. W. Derby	£653 0 0
J. T. Robey	485 0 0
J. Kybett	435 0 0
S. H. Corfield	398 0 0
G. Barker*	386 0 0

* Tender withdrawn.

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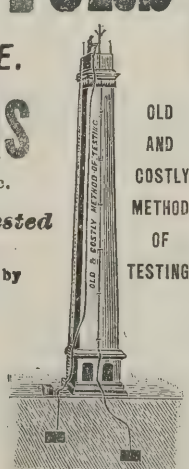
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2-inch } { 7d. „ „

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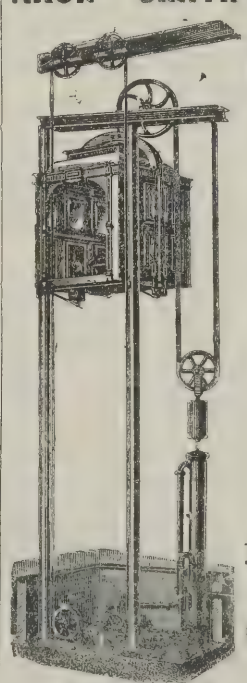
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LONDON SCHOOL BOARD—*continued.*

For painting the exteriors of the following schools :—

Park Walk, Chelsea.

H. Brown	£175 0 0
T. Gregory & Co.	172 13 0
R. E. Williams & Sons	140 0 0
O. Craske	131 0 0
F. G. Minter	130 0 0
W. Johnson & Co., Limited	128 14 0
E. B. Tucker	128 5 0
C. Gurling	122 12 6
E. Flood	118 0 0
Lathey Bros.	112 0 0
W. HAMMOND (*accepted*)	98 10 0

Portobello Road, Chelsea.

H. Eady	£161 0 0
G. H. Sealy	141 15 0
H. C. Clifton	116 0 0
W. R. & A. Hide	96 15 0
W. BROWN (*accepted*)	95 16 0

Drury Lane, Finsbury.

T. Cruwys	£182 0 0
W. H. Wagstaff & Sons	178 0 0
W. Hornett	177 0 0
J. Kiddle & Son	162 0 6
Marchant & Hirst	159 0 0
B. E. NIGHTINGALE	148 0 0

Poole's Park, Finsbury.

F. Britton	£454 0 0
Stevens Bros.	424 0 0
J. Grover & Son	392 5 0
McCormick & Sons	390 0 0
Gardner & Hazell	352 0 0
Geo. Wales	326 2 0
E. LAWRANCE & SONS (*accepted*)	320 0 0

Edward Street, Greenwich.

C. S. Jones	£92 0 0
C. G. Jones	84 10 0
W. Banks	79 12 6
Jones & Groves	72 10 0
E. Proctor	70 0 0
S. MUSGROVE (*accepted*)	67 17 0

LONDON SCHOOL BOARD—*continued.*

Creed Place, Greenwich.

Thomas & Edge	£219 0 0
C. Foreman	189 0 0
C. G. Jones	188 0 0
Jones & Groves	176 5 0
H. Somerford & Son	160 0 0
W. Banks	144 17 6
E. Proctor	140 0 0
S. MUSGROVE (*accepted*)	128 15 0

Hamond Square, Hackney (Cleaning only).

A. W. Derby	£175 0 0
Geo. Wales	107 0 0
J. Kiddle & Son	90 15 0
J. Grover & Son	88 0 0
Gardner & Hazell	79 0 0
J. Morrison	75 0 0
Stevens Bros.	59 0 0
MARCHANT & HIRST (*accepted*)	54 0 0

Morning Lane, Hackney.

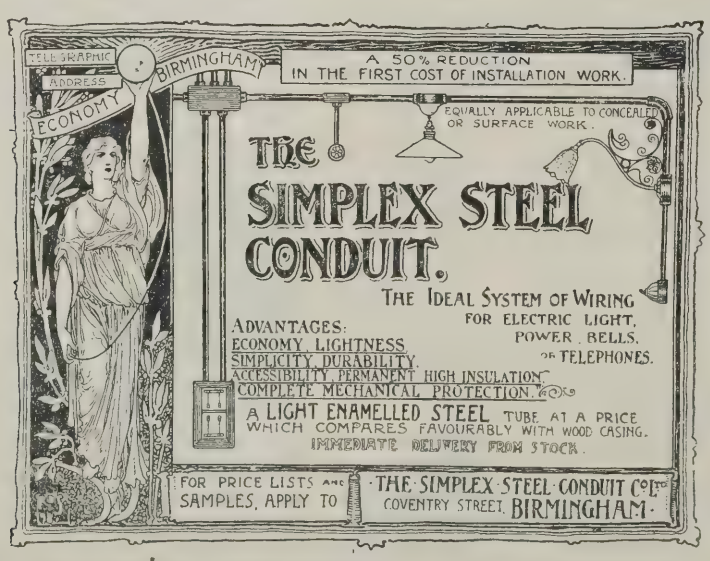
Collis Willmott	£212 10 0
Snewin Bros. & Co.	200 0 0
W. Shurmur	189 0 0
McCormick & Sons	176 0 0
G. Barker	174 0 0
W. Silk & Son	164 10 0
J. Kybett	155 0 0
S. H. CORFIELD (*accepted*)	125 0 0

Scrutton Street, Hackney.

Collis Willmott	£230 0 0
J. Morrison	226 0 0
G. Wales	145 12 0
G. Barker	133 0 0
J. KYBETT (*accepted*)	118 0 0
S. H. Corfield	115 0 0

Shap Street, Hackney.

J. T. Robey	£137 5 0
Gardner & Hazell	117 7 6
J. Grover & Son	115 10 0
Geo. Barker	111 10 0
J. Kybett	101 0 0
Marchant & Hirst	98 0 0
S. H. CORFIELD (*accepted*)	92 0 0



"THE BANQUET."

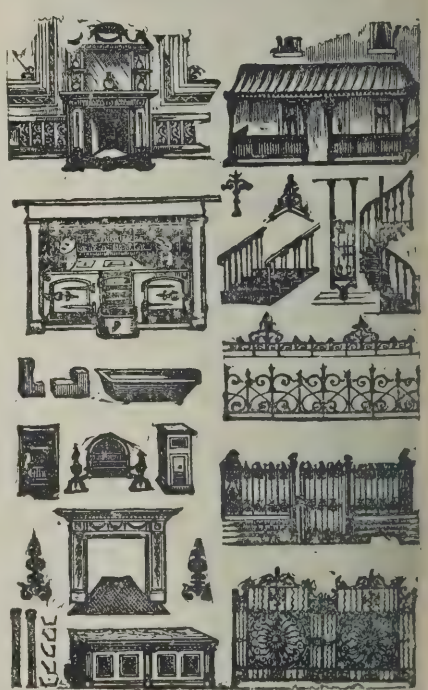
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LONDON SCHOOL BOARD—*continued.*

Heber Road, East Lambeth.

T. Freeman & Son	£428 0 0
J. & C. Bowyer	235 0 0
W. Akers & Co.	229 0 0
Frampton & Co.	229 0 0
H. Line	225 0 0
J. F. Ford	222 0 0
Rice & Son	199 0 0
GEO. KEMP (*accepted*)	140 0 0

Victory Place, East Lambeth.

Maxwell Bros., Limited	£228 0 0
Rice & Son	217 0 0
W. & H. Castle	148 0 0
Johnson & Co.	125 0 0
Star & Son	110 10 0
E. TRIGGS (*accepted*)	95 0 0

Campbell Street, Marylebone.

W. Hornett	£144 10 0
G. Neal	143 0 0
Bristow & Eatwell	121 9 0
F. T. Chinchen	114 7 0
W. CHAPPELL (*accepted*)	112 0 0

LONDON.

For repairs at the King Charles II., Spitalfields Market, for Mr. Wm. Hubbard. Mr. EDWARD BROWN, architect, 161 Commercial Street, Bishopsgate.

F. Granfield	£257 0 0
J. V. KIDDLE & SON (*accepted*)	230 0 0

For repairs at the Salmon and Ball, Lamb Street, Spitalfields, for Mr. Wm. Hubbard. Mr. EDWARD BROWN, surveyor, 161 Commercial Street, Bishopsgate.

F. GRANFIELD (*accepted*)	£44 10 0
J. V. Kiddle & Son	38 0 0

LUTON.

For repairing, painting, &c., at the Corn Exchange. Mr. A. J. L. EVANS, borough surveyor.

M. Kiteley	£107 14 0
W. Bavister	105 11 6
F. YOUNG, Castle Street (*accepted*)	49 5 0

STOCKTON-ON-TEES.

For additions to Bailey Street and Bowesfield Lane Board schools. Mr. ARTHUR HARRISON, architect, 99 High Street, Stockton.

Bailey Street School.

J. Davison	£1,920 10 11
A. J. Cooke	1,847 15 0
A. Atkinson & Co.	1,831 15 8
CRAGGS & BENSON, Hume Street (*accepted*)	1,822 0 0

Bowesfield Lane School.

J. Davison	651 8 11
Craggs & Benson	632 10 0
A. Atkinson & Co.	609 14 10
A. J. COOKE (*accepted*)	618 3 0

STOKE.

For constructing a sewage-tank at Stoke.

KELLY, Stoke (*accepted*)	£110 0 0

WEST ARDSLEY.

For construction of two miles of main pipe-sewers for the drainage of the New Scarborough district of West Ardsley, with manholes, lampholes, &c. Mr. FRANK MASSIE, engineer, Tetley House, Kirkgate, Wakefield.

Ross, Wilks & Crabtree	£2,703 15 3
J. Keightley	2,470 16 8
J. Armitage	2,446 4 6
T. & G. Wilson	2,260 0 0
J. & W. H. Bairstow	2,249 0 0
M. Arundel	2,128 17 6
Eastwood Bros.	2,013 16 2
H. & W. Barraclough	1,923 12 4
W. Doleman	1,905 13 5
J. SLINGER & SONS, Cleckheaton (*accepted*)	1,830 0 0

WICKLOW.

For repair of entrance pier.

G. LAWSON, Rutherglen, Glasgow (*accepted*)	£16,700 0 0

WOODFORD.

For alterations to two houses, High Street, for Mr. J. Appleby. Mr. EDWARD BROWN, architect, 161 Commercial Street, Bishopsgate.

M. Bryden	£420 0 0
H. Wells & Sons	305 0 0

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ELECTRIC NOTES.

A LOCAL company intends to erect works for the purpose of supplying electricity in the district of Fleet, Hants, the present illumination being by oil. Mr. F. J. Warden-Stevens has been retained to act as consulting engineer for the scheme.

AT the monthly meeting of Greenock Police Board a letter was submitted from the North British Electricity Supply Company, Limited, intimating their intention to again apply for a Provisional Order for the burgh of Greenock on or before December 21. The letter was remitted for consideration.

THE City of London Electric Lighting Company's gross revenue for the quarter ending June 30 was 28,126*l.*, against 26,158*l.* in 1897. In making a comparison it must be remembered that since the commencement of 1898 the reduced charges of 7*d.* per unit, with a sliding scale reduction down to 4*d.* per unit for lighting, and 4*d.* and 3*d.* per unit for motive power, have been in force.

ELECTRICITY will be the only motive power employed by the Orleans Railway Company on the extension of its line through Paris to the Quai d'Orsay; that is, if the project is approved of by the Minister of Public Works. Electric locomotives will take the trains to the outskirts of the city, where they will be replaced by the ordinary engines, and in this way the long tunnels of the new line will be kept free from smoke. Should the experiment be successful, the Orleans Railway Company will extend the use of electricity to other sections of its system.

TRADE NOTES.

THE Penygroes County School, Carnarvonshire, is being warmed and ventilated by means of Shorland's patent Manchester grates.

MESSRS. MARION & CO., of Soho Square, who enjoy a wide reputation for their photographic appliances and materials, have sent us their new price lists and samples of ferro-prussiate papers and linen, which afford an excellent and infallible means of obtaining accurate copies of drawings, plans, &c., by the simple process of exposure to light and afterwards washing in water. Among other materials supplied by the firm are their cyanographic paper for reproducing tracings, &c., the melagraphic paper for reproducing tracings, &c., in black lines on white ground by exposure to light and simply washing in water, and their gallate-de-fer paper for reproducing tracings, &c., in black lines on white ground by exposure to light and development in one bath only, while their new and improved tracing papers and cloth are specially suitable for ferro-prussiate and other heliographic printing. They are of uniform excellent quality and moderate price.

WE were greatly interested in the demonstration given on Wednesday last by the directors of the London Portland Cement Company, at their works at Northfleet, as to the highly satisfactory fire-resisting qualities of their new building material "Scagliol." Exigencies of space prevent our giving a full account this week, but we propose to do so in our next issue.

BUILDING AND BUILDERS.

THE foundation-stone was laid on Saturday of day schools that are to be built in connection with St. Joseph's Catholic church, Sale, at a cost of over 2,000*l.*

LORD STRATHCONA laid on Saturday the foundation-stone of the Presbyterian church of St. Peter, Beechcroft Road, Upper Tooting, in the presence of a large gathering.

A NEW Welsh Calvinistic Methodist chapel is about to be erected at Carmel, near Holywell, at a cost of 1,000*l.*, which is to supersede a building that dates from 1814.

AN interlocutor has been issued granting warrant for the erection of the new hotel above Princes Street station, Edinburgh.

THE foundation-stone of the St. Barnabas Church, Morecambe, was laid on Friday last. The estimated cost is close upon 7,000*l.* Seating accommodation is to be provided for 700 persons.

LORD GREY (the administrator of Mashonaland) has laid the foundation-stone of a cottage accident hospital at Bishop Auckland. The building is intended to meet the wants of the mining community.

AT Dudley, on Wednesday, the Earl of Dudley laid the foundation-stone of a new grammar school which is being erected from the designs of Messrs. Woodhouse & Willoughby, of Manchester, at an estimated cost of 10,000*l.* The new buildings will accommodate 150 boys, and will comprise a large central hall, five classrooms and head-master's house.

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THE Guardians of St. Olave's, Borough, have voted 2,000*l.* for the erection of a Roman Catholic church and a Protestant church in connection with their new workhouse now in course of building at Ladywell, Lewisham, which is to accommodate 600 inmates.

THE foundation-stone of a new smallpox hospital for Barnsley and the townships round about was laid last week at Lund Lane, Monk Bretton. The hospital, which is in course of erection by the Barnsley Corporation at a cost of 6,000*l.* on a site purchased from Colonel Wombwell's trustees for 1,000*l.*, will be built in five blocks, and will provide accommodation for sixteen patients.

THE foundation-stone of the new cottage homes which the Aston Board of Guardians are erecting at Gravelly Hill were laid on Tuesday. The architects' plans for these homes were originally drawn for the accommodation of "families" of thirty, but at the instance of the Local Government Board they have been amended, so as to provide for "families" of not more than sixteen, space being found in the altered designs for a total of 250 children. The new buildings are divided by a broad roadway into two sections, one for girls and one for boys. In the centre of the former is situated the superintendent's house; at one end is a probationary lodge for the detention and examination of new-comers, and at the opposite extremity are the church and schools and the infirmary. In each section are seven homes for the accommodation of sixteen children each, and one for twelve children. The boys' department contains workshops, in which they will be taught tailoring, shoemaking, carpentry and fitting, and a large swimming-bath is also provided. The contract, which amounts to 42,000*l.*, has been let to Messrs. W. Lee & Son, of Aston.

VARIETIES.

SPECIAL services were held at St. Cyprian's Church, Edge Lane, Liverpool, on Sunday, on the occasion of the reopening of the building, which has been renovated and improved.

THE spacious castle which the Duke of Fife has been building on his Braemar estate is rapidly approaching completion, and will be ready for occupation within the next few weeks.

A NEW police-court for the Highgate district, at the corner of Archway and Bishop's Roads, near the railway station, was formally opened on the 20th inst. The new building, of which the foundation-stone was laid on August 5 last year, was erected by the Middlesex County Council at a cost of about 6,000*l.*

THE new hospital at Aldershot for the wives and children of soldiers has been opened by the Duchess of Connaught. It adjoins the Cambridge Hospital, and the foundation-stone was laid by the Duchess a year ago. It is a commodious, well-arranged building, and contains all the latest improvements and the best-known appliances for the nursing of the sick. The Duke of Connaught accompanied the Duchess.

MR. T. W. CUBBON, who is architect of the Wells Lane Schools, Birkenhead, has recently received instructions from the Clothworkers' Company to proceed with an important educational scheme in the Isle of Man, comprising the erection of a new higher grade school, also a new science and technical school. It has also been decided to materially enlarge two of the existing schools. Mr. Cubbon has just completed a new pupil teachers' centre and science school for the Douglas School Board, which is the fourth he has carried out for this Board.

EDMUND HAROLD CAMPIN, the youngest son of one of our contributors, has won the silver medal for proficiency in mathematics at Aske's Hatcham School this year. He has also taken second-class honours in the Senior Cambridge Local Examination. In the open competition for London County Council Intermediate Scholarships he gained the eighth place, June 1897. He has also taken the form prize for the year.

THE new science laboratory or technical department of Bromsgrove School has been completed, and the celebration of founders' day was selected as a suitable occasion on which to perform the opening ceremony. The laboratory stands at the corner of the prettily laid-out quadrangle formed by the present building of the school. It is designed in the English Renaissance style of the early part of the seventeenth century, and is built of sand-faced bricks and with Monk's Park stone, and a covering of purple-red Broseley tiles. The building, which is of two storeys, comprises a lecture-room, chemical and physics laboratories, a dark room for photography, carpenters and turners' shops and stores. The work has been carried out by Messrs. J. & A. Brazier, of Bromsgrove, from the designs and under the superintendence of Messrs. Lewis Sheppard & Son, of Worcester, and at a cost of something under 1,000*l.*

SHERINGHAM, like many another rising seaside resort, has grown ashamed of the rustic and primitive beauty which has hitherto constituted its charm, and is now eager to obliterate its natural characteristics and put on the commonplace appearance which renders one place of the kind practically indistinguishable from another. To this end an esplanade has been constructed and a gorgeous new hotel erected, both of which were a day or two since inaugurated with all the pomp and circumstance to be derived from brass bands and a profusion of bunting.

IN submitting the accounts for the first half-year, showing a net profit of £5,409, the directors of the Royal Aquarium Society state that the seven years' refreshment contract held by the present contractors will expire on September 14, and a contract under new auspices and more favourable to the Society has been entered into. A transfer of the Society's mortgage is being negotiated at $3\frac{1}{4}$ per cent. in lieu of $3\frac{3}{4}$. The art metal exhibition necessitated heavy expenditure and precluded large profits. The expenses were, however, more than covered, and the directors report that, without exception, every week's business has resulted in profit to the Society.

A NEW theatre was opened at Dalston on Monday evening. The building is not strictly a new one, being, in fact, a conversion of a circus which was known as the Colosseum. The auditorium consists of pit and stalls, with an amphitheatre rising from a spacious dress circle to the gallery. The decorations, in pale green, white and gold, with crimson upholstery, are bright, and the proscenium is flanked by two large stage boxes and there are a dozen smaller boxes under the circle line. The lessees are Messrs. Edward Compton and Milton Bode, and the theatre will be run on the weekly change principle.

WORK in connection with the demolition of the tall chimney stalk at the New Street Gasworks, Edinburgh, is now in hand, and the consequent removal of an eyesore from the Princes Street valley will therefore shortly be effected. The chimney was built in the year 1845, and was designed by Mr. Mark Taylor, engineer to the company. Mr. George Buchanan, civil engineer, and Professor Gordon, both of Glasgow, were also consulted. The stonework was built by Mr. James Gowans, Edinburgh, and the brickwork by Mr. James Bow, of Pollokshields, near Glasgow. The total height of the chimney is 329 feet from the ground line. The stone pedestal is 30 feet square and 66 feet high. The brick shaft is circular, 26 feet 3 inches diameter at the bottom, tapering to 15 feet diameter at the top, and the inner barrel is $22\frac{1}{2}$ feet diameter at the bottom tapering to 12 feet diameter at the top. There are few chimneys even at the present day higher than the one that is about to be removed from Edinburgh, and at the time of its erection it was considered one of a few of such dimensions. Every precaution has been taken by the commissioners to insure the safe removal of such a huge structure without mishap, and the contractor, Mr. W. J. Furse, of Nottingham, is setting about it in a workmanlike manner. The refuse material is to be utilised in the concrete for the building of the new gasworks at Granton.

THE new police-station for Lichfield, which has been erected by the standing joint committee of the Staffordshire County Council, is now complete, and will be occupied in the course of a few weeks. The principal entrance is in Wade Street, and the appearance of the buildings at once shows that great care has been taken to make the style harmonise with the general character of the city. The buildings are faced with sanded Leicester bricks with Hollington stone dressings, and are set back from the street with iron railings in front. The public entrance is in the centre, with superintendent's office and charge-room on either side. At the side of the charge-room is the tramp office, having a door from the charge-room, but having a separate external entrance. Immediately opposite the door at the back of the charge-room is the cell corridor, having four cells of regulation size opening from it, with lavatory, &c., in the centre. The cell windows overlook the prisoners' yard, which, being covered with an iron grille, renders it impossible for outsiders to communicate with the prisoners. The entrance to the constables' quarters is at the left-hand side of the Wade Street front, and gives approach to a square hall with staircase leading to the living rooms. At the back of this hall is the cleaning-room and the boot-room. On the first floor are the constables' quarters, consisting of a recreation-room, a kitchen, with pantry adjoining, containing separate locker for each man, a dormitory for six men, a sick room, a large bath-room, lavatory, scullery, &c. The superintendent's house fronts Frog Lane, and the entrance to the parade yard is also in Frog Lane. The cells are heated and ventilated in a special manner. Under the cell corridor are provided hot and cold-air chambers, with external gratings to supply the cold chamber with fresh air, which will enter the hot-air chamber near the bottom and so pass between the hot-water pipes and rise from the top of the hot-air chamber through flues into the cells. The foul air will be extracted from the cells by means of flues carried into a main flue

which is specially heated to create a draught. The whole of the interior has been designed with simple and yet pleasing detail. The principal entrance has a dado of glazed tiles, and the chimney-pieces, &c., of all the principal rooms are of glazed faïence, while the walls and ceiling of the cells are of glazed bricks, thus entailing a minimum of work in cleaning. The floors of all the principal rooms on the ground and first floors are of wood blocks. The cost of the whole has been about 5,500*l.*, and it has been erected from the designs and under the superintendence of Mr. John P. Osborne, F.R.I.B.A., of 95 Colmore Row, Birmingham, the contractor being Mr. John Gethin, of Shrewsbury, and the clerk of works, Mr. W. Sier.

BUILDERS' BENEVOLENT INSTITUTION.

THE fifty-first annual meeting of the Builders' Benevolent Institution was held on Thursday, July 21, at the offices, 35 Southampton Row, Bloomsbury, W.C. Mr. Charles Wall (president) occupied the chair, supported by Messrs. Thomas Stirling, H. Holloway, E. V. New and other friends of the Institution.

Major R. A. Brutton (secretary) read the annual report, which stated that the committee desired to express to the subscribers their thanks for the continued support to the charity. Last year being the Queen's Jubilee, and also the Jubilee year of the Institution, every eligible candidate was rejoiced by receiving the benefits of the charity. This was very satisfactory, and it was hoped that the increased liability of expense would be cheerfully met by subscribers. By the lapse of time, the decease of many liberal contributors and other causes, new subscribers were urgently needed, or the Institution might eventually have to be curtailed in the dispensation of the great good it was so happily the means of affording. The warmest thanks were due to the president, Mr. Charles Wall, for the interest he had taken in the welfare of the Institution. During the past year there had been four deaths amongst the pensioners, and three pensioners had been elected. The annual dinner will be held at Carpenters' Hall on Thursday, November 17, when Mr. Benjamin J. Greenwood, of the firm of Messrs. Holliday & Greenwood, would occupy the chair.

The Chairman proposed the adoption of the report and accounts, which was seconded by Mr. New, and unanimously agreed to.

On the motion of Mr. Thos. Stirling a cordial vote of thanks was passed to the retiring president, Mr. Charles Wall.

Thanks were also accorded to the vice-presidents and to the hon. treasurer (Mr. George Plucknett, J.P.), with a request that he should continue his valuable services.

A similar compliment was paid to the committee, the retiring members being reappointed with the addition of Mr. A. Ritchie.

The hon. auditors were re-elected, and a vote of thanks accorded them for their services.

The Chairman proposed that Mr. Benjamin J. Greenwood be the president for the ensuing year, and believed he would do his utmost for the charity.

Mr. New seconded the motion, which was agreed to.

On the motion of Mr. Holloway, a cordial vote of thanks was passed to the chairman for presiding, and the proceedings terminated.

MUNICIPAL TRADING IN ELECTRIC POWER.

IN a letter to the editor of the *Times* Sir Frederick Bramwell, C.E., writes :—

In 1882, sixteen years ago, you did me the honour to insert a letter having for its title "Something more than the Electric Lighting Bill," in which I called attention to the onerous conditions which by the Electric Lighting Act of that year it was sought to impose upon all private enterprises for the purposes of supplying electric energy.

In this letter I pointed out how peculiarly unreasonable it was that a then new industry should be stifled at its birth by the imposition of provisions in favour of municipalities which had never been applied to its immediate competitors the gas companies, or even to railways, &c.—provisions which allowed municipalities or other governing bodies of any district where it was proposed to inaugurate an electric lighting company to acquire at the end of fifteen years the electric undertaking on the mere value of the materials suitable for the work at the time of purchase.

If the municipality did not happen to buy, its chance of purchase was not gone for ever, for at the end of a further five years the option re-arose, and so on from five years to five years.

Thus, as I pointed out, "as long as there is no profit or a poor profit, you, the undertakers, may continue to work, but the instant you get anything like an adequate return, then we will come and buy you up at a price which must inevitably be a comparatively small fraction of the capital you have laid out in your undertaking."

The Act which was passed varied the Bill in extending the fifteen years to twenty-one years, and the five years' "recurrence of option" to seven years.

As was to have been expected under such provisions as these, no private capitalists would risk their money and go to work, and for six years England lagged behind all the other nations in this industry.

This had become so obvious that in 1888 an Act was passed extending the twenty-one years to forty-two years. But the vicious principle of municipal trading still prevailed in that Act, and at the end of forty-two years the undertaking was to be acquired upon the then value of the mere materials.

This year there has been a joint committee of the Houses of Lords and Commons on electric energy (generating stations and supply), the report of which committee has just been published.

From that report it will be seen that, as regards undertakings supplying energy in bulk at high voltage, to be used not only for the purpose of electric lighting, but of power, the committee think the provisions of the Electric Lighting Acts enabling the local authority to purchase after a term of years inapplicable as a general rule—that is to say, the committee realise that the conditions imposed by the Act of 1882, whereby the interests of the municipalities were fostered at the expense of private enterprise, were inconsistent with the free development of this great industry, and they further realise that the modifications of the 1888 Act are not by any means sufficient or satisfactory, and the evidence before the committee showed that England is still behind other countries in its commercial employment of electric energy.

Since the issue of this report of the joint select committee there has passed through the House of Lords a Bill promoted by certain influential coal and iron masters in the Midlands (Nottinghamshire, &c.), which Bill is entitled a "General Power Distributing Bill"; this has for its object the supply of electrical energy for lighting, power and every other purpose for which it is applicable over an area of some 2,000 square miles, being the area of a circle of 26 miles radius, with its centre at Warsop, in the colliery district of Nottinghamshire, where the generating station would be placed.

This lords' committee passed the Bill and its clauses unanimously. There is no purchase clause in the Bill at all. It has now to be considered by the House of Commons. It has been read a first time, and the second reading is likely to take place on Friday, or on some other very early date.

The sole opponents are certain municipalities. These are using every effort to obtain the rejection of the Bill on the second reading, or, failing this, they seek that an "instruction" should be given to the committee that would be appointed to consider the Bill.

That is to say they invite the House of Commons to reject a Bill which is the outcome of the principles approved by the joint committee, embracing certain of its own members, without hearing (through its committee) any evidence at all; or, failing that, they ask that the judgment of the committee which would hear the evidence shall be fettered by the "instruction" of the House that has not heard the evidence.

In short, by every means in their power they hope to render the report of the joint committee a dead letter, and to continue to uphold the mischievous system of municipal trading.

FIREPROOF CONSTRUCTION IN AMERICA.

(*Concluded from last week.*)

Third, Constructions with Light Metal Constituents.—Fireproofing material in the form of a flat arch or flat slab acts like a beam—the upper portion of the section being in compression and the lower portion in tension. As none of the materials are as strong in tension as in compression, light metal elements are introduced to strengthen the portion of the section that is in tension. In this manner a much thinner and lighter construction of the requisite strength may be obtained. In assembled constructions the metal elements are embedded in the mortar of the joints; in monolithic constructions the metal is embedded in the material while in a plastic state. The metal generally consists of steel or iron in the form of wire, rods, bars or sheet metal expanded in open meshes. If properly embedded the metal adds greatly to the strength of the construction. As that portion of the material which is in tension is usually the under side of the construction, the metal, in order to develop its maximum efficiency, should be located as far as possible from the neutral axis, or near the under surface of the construction. In this position, however, it is very much exposed, and in case of a fire of any magnitude the heat would soon render the metal constituents valueless as an element of strength. In construction of this class the embedded metal should, therefore

be located as far as practicable from the under surface. A building constructed entirely of incombustible materials is not necessarily fireproof. If the building contains steel or iron-work, and is not suitably protected, the heat from a very insignificant conflagration caused by the combustion of the furniture or other contents may so seriously affect the strength of important iron members as to cause the complete wreck of the structure. It is, therefore, highly essential that the structural iron be thoroughly protected. This is accomplished ordinarily by—first, materials of construction, and, second, materials of finish.

In the former case, the same materials as are used for the walls and floors are built around the columns, girders and beams, so as to completely encase them, the thickness of the cover varying from 1½ to 4 inches, depending upon the character of the building and the degree of fireproof efficiency required. The monolithic constructions forming a solid continuous protection around the columns, or, in case of girders and beams, forming an integral part of the floor construction between the beams, are vastly more tenacious and efficient than any other. Protective coverings, consisting of assembled parts, even though bound together with wire or band iron, are liable to crack at the mortar joints and fall during a hot fire or when suddenly cooled by a fire stream.

When materials of finish form the protective covering they usually consist of plaster, cement, a veneering of natural or artificial stone, of sheet metal or of a combination of these. Cement or plaster on wire lath is superior to the other materials of finish named for protective purposes. Suitable furring should in all cases be provided, so that an air space will intervene and prevent the plaster from coming into contact with the iron member. This will prevent any fluxing of the iron under high temperatures and will permit the transmission of heat only by radiation—a much slower process than by direct contact. When designed so as to form two or more thicknesses of wire lath and plaster with air spaces intervening, the efficiency of the protection is largely increased. The usual practice of incasing the columns and girders with a single thickness (generally 1 inch or less) of plaster and wire lath is entirely inadequate in most cases and is only admissible in buildings containing insignificant quantities of combustible finish and contents. The columns and girders being the essential members of the steel skeleton frame, they should in all cases be thoroughly protected.

The protection which any given method or system of fireproofing provides for the structural iron depends not only upon the character and thickness of the actual covering, but also upon the distribution of the material of construction. When, as for example, in the segmental arch form, the floor material is aggregated or massed about the beams and girders, a large percentage of the total material is in the immediate vicinity of the steel beams. On the other hand, if the material is more uniformly distributed, as in the flat slab form, a less percentage of the total material will be found near the beam. It will be evident that a higher degree of heat or a longer application of it will be necessary to raise the larger mass of material to a certain temperature than will be required to raise the smaller one to the same temperature. The beam being within the protecting material, it follows that it will be more effectually protected by the larger mass of the material.

Types of fireproof flooring in which the under surface of the materials of construction is below the lower flange of the steel beams, afford generally a better protection for the beams than those types in which the beams project below the flooring and are protected by a covering. In the latter case three sides of the girder or beam covering are exposed to the flame and heat in case of fire. The thickness of the covering in such forms of construction should be carefully designed so as to provide suitable protection, as the special conditions may require.

The question as to whether iron and steel will oxidise or rust when in contact with materials of construction is one of vital importance. Cement mortar and the ordinary stone concretes made with it have well-known preservative qualities. In basement floors or other locations where more or less moisture may be present, care should be taken that the concrete in contact with the iron be a "full" concrete; that is, a mixture in which the cementing material completely fills the voids and is in contact with the entire surface of the iron. "Cinder" concrete is a comparatively new material. Its effect on steel and iron has been carefully and very thoroughly investigated during the past two years. It has been shown that under normal conditions cinder concrete is entirely harmless in this respect. The plaster-of-Paris compositions have been used for many years in France and other parts of Europe without causing any injurious effects whatever when in contact with iron or steel. New materials, and especially such as are produced by secret or patented processes, should be thoroughly tested and proved to be absolutely harmless before accepting them as suitable materials for building construction.

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CATALOGUES.
ELECTRIC LIGHT FITTINGS,
CHANDELIERS, BRACKETS, CANDELABRA, &c.
REPRODUCTIONS OF
The FINEST EXAMPLES.

scientific treatment of the subject. The actual and relative expansion of the materials due to heat and the deflections caused by unequal heating must receive careful consideration. Some of the properties of structural steel when heated are as follows :—

At about 575 deg. Fahr. 10 per cent. of the strength is lost.

At about 750 deg. to 800 deg. Fahr. 50 per cent. of its strength is lost.

At about 1,000 deg. to 1,200 deg. Fahr. 75 per cent. of its strength is lost.

The limit of safety is in some cases dependent upon temperature and in other cases upon expansion. The protection of the steel skeleton frame should in all cases be ample to prevent temperatures approximating to the safe limits.

In designing the fireproofing of a building it is important to know the character of the interior finish and the purposes for which the building is to be used, in order that an intelligent idea may be formed as to the intensity and duration of a possible fire. When these details are known a suitable form of construction can be selected, and the protection of the steel skeleton frame designed with accuracy and economy to meet the requirements.

A few hints as to the special adaptations of some of the forms of construction, suitable spacing of iron beams, &c., follow :—

For warehouses, factories, stores, depôts, &c., which may be filled with inflammable and other goods and in which the floors are subject to heavy moving of jarring loads, the segmental arch form of construction will generally be found to be the strongest, safest and most economical. The whole section of the arch being in compression, it can be depended on to retain its full strength and fulfil every requirement of a floor in the most intense and long-continued conflagrations. For similar buildings in which strength is of prime importance and fireproof qualities are a secondary consideration, the forms of construction with light metal constituents will give excellent results and prove more economical than the segmental arch.

For public buildings, libraries and other high-class buildings in which expensive floor finish and highly ornamental plaster effects are desired, the monolithic constructions (preferably the segmental arch form), with flat ceilings of wire or expanded metal give the best results. The monolithic construction will preserve the integrity of the floor finish, and the wire ceilings, if properly constructed, will prevent the cracking and discolouration of the plaster-work.

For office buildings, educational institutions, hospitals, theatres, hotels, apartment houses, residences, &c., in which the combustible contents are limited to interior finish and furniture, the monolithic constructions with light metal constituents and flat wire ceilings are the most economical and fulfil every requirement. The air spaces between the flooring and ceiling in these forms of construction provide a convenient conduit for piping, speaking tubes, electric wiring, &c.

Fireproof floors should be at least 3 inches in thickness. If thinner most of the materials are liable to crack when highly heated and suddenly cooled with a fire stream.

In designing iron-work for fireproof floors the beams should generally be spaced from 5 to 8 feet centre to centre. In wider spacing the construction between the beams weakens rapidly, and excessive thrusts and strains generally result, which should be avoided in fireproof construction. In closer spacing of the beams the ironwork is rarely as economical and the smaller beams are more readily affected by heat.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

15250. John Hill, for "Improvements in ventilators."

15617. George Elliott and John Thomas Hickson, for "A new or improved process for drying bricks."

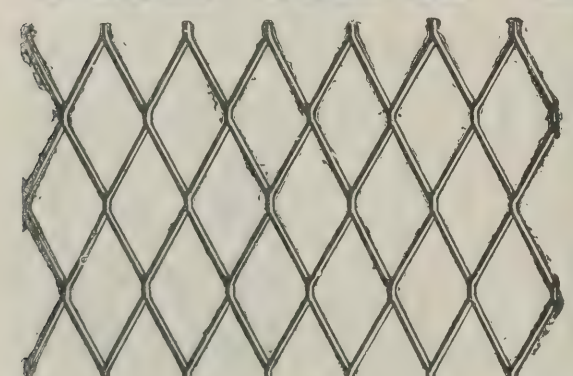
15623. Charles Kempshall, for "Improvements in tile-making and punching tables."

15632. Louis Pollastrini and August Sicard, for "Improvements in or connected with plaster ceilings."

21146. Pearce, for "Vitreous decoration of walls, panels and other surfaces."

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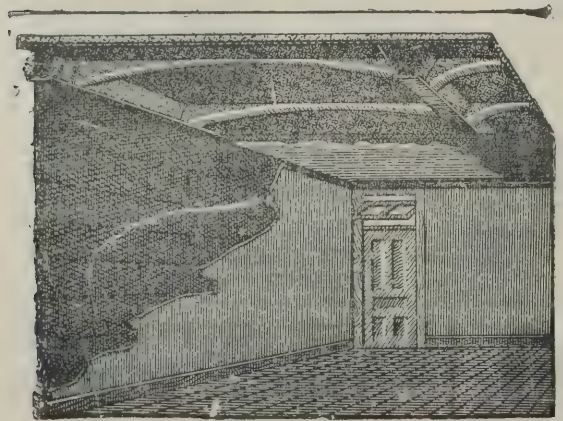
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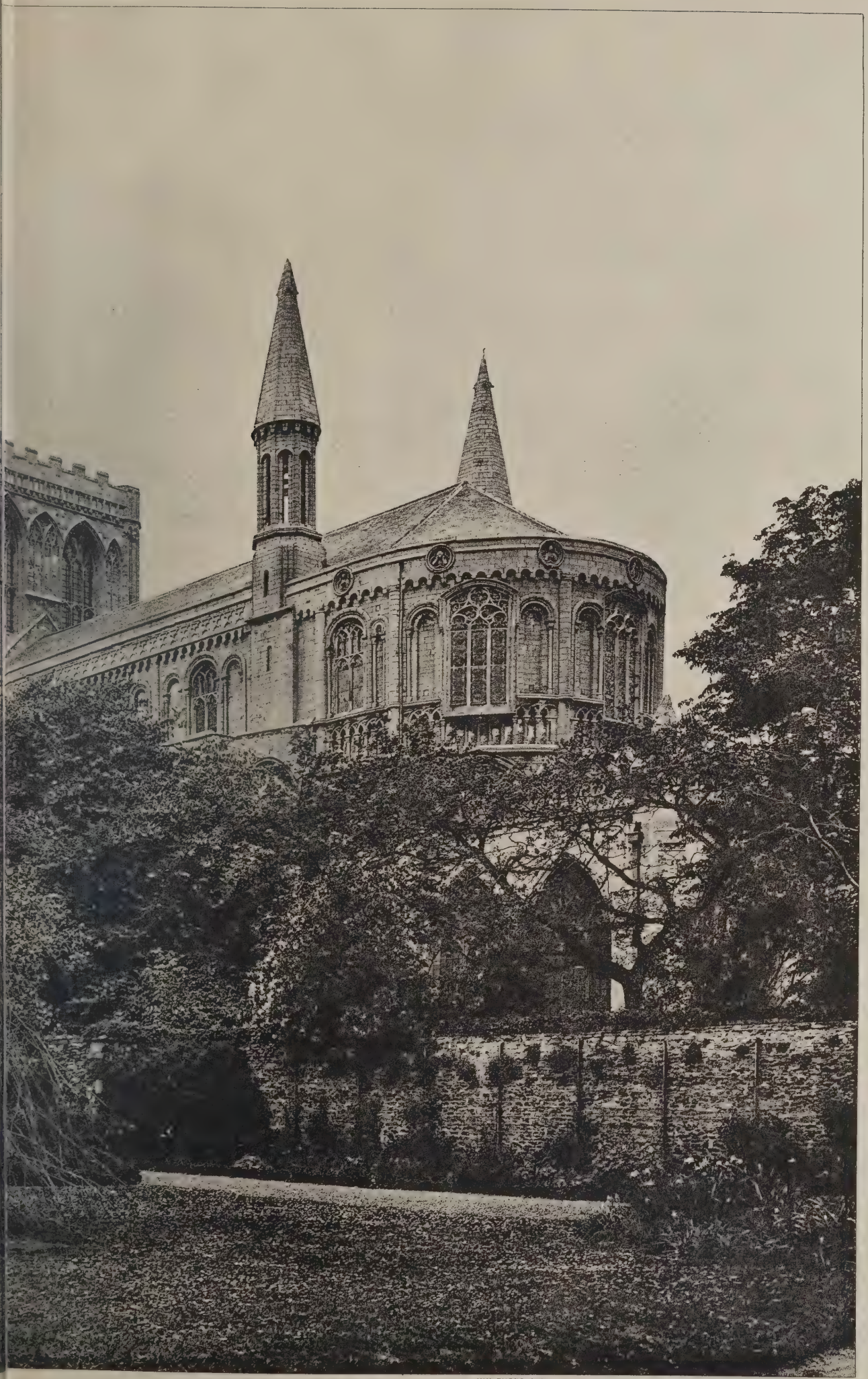
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CATHEDRAL SERIES, No. 152.—PETERBOROUGH: NORTH TRANSEPT AND CHAPELS OF SS. JAMES AND JOHN.

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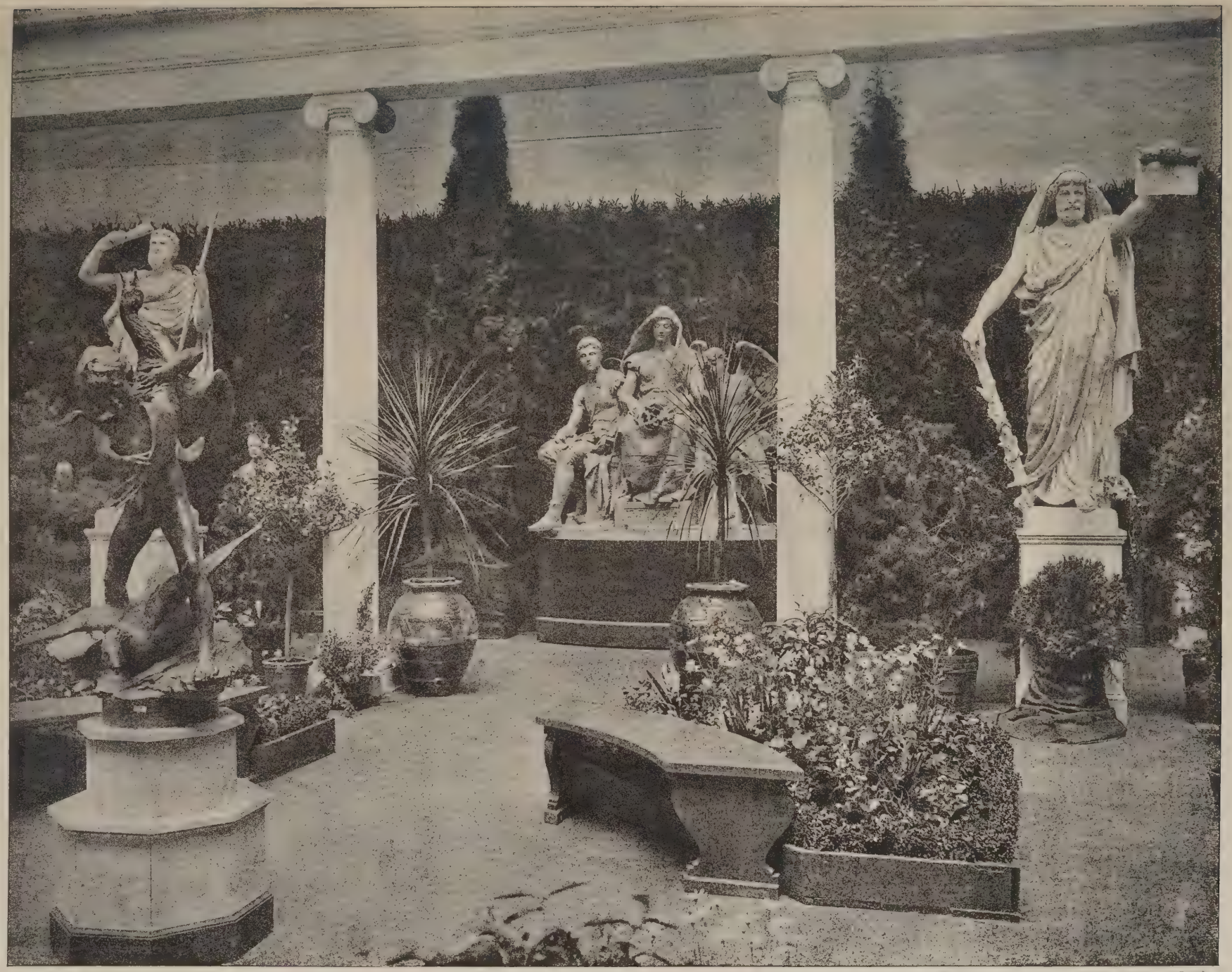
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INES, FRANCE.

l, Architect.



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EXHIBITION OF THE NATIONAL SCULPTURE SOCIETY, NEW YORK.

IN THE ITALIAN GARDEN.

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The Architect.

THE WEEK.

We have several times referred to the old building in Kilmallock which is known as "King John's Castle." For some years the lower part has been used as a forge. The castle is also an obstacle to a road improvement, and the local authorities proposed to demolish it. The rights of occupancy and of a Board of Guardians are not to be set aside with impunity, and it was therefore difficult to utilise the Ancient Monuments Act for the preservation of the castle. Acting on the advice of Sir Thomas Deane, the Irish Commissioners of Works have, in spite of legal difficulties, secured the loose masonry, and the ruin is therefore in a state of substantial repair. But the smith's forge remains. The Commissioners have been in correspondence with the owner of the castle on the subject of getting clear possession, which they have themselves no power to obtain. A local committee lately proposed to provide a forge for the smith if the Commissioners would make two large arches in the tower, so as to form a roadway through it. The Commissioners are advised that this work would endanger the stability of the structure. The Commissioners, however, have been advised to remove the stone divisions of the two existing arches, to concrete the floor under them, to build a concrete wall in the interior, shutting off the arches from the rest of the castle, so as to prevent objectionable use being made of the structure, to place a door in this wall opening from the side of the arched passage, to concrete the upper portion of the stone vaulting, and to provide for carrying away the water. They have written to the Board of Guardians, who have communicated with them officially, offering to execute these works if and as soon as it becomes possible to do so, by removal of the forge.

The decision of the Court of Appeal in Pethicks' case has much importance for builders who have large contracts in country districts. Messrs. Pethick were the builders of the Dorset County Lunatic Asylum, which cost 52,000*l.* By the conditions they were bound to keep the visiting committee harmless from all claims for damage to main roads by extraordinary traffic. They entered into a subcontract with John Trenchard to provide carts and horses, men to unload railway trucks, and to convey some of the materials along certain roads. No cart or traction engine was to be employed without the consent of Messrs. Pethick. Further, he agreed to indemnify them against claims for damage to main roads. The County Council of Dorset sent in a claim for 231*l.* on account of the extraordinary traffic, and summoned Messrs. Pethick, who were ordered to pay by the justices. The Divisional Court set that order aside. The question was, were Messrs. Pethick responsible after their arrangement with Trenchard? Lord Justice Smith held that the decision given last year in Kent County Council *v.* Lord Gerard was binding, and that the person who was liable was not the person by whom or at whose instance the extraordinary traffic was conducted, but the person by whose order it was conducted. There was no doubt that it had been conducted by the order of Trenchard, and that he might have been made liable. But it was argued that even if that were so Pethicks had ordered it to be conducted. There was no other order than the written contract between Pethicks and Trenchard. It was said that power was reserved to Pethicks under the contract to say what carts should be used. He was not satisfied that that was the meaning of the contract. Reliance was also laid on the clause providing that no cart or engine should be used which Pethicks might think improper for the service. In his opinion those words referred to the fitness of any cart or engine for the work, and did not refer to the contingency of the roads being cut up. On the ground that no order had been shown to have been given within the meaning of the section, he thought that the judgment of the Divisional Court must be affirmed. Lord Justice Rigby said he was of the same opinion. It was necessary for the county authority to show that the extraordinary traffic had been conducted by the order of Pethicks. Lord Justice Vaughan Williams agreed, but he desired to base his judgment on this—that the case did not state sufficient to fix Pethicks with liability. There was nothing to indicate how much of the damage was caused by excessive weight of particular parcels, or what was the nature of the extraordinary traffic in question. On this ground he thought that Pethicks could not be held to be responsible.

The Guild of Handicraft have purchased from the trustees of the late William Morris the plant and presses of the Kelmscott Press, and have made arrangements with different members of Mr. Morris's staff for permanent employment at Essex House, with a view to their ultimate election into the Guild. It is the hope of the Guild by this means to continue in some measure the tradition of good printing and fine workmanship which William Morris revived. The Kelmscott Press blocks being deposited at the British Museum, and the types not for sale, the books to be issued from the Essex House Press will be in a new type, to be designed by Mr. C. R. Ashbee. As this type will not be ready for some months, one of the best of the eighteenth-century Caslon founts has been purchased, and in this the first two or three books will be produced. Of these, the first issue will be Mr. Ashbee's translation of the treatises of Benvenuto Cellini on "Metal Work and Sculpture," which is now nearly completed. This book, which has never yet been translated into English, and which has entailed several years' work, is intended to serve as a pendant to the work of John Addington Symonds; it will be richly illustrated with reproductions of Cellini's works, arrangements having been made with Messrs. Plon, Nourritt et Cie., in Paris, for the use of the *clichés* to M. Eugène Plon's great work on Cellini. Other books to be issued from the Essex House Press will, it is hoped, be as follows:—Sir Thomas Hoby's translation (Elizabethan) of Baldassare Castiglione's "Courtier," Bunyan's "Pilgrim's Progress," Froissart's "Chronicles," the "Poems of Burns," an "Illustrated Account of the Work of the Guild of Handicraft," the "Monographs on famous London Buildings," to be issued from time to time for the Committee for the Survey of the Memorials of Greater London, and "Womburne Wodehouse, Wolverhampton: the Record of an Ancient House."

It is not uncommon in actions for damages against a railway company on account of an accident to hear a judge declare that travellers are not to consider themselves as parcels and entirely in the hands of officials. A traveller is to exercise his own judgment when it can be of use. But under the Employers' Liability Act the order of a foreman is supposed to remove all necessity for thinking. A man on building works becomes like a soldier in the field, who has no discretion about obedience. The judgment in Reynolds *v.* Holloway, given in the Court of Appeal, is additional evidence of so peculiar a fact. The plaintiff was the widow of a ganger, who might be supposed to know something of the risks of building, and who was told by the foreman to take down a small two-storeyed house. There was a matchboard partition, but whether orders were given that it was to be preserved appeared uncertain. At all events, the ganger began with the partition, and in the course of his operations the roof fell on him and he was killed. In the Greenwich County Court the widow was awarded 120*l.*; Mr. Justice Day and Mr. Justice Lawrance, however, held there was no evidence to go to a jury, and entered judgment for the builder. The case was taken to the Appeal Court. Counsel for the builder argued that there was no evidence of the foreman ordering the partition to be removed, and therefore it could not be said the ganger was obeying orders. The Court considered that a negligent order was given, as the deceased man, being a ganger, was ignorant about the proper way to pull down a house; therefore his death was caused by obedience to the foreman's order. The judgment of the County Court was restored. It is cruel to appear as an opponent of justice in cases of this kind, but it is difficult to resist a belief that the ganger could hardly have been ignorant of his risks. There is too often foolhardiness among the men engaged on demolitions, but it is hard to make an employer pay for an excess which brings him no profit.

THE SCIENCE AND ART DEPARTMENT'S REPORT.

IT would appear as if the beginning of the end has at last been reached at South Kensington. In spite of the conflicts between the practical and the official representatives of science and art, we suppose a new museum is likely to be erected, but it will hardly be controlled by the connoisseurs of the Royal Engineers. A great many objects which were bought at "fancy prices" will have to be removed from the cases and destroyed. It would appear as if something corresponding with "the Queen's Tobacco Pipe" has become a necessity if the present system of enriching the museum is to be continued. In the teaching of art there may be many modifications. The ruins of Abbey Mansions in Westminster are not satisfactory comment on the thoroughness of the teaching of architecture in the Royal College of Art, and much else is to be seen throughout the country which reveals the imperfections of the Government system.

The coming events are indicated in the last report of the Science and Art Department by an expression of satisfaction for continuous prosperity which corresponds in a marvellous way with the statements of commercial establishments which are about to collapse. There was during the year a decrease in the number of science classes from 10,500 to 9,102; but that is explained away by saying it is "no doubt largely due to the absorption of the smaller schools in the larger and better-equipped schools." There is likewise an increase of 3,400 in the number of students over the year preceding, but between the years 1894 and 1895 the increase was about 10,000, and between 1888 and 1889 it was 18,500. Consequently in science there is, according to the official figures, not much ground for official congratulation. The statistics of tests of students in science are also unsatisfactory. In 1897 the number of students examined was 101,526, and of their papers 62,261 were passed; but in 1890, with only 86,318 students, there were 114,245 papers passed, so that progress is not manifest.

But, whatever deduction from the figures is arrived at, the reports of the examiners testify to the blaze of triumph which is inevitable with a moribund system of science teaching. In building construction "the percentage of first-class successes is the highest yet obtained." In geometry "the results are all good, all but one, but one of the questions having been correctly answered; the drawing was throughout neat and careful, with few exceptions." The examiners in geometric science are Irishmen, and the want of precision is therefore excusable. There is a "decided improvement" in geology, "a distinct improvement" in human physiology, "a distinct improvement" in general biology, "a decided improvement" in physiography. At the same time, we can realise from other parts of the reports that the progress somewhat resembles the popular notions of a crab's locomotion. For instance, the examiners in botany say, "The papers sent in were, on the whole, satisfactory. It is, however, a disappointing feature in these examinations that candidates reproduce, year after year, erroneous views on many elementary points." Again it is confessed :—"The impression produced by the answers as a whole is one of unreality in the knowledge of the candidates. They often seem to be familiar with terms and ideas, but not with the facts to which the terms and ideas refer; so that when the actual things come before them they fail to recognise them." We imagine that a corresponding judgment should be passed in the other branches of science, although the phrases "decidedly satisfactory" and "decided improvement" are scattered with a liberality that recalls the testimonials of the patent medicines.

Science teaching which keeps students ignorant of facts and things is an anomaly in the country of Bacon. But the Department, having created a peculiar class of science masters, is bound to keep them employed. The teachers, with all their shortcomings, are now, however, strong enough to make the higher officials succumb. A remarkable instance of the weakness of South Kensington is suggested by a couple of the circulars. In December 1897 one was issued, which stated how "it has come to the notice of the Lords of the Committee of Council on Education that in several of the schools of science recently established the proportion of students who continue their studies into the second and third year is so exceedingly small that the school cannot with any justice be considered as a school of science at all." Instructions were therefore given to the inspectors to report any case where 25 per cent. of first-year students, or more than that percentage of second-year students, leave the school before completing the full course, and it was announced: "It will then be a question whether such school should continue to be recognised as a school of science." They were brave words, but they did not cause much commotion in the schools. Before a month elapsed My Lords humbly declared "they have no desire to press unduly by any hard-and-fast rule of percentage on those schools which may, if time be allowed them, establish themselves as schools of science, when it is clear that there is a *bonâ-fide* effort to make them such." In other words, things were to go on as before, for there was not a word about limiting the time to be allowed. What is more, an easy way of earning science grants in any ordinary science and art school was pointed out, thus demonstrating that the Department is more concerned about the numbers attending classes than about the instruction given there.

The art of the Department's students, we are afraid, was of a humble degree. The examiners show a reluctance to describe it which is enough to explain its true character to the initiated. Of the examples of historic ornament it is said, "The sketching on the whole is good, and in many cases excellent, even when the number of marks gained is but small, owing to few questions being answered." In geometrical drawing "the right constructions were so clumsily and inaccurately executed as to be not only of no real use, but actually misleading." In design "much good work is sent up, but there is still an appreciable number of papers which ought never to be sent up as the work of advanced students." In design (honours) "A large proportion of the papers were very much below the standard of what one would expect in candidates for 'honours,' being often quite elementary or even rudimentary in conception and treatment. There were notable exceptions," &c. Than this see-sawing there cannot be better proof that the examiners were perplexed, and, whatever the consequences, dare not describe the work as having practical value.

In architecture the results of 1897 appear more satisfactory, but it will be seen that what Professor Roger Smith admired was work which was done outside the schools, such as drawing from existing buildings, and the credit for which should not be entirely arrogated by the Department. He says :—

> The general results of the examination are considered satisfactory. In one respect, indeed, they are very much so, for the answers, written and graphic, give clear evidence that the attention of teachers of architecture in schools of art (and of their students) has been during the last session more directed than before to the study of existing buildings and work, as the best method of learning architecture. In no previous year have there been so many indications of this study, though they have been increasing from year to year; but now not only the advanced students but many of the average ones have attempted some drawing or description of existing work, and perhaps owing to this a larger proportion of candidates than usual have acquitted themselves creditably.

In other varieties of art we suppose a similar practice is allowed, and an important question is raised whether work which was not executed under the eyes of an official master can with fairness be submitted in the examinations. If, however, the art schools in 1897-98 are not much of a protection against foreign competition in cases where design is essential, for it is not by warships only British supremacy is to be upheld, there is a likelihood that for a term at least they will become still less of a defence. Mr. Sparkes, to whom any success gained by the schools is mainly owing, has resigned. At Lambeth he not only brought one of the humblest of schools into a state of efficiency which made it a rival of the Academy school, but by his influence he raised the character of some of the local industries. At South Kensington there was a wider sphere for his organising power if departmental jealousies could have remained unexcited. But, like other able teachers, he was hampered, and such success as was obtained was not always announced. This year, we believe, her students have gained 9 out of 29 gold medals, 39 out of 143 silver medals, and 78 out of 350 bronze medals, which,

under the existing conditions, is a fair measure of success. According to rumour, his successor will be transferred from among the clerks. That experiment was tried in the Art Library, and the contentions over the appointments between the enthusiastic scholar, Mr. WEALE, and the upholders of the competency of clerks to undertake all duties has led to the Parliamentary inquiry which has startled the country. In Austria at one time the Capuchins monopolised civil and military as well as religious posts of importance, and every reader of SCHILLER'S "Wallenstein" knows the consequences. In this country the Civil Service clerk takes the place of the monk; he is the universal genius, the practical man. We hope in naval and military affairs he will outstrategise foreigners; but experience has proved that in dealing with the teaching of art and science he has not been a blessing to the country.

LIGHT AND AIR.*

A FOREIGNER who visits London and does not follow the tracks laid down in his guide book, must often wonder when he sees the announcement of ancient lights painted on the walls of houses in districts where improvements are about to be realised. Respect for windows is not necessarily insured in that way, and the lettering may be often taken as no more than an invitation to treat for rights which have little claim to be considered as absolute and indefeasible, but the announcement is an assertion of rights which it is one of the privileges of a London house owner to possess. Elsewhere there are prescribed rules by which interference with light and air are readily arranged, but in London, and in most English towns, the erection of a new building imparts to any windows which may be in its vicinity a value which they were not supposed to possess. To assess the amount it is necessary to invoke the costly and uncertain processes of law.

Whether a more economical and expeditious course is possible or not is a subject over which experts differ. In Scotland, notwithstanding all the love of litigation among the people, such light and air cases as are familiar in London are unknown. On the Continent claims are also more easily arranged. But, as we have said, the conditions of building in the Metropolis are supposed to be too irregular to be reduced to order without the aid of surveyors, lawyers and judges. The peculiarity is suggested by the various treatises on the subject. No two experts would follow the same plan in writing a book on light and air. The Acts on the subject are not numerous. The judges endeavour as far as they can to be guided by precedents, but somehow circumstances must be accepted which at one time appear to have the precision of science, and at other times have the laxity and freedom which, with all respect be it said, attend when common law and common rights become the arbiters.

What is the arrangement of Messrs. HUDSON and INMAN'S book is, therefore, the first question which will arise in the mind of anyone who has been connected with light and air cases on opening the pages. After definitions of easements and other rights, the authors begin by treating of the "Creation of the Easement of Light by Prescription (apart from Statute) or by Lost Grant." It is followed by chapters on the "Creation by Express Grant, by Statute, by Prescription, by Implied Grant, by Acquiescence." There is a chapter on "Extinction of the Easement of Light," on "Tenant and Reversioner," on "Interference with the Easement of Light by Obstruction," on "Abatement of the Obstruction," on "Remedies by Action," on "Proceedings Generally," and on "Air." There is also an appendix containing forms of agreement and the Prescription Act of 1832. Some diagrams of the usual character required in proceedings are given, and are very clearly executed. The printing is in a style which not only facilitates reference, but helps to impress the reader with the difference between judgments or principles and their applications.

Section 3 of the Act 2 and 3 Will. IV. c. 71, commonly called the Prescription Act, may be considered as the Magna Charta of the possessors of windows, and an exposition of it would be a manual of the law on the subject. It enacts that "When the access and use of light to and for any dwelling-house, workshop, or other building, shall have been actually enjoyed therewith for the full period of twenty years without interruption, the right thereto shall be deemed absolute and indefeasible, any local usage or custom to the contrary notwithstanding, unless it shall appear that the same was enjoyed by some consent or agreement expressly made or given for that purpose by deed or writing." It will be observed that the word "window" is not mentioned in the section, nor indeed in the Act; but as a window is considered to be the eye of a building, the majority of proceedings relate to some cause which affects one of those openings. HARRIS *v.* DE PINNA reveals the peculiarity of English law in considering light as a series of beams converging in an opening made for the purpose, or, to make use of judicial phraseology, "a number of pencils of light which come directly, or by reflection, into a window." The plaintiffs owned timber sheds of several floors. The defendant built a warehouse right up to their boundary. But we are told that "the Court of Appeal in an action for an injunction, held that inasmuch as the light was not enjoyed through definite openings, the easement could not be acquired." Air was of much importance to the plaintiffs as an agent in drying their goods, and probably light was effectual for that purpose also. But law has its fetiches, and the window is one of them. The plaintiffs could, no doubt, have gained their easement if they put up cast-iron framing without any glass, which bore some resemblance to a window, and allowed the admission of pencils of light.

In a scientific sense light is found to have other qualities which are valuable, besides those which enable us to read print of small size, to discern small objects, to perceive differences of colour, and so on, but the law looks on natural light as something provided by nature, and for which, if lost, expensive artificial light has to be provided. If, for example, the owner of an opposite house were to paint his walls of some glaring colour to such an extent as make his neighbour's water-colour drawings, or his carpets, curtains, hangings, and the frocks of his wife and daughters appear unpleasing, it is doubtful whether the sufferer would be able to obtain compensation. A case of the kind was lately brought before the French courts, the sufferer being a ribbon and silk merchant, who found his business was declining because the materials he offered for sale lost the delicate tones which gave them value. The judges sympathised with him, but could not aid him. In England, where we are less particular about chromatical defects, the courts would not be likely to consider a similar case from the artist's point of view. They are obliged to be almost as indifferent to the sanitary importance of light and air, and on that account it would be often advantageous if some modification of the law took place.

Some years ago there was, we remember, a case in Vice-Chancellor MALINS'S Court, which was conducted in a way that might be said to exhibit procedure in a nutshell. The plaintiff was a coffee-house keeper in a court or lane off Holborn. A big building was erected on the opposite side, which he said darkened his premises. Counsel took the narrowest possible basis of attack. Plaintiff's customers, it was said, could not read the papers he supplied as easily as before, and went elsewhere for literary recreation. That point was kept well before the Court by counsel in examining the witnesses. The irascible judge, who set little value on the evidence of experts, and was irritated at the sight of a diagram, went across to the shop. He found a difficulty in reading the first paper he took up, and it is needless to say the plaintiff succeeded beyond his anticipations. It is not always easy to make out so definite an obstruction; but when it can be done the plaintiff is sure to gain. In the coffee-house case there was undoubtedly an interference with the access of air, and in such stuffy premises that was a consideration of at least equal importance with the diminution of light; but counsel prudently avoided the subject, for he knew too well that if sanitary considerations were of any value the court in which he practised should not be allowed to exist. It is difficult to compare the constituents of air at two periods, while it is easy to show by the increase in the gas bills whether light is obstructed. In no class of action is it more desirable to keep to humble realities than in those relating to light and air.

In the coffee-house case the judge assumed that sufficient light to read a penny newspaper was indispensable,

* *The Law of Light and Air*, by Alfred A. Hudson and Arnold Inman, Barristers-at-Law. London: F. P. Wilson.

and therefore existed at a prior time. But cases have arisen where a diminution of light was not considered as penal. One of them, MARTIN *v.* GOBLE, which was tried in 1808, is summarised in the volume before us :—

The plaintiff's house had for twenty years been used as a malthouse. It had lately been converted into a workhouse, and the defendant was obstructing the ancient windows. An action by the plaintiff failed, as the plaintiff did not prove that the light remaining to him was insufficient for the purposes of a malthouse. Sir A. M'Donald directed the jury that it was not enough that the windows were to a certain degree darkened by this wall which the defendant had erected on his own ground. The house was entitled to the degree of light necessary for a malthouse, not for a dwelling-house. The converting it from the one into the other could not affect the rights of the adjoining ground. No man could, by any act of his, suddenly impose a new restriction upon his neighbour. This house had for twenty years enjoyed light sufficient for a malthouse, and, up to this extent and no farther, the plaintiffs could still require that light should be admitted to it. The question therefore was whether it still remained in the condition of a malthouse, and if a proper degree of light for the purpose of making malt was now prevented from entering it by reason of the wall which the defendant had created. The jury found for the defendant.

If a case of the kind came before the courts in our days there is little doubt that the plaintiff would have succeeded. Light is taken to be measurable, and deprivation of a part of it is generally considered an interference with the property of the possessor. As Messrs. HUDSON & INMAN state there were, about the middle of the century, great changes in the law. "If the plaintiff owns ancient lights which are so obstructed that the comfort of his house—if it is a dwelling-house—is interfered with, or so that his premises—if they are business premises—are rendered less fit for any purpose for which they are likely to be used, he is entitled to protection. Whether he is entitled to absolutely the whole of the light which comes to his windows, or only substantially the whole, is not quite so clear, and must remain in doubt until a superior Court decides." But in order to provide against contingencies it is wise "when a house is leased or purchased by an artist or sculptor, or any person whose occupation requires the greatest possible amount of light, and land adjoining the house remains in the hands of the grantor, care should be taken by those advising the person leasing or purchasing the house that all rights of light necessary for his occupation are assured to him." For that purpose it is most useful to preserve elevations which will serve as evidence of the position and area of the windows at the time when the rights are supposed to commence, or rather assume, the initiatory stage, for an easement needs twenty years to grow.

The advantages which belong to Mr. HUDSON'S comprehensive treatise on the law of building—owing to the author's experience as an architect—are also possessed by the volume on ancient lights. It can be trusted, for there are no pages which suggest the amateur in building. It is clearly arranged, and can be read with a satisfaction which is not produced by all legal treatises.

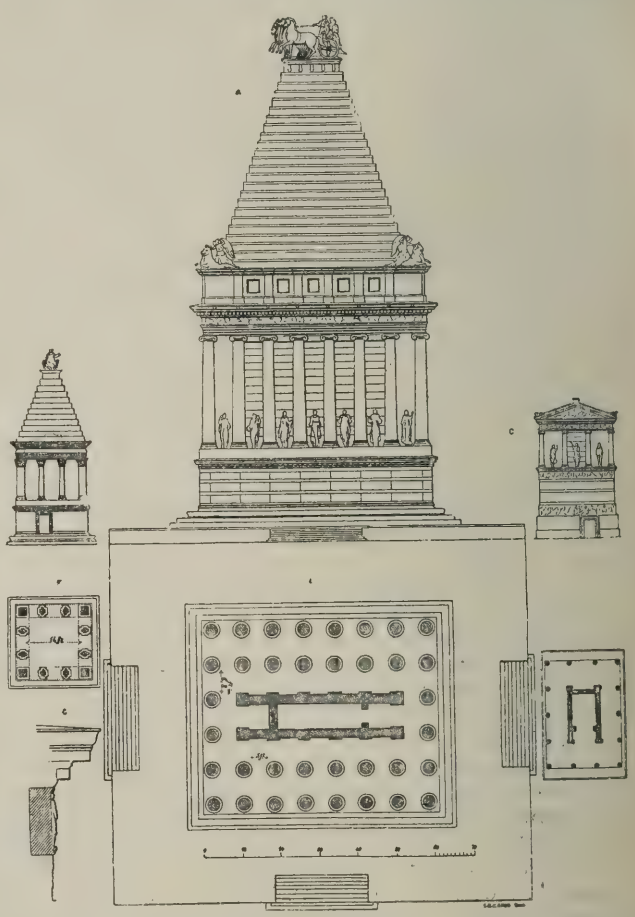
COCKERELL ON THE MAUSOLEUM.

THE writings of the late Professor Cockerell, R.A., have fallen into undeserved neglect. With the following description of an attempt to restore the Mausoleum at Halicarnassus some of our readers may be unacquainted. It was addressed to the late Sir Charles Newton, of the British Museum.

My dear Sir,—The best answer I can give to the questions you do me the pleasure to address me on the subject of the Mausoleum, will be in the artistic language of the enclosed sketch. I will not enter into a critical discussion on this passage, and on the numerous commentaries that have been written in explanation of it; my business, as an architect, is to adhere as nearly as possible to the received text as the programme of my restoration.

The enclosed drawing exhibits an elevation and plan agreeing with the height, width and entire circuit given by Pliny. Beside it, on the same scale, are the tomb at Mylasa and that at Xanthus, which, according to the analogy of all architectural history, must have resembled the Mausoleum, more or less, in its principal features.

One great advantage which we possess over all former commentators on this subject, is the recent acquisition to our Museum of the marbles from the fortress, of the identity of which with the celebrated sculptures described by Pliny I can entertain no doubt. This frieze establishes a very essential fact, viz. the dimension of the order to which it belongs. The relative proportions of the Greek orders being fixed, we ascertain their entire size by a part, as we should that of a statue by a single member "ex pede Herculem." The frieze being 2 feet 5¼ inches in depth, we obtain an order of 37½ feet,* and, applying this order to the dimensions given of the whole by Pliny, 63 feet in the flanks, on the fronts brevius, we find first, a correspondence with one of Pliny's dimensions, 25 cubits, which is remarkable, and may possibly explain that part of his text; and, secondly, from the adjustment of the diameters and intercolumniations of such an order to the dimensions of the sides and fronts and the number of columns given, viz. 36, we have a structure of great beauty and wonder. By such an arrangement the pyramid is supported in the air, literally as Martial has expressed it,† and reposes on a grove of columns, pervious to the eye, yet offering a full and sufficient means of sustaining the superincumbent weight by supports distributed at intervals of 6 feet or thereabouts over the whole surface of the plan, longitudinally and transversely. That so bold and unusual a mode of sustaining the superstructure may have existed we have evidence in the tomb at Mylasa, which was still more astonishing in this respect, though smaller in dimensions, since the pyramid was sustained on a periphery of twelve columns, the interior space having no support whatever, and offering a void of 14 feet, while in the proposed restoration that



void does not exceed 6 feet.‡ The conditions of taste appear to me to be sufficiently fulfilled by the arrangement I have proposed; we obtain a disposition most approved in Greek architecture, having eight columns in either flank, and six in either front, and six in either flank in the second row,§ making a total of 36.

* The diameter of the columns was probably about 3 feet 4 inches, a respectable dimension, and exceeding by one-half that in the French restorations. I have given the frieze that larger proportion which the Ionic examples of Athens afford, rather than the Asiatic. It may well be presumed that a frieze destined to receive workmanship of so superior a quality might have the utmost extension which the order admitted.

† In the line from the "De Spectaculis"—"Aere nec vacuo pendentia Mausolea."

‡ It is by no means necessary to suppose the superstructure of the pyramid to have been a solid. The pillars may have been elongated as piers above the entablature, so as to carry a pyramid of ashlar construction similar to that of Mylasa.

§ In the language of Greek architects, peripteral, dipteral, pycnostyle in the flanks, and systyle in the fronts.

The next point to notice is the narrow and elongated cella resulting from this plan, a remarkable authority for which has been discovered in the remains of a monument from Xanthus, lately acquired for our Museum by the labours of Sir C. Fellows, the restoration of which shows that a tomb was not disposed as a temple, with a cella ample enough to receive the statue of a god, but simply as a receptacle of the remains of the body, perhaps of a statue, in honour of the deceased.* A consideration which has escaped most of the commentators, except Caylus, is the remarkable phrase of Pliny, "in metæ cacumen se contrahens," most of them having adopted the depressed pyramid after the Egyptian proportion. Now we have the meta constantly expressed in bas-relief and ancient painting, and always in an elongated conical form, a form perfectly adapted to this kind of structure, which was to strike rather by its altitude than its spread, and which, indeed, reposing upon an elevated cubical base of perpendicular sides, would thus present a much more harmonious inclination than that of the Egyptian pyramid. The inequalities of the sides of this parallelogram are also remarkably adapted to the area which the quadriga at the top would occupy.

It would encroach too much on your memoir to explain the details, such as the podium, the order, and the Attic,† with which I have thought myself warranted, by direct authority or analogy with other monuments, to combine with the parts of this building already known to us, the requirement always being that we should produce, from all the evidence at our command, a probable restoration, at once beautiful and marvellous, and according with the universal voice of antiquity. You will see that I side with you in believing that this monument did not cover the whole space circumscribed in 411 feet, which is nearly two-thirds of that occupied by the Parthenon itself; for though the work of affection of a powerful queen, and at the same time a product of personal ambition in the illustrious artists employed, it is not likely that it rivalled the great national and religious monuments of the Greeks in bulk and expense, still less in earnestness of purpose and loftiness of motive. Indeed, a comparison of the elevation of the Mausoleum, with those of the monuments at Mylasa, and at Xanthus, as they are represented, will show that it is disproportionately extensive and magnificent for the class to which it belongs. A professional estimate of the cost rather occasions my surprise at so sumptuous an effort in a country so politically insignificant, and I would here venture the suggestion that Caria, like the smaller kingdoms of Naples, Bavaria, Sardinia, and others, furnishing the revenues and sustaining the office of a king without the national responsibilities which encumber more extensive monarchies, may have indulged, as we have abundantly witnessed in modern examples, a greater magnificence of ornamental works than countries with greater territory and revenue, such as England, France, or Spain.

May it not also be supposed that Artemisia, while she indulged that disposition to Sutteeism which has always been applauded among the Asiatic nations, adopted at the same time a very wise policy in employing her hoarded wealth on a work which would occupy, during many years at least, that large body of artificers whom Mausolus must have assembled at Halicarnassus for the execution of his great works?

The hypothesis of a solid pyramid and cube surrounded by thirty-six columns, and those of a petty proportion, in a single row, is, as you remark, an inartificial and clumsy restoration of what we are told was a wonder of art; and such a structure would never have been made the subject of that dissertation by the renowned artists who reared it, Satyrus and Phiteus, the loss of which we must ever regret. Moreover, the solid mass would probably long have existed as a tower of defence, like Hadrian's Mausoleum, or that of Augustus, and would have left some traces at the present day; for it would not have been built of squared stones, such as might have applied to the building of the subsequent fortress, but would have been of the order of masonry called "emplecton," or rubble, with layers only, and a facing of solid square stone, or possibly bricks, and much of the materials would consequently not be worth carrying away.‡ Pray make such use of this essay as you may please—meanwhile I am rejoiced to offer in your society my tribute of admiration to the perseverance and skill, and true liberality, which have been so successfully exercised in our favour by Sir Stratford Canning at the Sublime Porte. By the acquisition of these marbles, he has added an essential link to that chain of monumental evidence in our museum, out of which may be developed the history of ancient art; while in these, the acknowledged works of some of the most renowned artists of antiquity, we behold one more example of that Greek genius, which will probably be followed with unequal steps by the present and future generations.—I remain,

C. R. Cockerell.

* See the model in the Lycian room at the British Museum. That such an arrangement of the cella as it exhibits may be obtained from the fragments themselves, and the observations made by Mr. Rhode Hawkins, I was enabled to demonstrate to that gentleman when, by his ingenious father's introduction, I had the honour, as a veteran in antiquities of this kind, to be consulted by him.

† The choice of Ionic need hardly be adverted to, since its employment was almost universal in Asia Minor, or, we should say, in Ionia, the country of its invention.

‡ We learn from Vitruvius, ii. 8, that the palace of Mausolus was built of brick, the decorations being of marble.

VIGNOLA.

THE "Legislator of Architecture," Giacomo Barozzi, usually called Vignola, from a place of that name in the Modenese, where he was born in 1507, was son of Clement Barozzi, a Milanese, who, not being suitably provided with the aids of fortune, and apprehending the effects of civil discord, left his abode at Milan for a retirement at Vignola, where he died while this son was yet very young. Thus early deprived of his best support, Barozzi yielded to the direction of genius, and betook himself to the study and practice of painting in Bologna. This pursuit soon discovering to him the necessity of a good knowledge of perspective, he so earnestly laboured to possess himself of that part of science as to supply the want of instruction by the invention of a method for himself. This he has given in a treatise entitled "Le due Regole della Prospettiva Practica di Giacopo Barozzi da Vignola," republished Coi Commentarj di Egnazio Danti, in Roma, 1583, folio. While the exercise of his pencil supplied him with the necessaries of life, what leisure his occupations of that kind left him he employed in investigating the principles of those arts; he could not be content to practise from a sole habit of imitation. It was during this first residence at Bologna that he is said to have furnished Francesco Guicciardini, the celebrated historian (then Governor of that city), with some excellent designs, afterwards executed at Florence in tarsia, a sort of mosaic of differently coloured woods formed into landscapes, architecture and other picturesque representations.

The passage was easy, from a deep acquaintance with geometry, perspective and design, to architecture. He had carefully studied Vitruvius, yet the attention he bestowed on that author served but to convince him that something more than writing could teach was wanted to form the real architect. Where to seek this the custom of all his predecessors in the art had informed him. Arrived in Rome, he endeavoured to maintain himself as before by his pencil, with a success by no means equal to his industry; and therefore, throwing aside the pallet in disgust, he sought a new resource in measuring the ancient remains for the Academy of Architecture, newly set on foot in Rome. This employment, conducive alike to his subsistence and improvement, engaged his attention so strongly as probably to have given birth to the "Treatise on the Five Orders" under his name, which all conversant with this study must have read, and some prefer to whatever else has been written on the subject. He next became assistant in the Belvedere to Giacomo Melinghini, of Ferrara, an excellent architect, and was allowed to frequent the meetings of the Academy of Architecture, where Marcello Cervini, afterwards Pope Marcello II., Maffei (afterwards Cardinal), Alexander Manzuoli, and other persons of distinction attended. They employed Vignola in designs and works that contributed to his support and extended his reputation.

Francesco Primaticcio, a Bolognese and excellent painter, coming to Rome about this time from France to collect pictures and procure copies of the most celebrated statues and reliefs, in order to their being cast in bronze as ornaments for the royal palaces, singled out Vignola for his assistant, and at his return carried him into France, where he passed two years in planning many works which failed of execution, throuhg the distress of the times by the foreign wars and civil disturbances with which Francis I. was continually harassed.

Returned to Bologna, he gave a design for the front of St. Petronio, much approved by Giulio Romano and Christoforo Lombardi, architect of the cathedral at Milan. In the Facciata de' Banchi, that makes a sort of wing to the cathedral of Bologna, his dexterous management of the site and some old buildings that could not be removed exhibited a further most advantageous display of his ability, though his design was dropped short by the omission of two turrets that would have added greatly to its effect. At Minerbio, near Bologna, he built a palace for Count Isolani. But the most important service that neighbourhood owed to Vignola was his conducting the Canale del Naviglio, which ran three miles wide of it, into Bologna; an achievement spoken of with high applause by Vasari. Meanly recompensed for this great work, he removed to Piacenza, where he gave the plan and superintended the foundations of the Ducal Palace, of which he left the further direction to his son Giacinto. The citadel of Piacenza was likewise formed by him. It is not easy to ascertain either the number or the dates of the various edifices of this great artist dispersed through Italy. Some of them are the churches of Mazzano, St. Oreste, della Madonna degli Angeli in Assisi, and a beautiful chapel in that of St. Francesco in Perugia.

Upon his revisiting Rome Julius III. appointed Vignola to be his architect. He was entrusted with the direction of the Acqua di Trevi and the construction of the Villa, without the Porta del Popolo, called Papa Giulio. At a small distance on the Flaminian Way Vignola built a chapel in the style of the ancient temples, called St. Andrea di Ponte Molle, a work much applauded. The plan of it is rectangular, the pilasters Corinthian, without pedestals. In Rome he refitted that Palace of the SS. de' Monti which has since been called the Palace of Florence, being become the property of the Grand Duke. For the same family he began a palace opposite that of the household of Borghese, but was not allowed to conduct it much above the foundations. The Cardinal Alexander Farnese, who thought highly of Vignola's intelligence of his art, committed to him that part of the great Farnese Palace which contains the famous gallery painted by the Carracci. By his order likewise Vignola built the elegant Corinthian portal of St. Lorenzo in Damaso, and a rustic door to the Farnese Gardens, that does credit to its inventor. The great favour of this Cardinal to the Order of Jesuits suggesting to him the building of the magnificent Church del Gesú, Vignola was employed to design and conduct the fabric. The foundation was laid in 1568, but the superstructure was not carried on by him to its termination. So far as it had the benefit of his direction it has every merit; but the alterations made in his plan by Giacomo della Porta, who succeeded him in the superintendence, are by no means to the advantage of the work.

St. Anna de' Palafrenieri, near the Vatican, is supposed to have been built by Giacinto Barozzi, after a design of his father Giacomo—the Oratory of St. Marcello, the Cappella Ricci in Santa Caterina de' Funari, the Deposit of Cardinal Ranuccio Farnese in St. Gio. Laterano, are all believed to be inventions of Vignola.

But if every proof of his skill hitherto specified were away, the palace of Caprarola, about thirty miles from Rome towards Viterbo, would by itself establish the superiority of his professional talents. This singularly magnificent and commodious edifice stands solitary, on the brow of a barren hill, surrounded by other rocky eminences and opening into a delicious country. The offices are distributed into several courts, round the midrise of the hill, on whose summit the palace is placed. It is externally of a pentagonal form, flanked by five bastions in manner to give it the commanding air of a fortress. When the visitor has passed the entrance he finds the area within is circular, and the fabric rises by two storeys of porticoes. One side of the pentagon is occupied by a grand loggia and staircase, and in the other four there are on each storey four great apartments complete, which are kept free from all communication by means of the porticoes that run round the great circular court. More detailed descriptions of this masterpiece of a great master may be seen in Vasari, Danti, and, with designs of the whole and the parts, in D'Aviler's "Cours d'Architecture." It may, however, be useful to add that this palace is also attractive for the paintings of the Zuccari and the perspectives of Vignola that adorn it, as well as for its architecture. Barbaro upon a critical survey of the whole, for which he was eminently qualified, is said to have exclaimed, "Vincit præsentia famam."

After the death of Michel Angelo, Barozzi was declared architect of St. Peter's, and in that office erected the two lateral cupolas. When the Baron Berardino Martirani arrived in Rome from Spain to collect designs for the Escurial, and had got together twenty-two by the most eminent architects of Italy, he showed the whole collection to Vignola, who, judiciously selecting and combining what was most masterly and congruous in the ideas of so many great artists, and adding his own to their best conceptions, composed a design greatly superior to any single one that had been shown him. This, when presented and examined, was favoured with the preference of the monarch and an invitation of its author to superintend its execution, an honour his attachment to Rome would not permit him to accept. In regard to the general esteem of his probity and ability he was commissioned by Gregory XIII. to settle his differences with the Grand Duke of Tuscany concerning the boundaries of their respective States near Città di Castello, and, having acquitted himself to the satisfaction of his employer, died immediately upon his return to Rome in 1573. His remains were deposited in St. Maria della Rotunda, the ancient Pantheon. It was, says D'Aviler, but just that the greatest partisan of ancient architecture should have sepulture in the most magnificent remaining edifice of antiquity. But will not the want of some monument or record there to attest the fact and mark the spot ultimately defeat the intention in his case, as in that of B. Peruzzi and other worthies that sleep there unnoticed by the numerous successive visitants of that august structure?

We are authorised to state that applications for space at the Paris Exhibition of 1900 should be sent to the secretary of the Royal Commission, St. Stephen's House, Westminster, not later than August 20, 1898.

THE ZURICH POLYTECHNICUM.

IT is unnecessary to describe in detail, writes Lieutenant-Colonel Plunkett, this very extensive and splendid establishment for the study of practical science, but the following notes may deserve consideration in connection with the requirements of the College of Science in Dublin. In addition to the extensive building in which the mathematics, drawing and other courses are carried on, two very large separate blocks have been built, one for the physical laboratories at a cost of 80,000*l.* sterling, a second for the chemical and electro-chemical laboratories at a cost of 75,000*l.*, and a third block is now in progress which is to cost upwards of 60,000*l.* for the engineering laboratories. There are also a laboratory for agricultural chemistry, a botanical laboratory, a zoological laboratory, and an astronomical observatory.

There were altogether 1,330 students last session in the institution, of whom 841 were regular and 489 occasional students. They usually come at the age of eighteen or nineteen, and have to pay 100 francs a year, as well as laboratory fees amounting to about the same sum or more. There are between 50 and 60 professors and about 30 assistants as well as occasional instructors, making a total teaching staff of 120. The college is open for 37 weeks in the year; work begins daily at 7 A.M. in summer and 8 A.M. in winter, and continues till 5 P.M. and in many branches till 6 or 7 P.M. I was told that the 200 students who annually leave the college with diplomas have, on account of their excellent training, no difficulty in obtaining remunerative employment at once. A great many poor students are enabled to take the college course by gaining exhibitions.

The different faculties open to the students and the numbers attending each last session are:—1. Architecture, 53 students; 2. Engineering, civil, 178; 3. Engineering, mechanical, 322; 4. Chemistry, with technical chemistry, 154; and pharmacy, 13, as sub-divisions; 5. Agriculture, with sub-divisions of forestry, 30; agricultural engineering, 12, and agriculture, 29; 6. The general or normal course sub-divided into (1) Mathematics and physics, 23; (2) Natural science and chemistry, 27. A seventh faculty consists of a course of science combined with education in general literature and fine arts. I was not given the numbers taking this faculty.

In the engineering school all the students begin with the same course of drawing, mathematics, mechanics, physics, &c., and afterwards take different courses for the civil or mechanical branches. The mechanical engineering students have always a course of chemistry, and in future the civil engineer students will have to take this. Those who intend to be chemists begin with short courses of mechanics, &c.

In the physics department the professor of physics has four assistants and five mechanics in his workshop. There are three courses of lectures, one on physics, one on electro-technology and one on mathematical physics. The students in the mechanical course and those of chemistry are obliged also to take the course in the physical laboratory. The course for mechanical engineers consists of one year at mathematics, machine drawing and chemistry; a second year for physics and mechanics, machine construction and the first part of the engineering course; the third year is devoted to mechanics, machine construction, physics, electro-technological work and the remainder of the engineering course; and a fourth year to electro-technological work, construction and installation of dynamos, &c., and mechanical engineering. The study of mathematics is continued throughout the four years, and at the end of the fourth the diploma is given.

The building for the physics school is 70 metres long and 45 wide, in four floors; there are 81 rooms, large and small, of which 55 are laboratories. There are two gas-engines and five electro-motors with currents from the town installation, which supplies electricity at ·40 per Kilo-watt. In the dynamo-room four groups of students can work at once; there are 20 dynamos, that they may learn all the different types and also every variety of transformers. There is one room specially constructed without any iron, containing large galvanometers and three large balances for measuring currents. Each laboratory has a separate press for apparatus and a separate collection of the apparatus necessary, so that it has never to be carried from one place to another. There is a laboratory for measuring resistance, and another one for work on heat, which will accommodate about 12 students.

Separate laboratories are provided for electrical research, absolute measurements in electricity (where there is a normal chronometer with a pendulum in vacuo), electrical static work, &c.; all the apparatus required for lectures is kept quite distinct from that in the laboratories. There are two lecture-rooms in this department of the college, each for 120 students, and there is a third lecture-room for 60. In the large lecture-rooms the electrical current can be switched either on to one lamp of 900 candle-power or nine lamps of 100 candle-power each. Each student has to go through the work in each laboratory in turn, but they do not go through any workshop work.

The chemical laboratories are well lighted and well ventilated. Each advanced student has 9 feet of working bench and a fume closet; two elementary students are allowed the same as one advanced student. Air is driven into the laboratories by a fan, so that the pressure in the room is always rather higher than that of the external atmosphere. The air is warmed by steam coils in winter, and cooled by water-jets in summer before entering the laboratories. The foul air is drawn off through the fume closets and also by means of two flues in each pier with gas-jets burning in them; high-pressure water is supplied to every working bench, and there is a tap by which this can be converted to low-pressure. Each bench is also provided with a vacuum tube. The chemists generally stay from four and a half to five years in the college, and, as Professor Lunge so forcibly pointed out in his paper read before the Technical Education Congress in London, the whole institution is intended for the education of masters and managers, not of the artisans, for it is upon the scientific education of the former that the industrial future of every country must chiefly depend.

It must be remembered that Zurich is also provided with technical schools for artisans, and that this college is intended for youths whose fathers are able to afford for them this high scientific training from the age of eighteen till twenty-two or twenty-three.

CITY AND GUILDS OF LONDON INSTITUTE.

AT a meeting of the Council of the Institute, held at Mercers' Hall on July 25, 1898, it was resolved, "That the diploma of 'Associate of the City and Guilds Institute' (A.C.G.I.) be conferred upon the following matriculated students, who have completed a full course of study at the Institute's Central Technical College, and have satisfactorily passed the several examinations":—Sydney J. E. Bayly, Edwin A. Byrde, Alfred A. Cahen, William C. Cantrell, Harry K. Chambers, Walter H. Derriman, James H. Dolton, John M. Donaldson, Ernest M. Dowson, Henry A. Dupré, Arthur W. Elworthy, Frederick W. Fawdry, Sydney M. Fowler, Edward H. Freeman, Bertie Glass, Oscar T. Gnosspelius, Alastair M. Grant, Leo Guttmann, G. F. R. Jacomb-Hood, Frederick J. Kimmel, William N. Y. King, Edward W. Lewis, Charles A. McCalla, Guy D'A. Meynell, Joseph L. Naz, Henry A. Neild, Henry W. Oldham, Rowland S. Potter, Herbert J. B. Powell, Ayton H. Read, Richard J. Seligman, Deane H. Slack, Maurice Solomon, Donald M. Stewart, Harold M. Warner, William Waters, William L. Waters, William N. Wilson, Ernest C. Winter, Christopher G. Wright.

PUBLIC HEALTH AND THE BRITISH MEDICAL ASSOCIATION.

IN the section of State Medicine at the meeting of the British Medical Association, Edinburgh, Sir Henry D. Littlejohn (the president) in the course of an address, said he was old enough to remember the former meeting of the Association in Edinburgh in 1875. At that time he was medical officer of health for Edinburgh, where they were busily engaged in two very important works. First of all, they were dealing with the housing of the working classes. There could be no doubt that the old town of Edinburgh at that time was very densely crowded, and Lord Provost Chambers brought in a special Act of Parliament dealing with these areas, and the bill which the city had to pay for this great city improvement amounted to 560,000*l.* Within three or four years there was a marked improvement in the death rate. Of course that involved the transparent fallacy that it represented the total mortality of Edinburgh. But they had their black spots in Edinburgh, as Glasgow, Aberdeen, Dundee, and London had. In these parts of the city the mortality on occasions rose to thirty and thirty-three per thousand, but taking the city as a whole, with its normally increasing population, they had reduced the general mortality from twenty-eight to seventeen per thousand. The other great question that was occupying them when the Association visited them in 1875 was the important subject of drainage. Sir Henry shortly described, with the assistance of diagrams, the various extensions of the city boundaries since 1620 and the drainage and water supply systems of Edinburgh. He thought there was no doubt that they had settled the question so far as the new town was concerned, for they had stocked the water of Leith with fish. There was really no town in which they could study the whole system of drainage better than Edinburgh. Irrigation had been carried on for 200 years in the celebrated Craigentinny Meadows, the rental of which in 1875 had been 47*l.* per acre; within the last ten years it had been 40*l.*, and it was now down to 18*l.* per acre, which compared favourably with the most favoured land in the world. Sir Henry went on shortly to describe the systems of water supply from the Pentlands and Moorfoots and the most recent Talla water scheme, which he believed would supply Edinburgh with a superabundant supply of water. At present they gave an average of 38 gallons per head per day to a population of fully 400,000. They had three peculiarities in Edinburgh. There was their system of daily refuse removal. They had no ashpits. He did not think they could say as much in Glasgow, and, to the eternal disgrace of London, they had there the system of ashpit removal in full vigour. He believed that but for their system of refuse removal there would have been no Edinburgh for them to visit. For the solid refuse so collected they in 1875 received from the farmers 2*s.* 9*d.* a ton, but with the introduction of water conveniences its value was reduced to nothing. They had been driven to erect a destructor, and more destructors must be erected. Another peculiarity was the disgraceful system of course irrigation at Craigentinny. They had twice taken the proprietor of the estate before Parliament, and been twice defeated, because they could never show any mortality. The reason of that was that the population was sparse and that the water supply of the district was that of the city of Edinburgh. Edinburgh, he thought, should be honourably mentioned with regard to the Notification Act. It was melancholy that there had been no great discovery in medicine or surgery but had been violently opposed by their own profession. It was simply disgraceful. The profession to a man in Edinburgh opposed the introduction of the Notification Act. The Colleges of Physicians and Surgeons instructed counsel to opposed the introduction of any clause in any Bill promoted by the city of Edinburgh. Luckily a kind Providence enabled the Corporation to catch them napping; and its Omnibus Bill was quietly passed through Parliament with the fatal clause in it. Notification had been a great success. The mortality in almost every one of the fevers had been diminished, and typhus, which had furnished them with 6,000 cases in one year, had been stamped out. Strange to say, they still found typhus in the sporadic cases that did occur to be as virulent and fatal as ever. But for notification and the way the disease was dealt Edinburgh would again have the unenviable notoriety of a "fever city."

On the motion of Sir Charles Cameron, Dublin, a vote of thanks was passed to the President of the section for his address.

BIRMINGHAM ARCHÆOLOGICAL SOCIETY.

THE last excursion of the Society for the present season took place on the 27th ult., when Cirencester was visited. The company was conducted through the church by the Rev. Mr. Townsend, to whose courtesy and perfect knowledge of the structure they were greatly indebted. The church is one of the most interesting in Gloucestershire. Here are important remains of Norman and Early English architecture, and the base of one pillar is distinctly Roman, having, doubtless, been taken from one of the noble edifices with which Corinium was adorned. The bulk of the church is, however, a fine example of the Decorated style, the body, which is lofty and almost square, conveying a marked impression of space, light and dignity. What restoration has been effected has been careful and reverent, and while the ancient stained glass is admirable, the more modern windows do not compare with it unfavourably. The ancient brasses are great in number and in interest, and the pulpit is a remarkable example of light and elegant stonework. The most singular and beautiful feature of the church is the two-storeyed porch or parvis, the original subject of which is doubtful, but which has certainly been for some four centuries the pride of Cirencester. After luncheon the visitors were permitted to inspect the extremely fine museum of Roman remains collected by Mr. Wilfred Cripps. The chief objects of interest were pointed out by Mrs. Cripps, and include the skull and personal adornments of a Roman lady, who is conjectured to have died a violent death, as her remains were found in the centre of the town, and in no recognised burial place. Outside the museum is the fine capital of one of the columns of the Basilica, a building proved by the recent excavations of Mr. Cripps to have been not less than 300 feet in length and of great dignity. The mosaic pavement preserved *in situ* on the outskirts of Oakley Park was next visited, and after a short glimpse of Earl Bathurst's park, generously thrown open for the enjoyment of the public, the museum built by a former Earl Bathurst for the public preservation of Roman remains was reached. Here are two Roman mosaic pavements, one of them well known as amongst the best and most perfect of its kind in England. There are also valuable Roman tombstones and relics of every kind, from tools singularly like those in common use now to personal jewellery, and the actual bones of the dead. Of the abbey almost nothing now exists except a Norman gateway, which was seen, possessing on the inner side a window through which doles were distributed, and still retaining its glazing of horn instead of glass.

NOTES AND COMMENTS.

The annual report of the Council of the Liverpool Architectural Society announces that the number of members is 131, as compared with 121 last year; the number of fellows is 61, associates 30, students 22, honorary members 18. The increase in the number of members attending the meetings has been fully maintained. In addition to the eight ordinary meetings four members' evenings were held. It is proposed to continue these next session, and it is hoped that more of the younger members may be induced to read papers and join in the discussions. The year has witnessed a change in the abode of the Society. The law library having moved to new premises in Cook Street, the Society has been fortunate in obtaining an agreement with them by which not only will its meetings be held at the new address, but a separate room has been acquired for the sole use of the Society. In this room the books of the library and papers will be placed, and it is hoped that it will be made good use of, and be of value in facilitating friendly intercourse amongst members. A change has been made in the financial year, so that it is now concurrent with the session. The annual subscription, instead of running with the calendar from January 1 to December 31, commences on October 1 and extends to September 30, one subscription thus covering the whole of one session. The most important event of the session has been the celebration of the fiftieth anniversary of the Society. A dinner was held at the Walker Art Gallery on April 18, at which about seventy were present.

Death has removed of late several architects who have aided to embellish Paris by their buildings. M. Deperthes, whose name will be associated with the present Hôtel de Ville, has to be included among them. He died at Rheims in the sixty-fifth year of his age, and his recent plans prove that his skill in designing had not lost its power. The majority of the prominent Parisian architects are natives of the capital, but M. Deperthes was born in Houdilcourt, in the Ardennes, in 1833. He was an assistant of M. Ballu when the competition for rebuilding the Hôtel de Ville was arranged, and co-operated with him in the preparation of the design which found acceptance, and which resembled the former building. Through the kindness of M. Deperthes we were enabled some years ago to reproduce drawings of the new work which is the centre of the municipal life of Paris. His designs were awarded medals at the Salon and other exhibitions, and M. Deperthes well deserved the esteem in which he was held.

It is satisfactory to know that up to the present there is no official declaration about seizing on the masterpieces in Spanish galleries by the Government of the United States as security for the indemnity which will have to be levied. The proposition to imitate Napoleon's conduct is not worthy of a nation that is mainly Anglo-Saxon. Great satisfaction was felt in England by painters when they found that the treasuries of Italian cities and palaces were brought together in Paris. Haydon, Wilkie, West and others rushed across the Channel to enjoy the sight. But the pictures had eventually to be returned, and the memory of the transaction is not advantageous to France. Some of the American newspapers are endeavouring to persuade the Government to enrich New York with Spanish spoils, but the good sense of the country must be opposed to such a revival of vandalism and spoliation.

The causes of diseases are not as yet fully ascertained, but every year there is an approach to certainty. Air, water, food, clothing are according to one theory efficient factors in the spreading of disease. There is little doubt that attention to them has been advantageous. Now it is the turn of the soil. In a paper which was read before the British Medical Association at Edinburgh it was explained by Dr. Robertson, of Sheffield, that numerous investigations are now going on, and it is to be desired that the subject should be put upon a scientific basis. Professor Hunter Stewart was especially mentioned for his researches into the subject. In some experiments which Dr. Maitland Gibson and Dr. Robertson had undertaken, they found that in typhoid planted at a depth in the surface there was noted a tendency to grow upwards rather than downwards. That tendency had a most important bearing on the spread of disease by the soils. A series of maps showing typhoid fever mortality in certain districts in England and Wales was shown. In every town there were to be found small areas in which cases of typhoid fever recurred with great regularity. In one place they had eighteen cases in eight years occurring in eight isolated houses, showing that there was some infected material in the district, and that, with favourable climatic conditions, they had infection growing there and causing disease not only in the houses, but also possibly in other areas in the town. Certain soils in courtyards and around privies into which slops and dirt were allowed to fall were favourable for the growth of organisms. The important question was how the disease organism was transferred from the soil to the man, and Dr. Robertson felt certain that dust was, under certain conditions, the chief agency in the transference of the poison from the soil to the subject. That might be direct or indirect. The practical conclusion was that infectious particles in the air were heavy, and quickly subsided if the air was allowed to remain still. Dr. Robertson was inclined to believe that the Raft theory was the correct one, and if that were the case it went far to explain why only the persons living in or entering an infected area became infected. Such heavy particles would not travel a great distance, but would rather tend to contaminate the food and water in the area.

A paper on a subject that was akin to soils as agents was read by Dr. R. W. D. Macmartin Cameron, viz., on "Surface Wells as a Source of Water Supply." He complained of the Rivers Pollution Commissioners having held the surface well up to general execration as suspicious. Experience has led Dr. Cameron to the view that this important source of water supply has been unduly depreciated. The well must, however, be protected against defilement by a sufficiency of clean ground being reserved around it. Professor Hunter Stewart said part of the water supply of Edinburgh was got from some wells. The deepest of these wells was 8 feet. They were situated in highly manured land. He had seen the water from a "midden" gently meandering over the soil at a short distance from these wells. The maximum number of micro-organisms he had found in these wells was eleven per cubic centimetre. Three of the wells were absolutely sterile. They were not the surface wells spoken of, but they were wells that answered in the affirmative this question:—Can a thin layer of fairly impervious rock protect sufficiently the water underneath it? Dr. Nasmyth maintained it was not the surface well but its surroundings that should be condemned. The difficulty was to get the well surrounded by a pure zone, and if any remedy could be designed by legislation for providing that the difficulty would be removed.

The *Journal of the Society of Archivists and Autograph Collectors* is one of the most interesting of Mr. Elliot Stock's publications. But the condition of the Society is evidence that the search for manuscripts is no more than the hobby of a few. The hon. secretary contemplates the prospects of the Society with something like dismay. There are only thirty-two subscribing members, although the subscription is no more than a guinea a year. The indifference to the Society appears more remarkable if compared with the success of the *Ex Libris*.

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: NORTH-WEST CORNER OF NAVE.—OLD CLOISTER WALL.—SPECIMEN OF "CHEESE MOULDING" IN CLOISTER WALL.

BURGH HALL, BATHGATE.

The Town Council of Bathgate have under consideration a scheme for the erection of new municipal buildings, including council chamber, burgh court room, town clerk's chambers, and public hall, &c. Our illustration shows the exterior of the design, which has been prepared by Mr. J. Graham Fairley, Edinburgh.

VILLA AT BARTON-ON-SEA.

COTTAGES IN THE ETONWICK ROAD, ETON.

PETERBOROUGH CATHEDRAL.*

IN visiting Northamptonshire for the first time as a society, its members also enter the country which, in the Saxon period, formed part of the kingdom of Mercia. The towns whose cathedrals we have so far attempted to study are situated in districts which formed the kingdoms of the East Saxons, of Kent, of the West Saxons (Wessex) and of the South Saxons (Sussex); and, unless we except East Anglia, it will hardly be possible for us to make acquaintance with any of the other Saxon kingdoms in a corporate capacity.

Thirteen hundred years ago (597) Augustine was sent by Gregory to England to evangelise the Saxon people, in whom he had so great an interest; and it was but twenty years before that event (577) that the battle of Deorham, giving a decisive victory to the Saxon conquerors, caused the Brythons and Goidels (the ancient Britons of our school books) to finally retreat into the country beyond the marshes of Gloucestershire and Herefordshire into Wales and Cornwall. Mercia, then consisting of the counties of Lincoln, Northampton, Rutland, Huntingdon, Buckingham, Oxford, Worcester, Warwick, Derby, Nottingham, Leicester, with part of Hereford and Shropshire, Hertfordshire and Bedfordshire, remained in the hands of the Saxon conquerors, whose paganism was predominant for more than a hundred years after the coming of Augustine to the men of Kent. Not that no attempt had been made to inculcate the teachings of Christianity in the Mercian mind, for missionaries from Ireland, Northumbria and Iona had tried; but it was not until the great St. Finan prevailed upon Penda, the Mercian king, that any real advance was made. The first Bishop of Mercia was appointed by Finan, with Penda's consent, and the king himself and his eldest son, Peada, who married the daughter of the Christian king of Northumbria, were baptised. Penda died in 635, and left five children, who took important parts in the history of Mercia; Peada, Wulfere and Ethelred (sons), and Kyneburg and Kyneswith (daughters).

That portion of the kingdom of Mercia we are concerned with was inhabited by a race of men who were called Gyrvii or "Fen men," very primitive in their habits and impatient of any attempt to improve their condition or surroundings, and it is said that their descendants in the eighteenth century were "still content to stalk on stilts over the fens," as the peasants in some of the rural parts of France do to this day. Strong, tenacious and determined, they were the last to be reduced to submission by the Norman Conqueror in the eleventh century, and how their conquest was effected may be read in Charles Kingsley's famous tale "Hereward the Wake." That charming book should be in the hand of every visitor to the Fen country, for the scene is laid in Lincoln, Burgh (Peterborough), Bourne, Spalding and Croyland. Of the inherest charm of these places I cannot speak here, except to say that it is equalled by no others in this wonderful England of ours.

It would not be expected that a district so desolate in the seventh century would possess such an oasis as the early name of Peterborough suggests, yet Medeshamsted means "the home in the meadows." The venerable Bede mentions it but once; our knowledge of its history is derived from the Anglo-Saxon Chronicle and Hugh Candidus. Bede says, under date 674, that Archbishop Theodore deposed Winfred, bishop of the Mercians, whose see was at Dunwich, in Suffolk, "and in his place made Sexwulf bishop, who was founder and abbot of the monastery of Medeshamsted, in the country of the Gervii." Before his elevation to the episcopate Sexwulf had so far proceeded with the erection of the church that it was dedicated in the name of St. Peter, and so Medeshamsted became St. Peter's burgh in due course and flourished, so that men called it "Proud Peterborough."

> Ramsey, the bounteous of gold and of fee,
> Croyland, as courteous as courteous may be,
> Spalding the rich, and Peterborough the proud:—
> Sawtry, by the way,
> That poor Abbaye,
> Gave more alms in one day
> Than all they.

There are some points of contact here with our visit to Chichester last year. The "Winfred," whom Sexwulf succeeded in the bishopric of Lichfield, was the same famous Wilfred who laid the foundation of the church in the country of the South Saxons; and as the Saxon church of Bosham stands to this day, built nearly a thousand years ago, so does the Saxon church of Brixworth also remain, "in which, perhaps, we still look upon the handiwork of the founder of Medeshamsted." For Brixworth and Ancarig (Thorney) were two cells established by the founder of Medeshamsted monastery, though Thorney now possesses nothing earlier in date than the twelfth century, and if we except its Norman nave and some ancient glass in the windows, is indeed in a sorry plight.

There are some legends of early martyrdoms and miracle-working saints concerning which it is not necessary to say more than this, that the names of the persons concerned are historical, and the legends themselves form part of the interest attaching to Medeshamsted.

Saxwulf's successor in the abbacy was Cuthbald, and he was followed in turn by Egbald, Pusa, Beonna, Ceolred and Hedda; during the last-named abbot's rule the Danes descended in force, and, having destroyed several abbeys in the district and killed the monks, completed their barbarian work by utterly destroying Medeshamsted and slaying its monks, and among them the Abbot Hedda.

For a hundred years or more Medeshamsted remained a waste, till King Edgar in 970, aided by the Bishop of Winchester, Ethelwold, commenced the rehabilitation of the monastery. So lavish were the king and his nobles in their gifts to the Abbey that the town became known as the Golden Burgh, and by this name and its shorter form, Burgh, it was called for very many years, until the more dignified title of Peterburgh became permanent.

At this point it will be convenient to refer to the discovery in 1883 of the remains of a Saxon church *in situ* beneath the floor on the south side of the church. The immediate cause of the discovery was the necessity that had arisen for taking down the central tower and its four piers, when beneath the south-west pier was found a solid structure of wall and cement; this was the east wall of the north transept of the early church, and in due course the west and part of the north walls of the same transept were traced out, together with the entrance and side walls of the choir and the south transept eastern wall. It is understood that the church whose foundations are here traced out is the second one, which was destroyed by fire in 1116; the floor of this newly discovered building showed signs of fire in pieces of charred wood and burnt stone.

So much of the history of the cathedral is of prime importance, we must devote the rest of our limited space to a consideration of the cathedral itself, the object of our visit to Peterborough. Entering from the Market Place through the western gateway, ascribed to Abbot Benedict (1177-95) and containing work of his period as well as later work, we see on the left the Chapel of St. Thomas of Canterbury, now used as a museum, but its condition is no credit to those responsible for its care. On the right are some modern buildings with here and there some piece of the architecture of past times and the gateway to the Bishop's Palace. Before us stands the great west front, called, if the well-worn phrase be excused, "the finest portion in Europe," a description which must send our thoughts to Lincoln, Wells, Lichfield, Amiens and St. Peter's for verification of the assertion. Passing into the nave we see that it consists of ten bays with aisles and west transept. The greater part of the church is of Norman construction, and it may in many points be considered as the most complete Norman cathedral we have. The nave roof is of the most interesting character, painted, as is also the groined lantern roof; the nave aisles are groined also.

The monuments of the church are few in number; though one of them has peculiar interest arising from the doubt with which it is regarded as being correctly described as the monument of Bishop Hedda and his monks. It is a small stone structure 3 feet 5⅛ inches long by 1 foot 2 inches broad, and 2 feet 5¼ inches high. The late Mr. M. H. Bloxam regarded it as "not what we generally understand to be a mere sepulchral memorial, but that it was, or formed part of, some ancient Norman shrine." Certainly its peculiar shape, conveying the idea of a feretory without an interior, favours this opinion, and there can be no doubt that the figures upon it represent our Lord and His Apostles, thus throwing considerable doubt upon its association with Abbot Hedda. The number 870, the date of the slaughter of the Abbot, has been carved on one end, but in very late figures. The interlacing work on the monument is interesting as being a "return to imitation of pre-Norman interlacing ornament which appeared when a new generation of men of Saxon descent began, towards the end of the eleventh century, to find in the arts of construction, &c., paths to the wealth and influence that their fathers lost through the Conquest, and naturally therefore fell back on their methods of ornamentation." (Irvine, Proc. Soc. Ant. xiv. 159.)

There is a very interesting series of recumbent effigies of abbots; the details of dress and ecclesiastical ornament deserve study. The most interesting historical personages connected with the cathedral are Queen Catherine of Arragon, who was buried here in 1535, and Mary Queen of Scots; no monument appears to have been placed over the remains of the former queen, and a brass plate marks their position. So with Mary Queen of Scots, whose body lay here until her son, James I., had it removed to Westminster Abbey, where it now lies in a similar position with regard to the body of Queen Elizabeth that it occupied in Peterborough minster in relation to Queen Catherine of Arragon's remains, that is, side by side in opposite aisles.

* A paper read by Mr. Th. Pitt, F.C.S., on a visit of members of the Upper Norwood Athenæum to the Cathedral.

CONTINENTAL MUSEUMS.

THE report of the Science and Art Department contains the following notes on collections from Lake-dwellings at Lausanne and Zurich, and also on some museum collections in Antwerp, Paris and Brussels, by Lieut.-Col. Plunkett, the director of the Science and Art Museum, Dublin :—

Lausanne.

I spent a considerable time in the museum here examining the arrangement of the collections found in the Lake-dwellings, and inquiring as to the system adopted for making and adding to them. All the sites of these prehistoric dwellings are now covered with water; those of the Stone period are usually not more than about 60 yards from the shore, while those of the Bronze period are often nearly twice as far. No unauthorised persons are allowed to search for objects or interfere with the sites. Those who are authorised to search must bring the objects found to the museum, where they are paid for. They are arranged in the museum by stations, the objects from each place being kept together, which is probably the best method to adopt in the case of these finds.

A considerable number of wooden hafts of various implements have been found; these are preserved in the Museum with glycerine. In the Dublin Museum the wooden objects which have been found in the bogs and crannogs have in many instances suffered from not being properly preserved; paraffin wax is the material which I had hitherto considered the best for this purpose, but it will evidently be a good thing to try some with glycerine, as at Lausanne. One curious find is a kind of cake made of some sort of meal, and containing acorns stuck in it like almonds; this was contained in a broken earthenware pot, in which probably it had been cooked. An arrangement should be made for getting some small collections of the principal types of implements found in the lakes of Switzerland to place in the Dublin Museum for purposes of comparison, and similar small type collections of Irish antiquities might be given in exchange.

Zurich.

I was disappointed on arriving at Zurich to find that the National Museum of Swiss objects is in process of removal from the old building to a new edifice which has been erected near the railway station, which also contains a small museum of industrial art and an art school. The prehistoric collections have been already removed into the new building, and a great part of them has been arranged, but not the whole. The Lacustrine objects are from the collections of M. Grosse of Berne, and the articles are laid out generally in classes, each type being placed separately. For instance, the first case contains piercers made of deer's horns or of bone; the second case contains cutting implements, weapons and tools of the same material; after these come hatchets and hammers made of horn, and also hoes or small digging instruments made of deer's horns, and so on. The collection of copper and bronze implements is also interesting, there are many fine swords, and several objects possess interest as bearing upon the question of the channel through which certain varieties of ornament, and presumably certain arts and handicrafts, have been introduced into Ireland.

The cases in which the above-described collections are exhibited are generally high, with pyramidical centres covered with cloth or built up with shelves in stages; the colour of the cloth is generally terra-cotta, and forms a good background to the objects. The rooms are vaulted and have pillars down the middle; but notwithstanding this I found the lighting good, though I visited this collection in dull cloudy weather.

It is difficult to express within reasonable space the many useful lessons that are to be learned from inspection of these collections from the Lake-dwellings of Switzerland. In the first place, it is impossible to exaggerate the very great advantages derived from regular and authorised systems of search. If the many objects which have been so carefully collected from different sites had been gathered by unauthorised persons and placed in private collections, without any proper record of the places or the depth at which they were found, and then transferred to the National Museum when information as to their history was no longer obtainable, the great work which has been done in elucidating the early history of civilisation, the movements of tribes and races, and the direction of trade routes in early times, would have been absolutely impossible.

It is to be hoped that the good example set in Switzerland, as also in Denmark and Sweden, will in future be so far as possible followed out in our own country, and that people will see that information regarding the surroundings of a find and the circumstances under which it is discovered are often, one might almost say always, just as important as the objects themselves.

In the second place, it is evident that the plan of keeping the finds from each site separately is on the whole the best that can be adopted. It might at first appear more scientific to take all the objects of any particular class or period and put them together wherever they may be found, as in fact must be done when forming a series to show the progress of manual arts and of civilisation, but in this instance the history of each particular site should itself be investigated as far as possible; and with this object it is evidently better to display all the objects found in it in a regular series, keeping them as far as possible in positions corresponding to the layers in which they have been found, from the earliest and most deeply buried portions to the most recent. By this means of comparing the series of objects found in any particular site or crannog with those in a complete series it is possible to make some approximation to the history of the site and the periods during which it has been inhabited.

The presence of implements made of flint, nephrite and other minerals which are not found in Switzerland opens up interesting questions as to the traffic between various tribes at that remote epoch, and may assist materially in deciding as to what were the principal trade routes employed. In the same way a finding of beads or other objects made of amber and of implements of decided Scandinavian pattern is, of course, evidence of trade with the nations inhabiting the shores of the Baltic Sea.

It is very interesting also to note on what lakes and on what routes only chipped-stone implements are found and were used. A comparison of the accuracy of the workmanship of the various kinds of implements found here with those found in Denmark, Sweden and Ireland has given to antiquaries some idea as to the length of time during which the several stages of civilisation lasted in the respective countries.

The extent to which copper implements were used before the introduction of bronze is another interesting point to note, in connection with which Mr. Coffey has suggested a careful analysis of the material used in various Irish implements; and so is the persistency of certain types of ornament which at some period seem to have been generally diffused over a great part of Europe, and at the same time the complete absence of other well-defined types which are so common along the Mediterranean and West of Europe as far as Ireland.

The several varieties of the three principal types of bronze axe-heads, and also the varieties of hammer heads are interesting for comparison with our own, and so are the small bronze sickles with their well-worked and well-defined ornaments of a somewhat unusual pattern.

The implements of what are called the "La Tene" period, and the modifications which they have evidently undergone by the influence of Greek and Roman art, will assist in determining how far objects found in other countries have been modified by the same influence.

Mediæval.

In the same building with the Museum of Antiquities are the Mediæval collections. This portion of the museum is divided into a large number of rooms, each of which is generally finished as a facsimile of an existing portion of some typical building, though, in a few instances, only a ceiling or portion of the room has been copied.

Taking the rooms in order I made notes of the decorations, and from these I select the following as of more importance than others :—

1. A ceiling near the principal staircase, copied from a church at Zillis, of the twelfth century, and an arcade of moulded bricks, copied from some fourteenth century ones at Beremunster, St. Urban and Zofingen.

2. A copy of the Council Chamber at Mellingen built in 1467. The arms of the Swiss cantons are in the windows; the old door is interesting, and especially the ironwork, of very unusual pattern. A drawing of this would be useful.

3. A small room which was that of the Abbess at the Frauminster of Zurich of the year 1487.

4. The next room was that of her successor in the same building, and was decorated in the year 1507; the decoration in both these rooms, Nos. 3 and 4, is very fine indeed, and when the museum is complete they will be fully provided with furniture of the proper period.

5. Oetenbach room, from a nunnery of the year 1521, which is now a prison; this room contains a splendid tiled stove of the year 1638 brought from the Canton of Berne.

6. Pestalozzi room, from Chiavenna of the year 1585; the inlaid panels, and in fact the whole of the decorations of this room, are exceedingly beautiful, and so is the stove in it of the same period.

7. Seidenhof room, of the end of the sixteenth century, containing a very fine tiled stove of the year 1620 from Winterthur; a massive four-legged table standing on a base or daïs is also remarkable; and the panelling both of the ceiling and walls, original and in excellent preservation, is very good indeed.

8. The room of Lochmann, who was a general in Zurich, of the year 1715; the panelling of the walls is good, the frieze consists of a series of portraits, and the ceiling is in large panels painted in figure subjects. The stove is good, and an iron balcony and balustrade which have been removed and

placed here are very well designed as well as the lock and hinges of the door. There is an iron screen in a chapel, and a considerable number of the tiled stoves made in Winterthur, generally by members of a family named Thau.

At present there is very little furniture in any of the rooms above described, but it is intended to put in them furniture and other objects of the same periods as the architecture and decorations of the rooms. By this means a historical museum will be formed in which the public will be able to see the state of the decorative arts in every department in different parts of Switzerland at various periods. In this way there will be carried out the same idea which governs an important branch of the large museum at Amsterdam, and also the smaller museum in the Steen at Antwerp and in the Rosenberg Palace at Copenhagen. I think that the advantages of this system in educating the taste of the general public and in interesting them in museum collections are evident.

The main building is constructed as a mere shell, and then additional partition walls, ceilings and other parts are constructed of lath and plaster and other light materials, to reproduce exactly the interiors of the old buildings which are copied. Had the museum been designed so that the interior should produce a handsome architectural effect, this would, of course, be almost impossible, and in any case would have entailed great waste of money.

As above stated, the rooms are at present mostly empty, or nearly so; but the ceilings which have been fixed, the tiled stoves and the fine wrought-iron work are well worthy of careful inspection; and, doubtless, when the rooms and collections are completed, this will be one of the most interesting museums of the kind in Europe.

The Museum of Industrial Arts, or Gewerbe Museum, is in the adjoining building together with the School of Art. In it there are exhibited only such objects as are considered to be especially useful for art students; there are large numbers of specimens of textiles, each piece is framed as a panel, and the large panels will each contain two or four of the smaller ones. These specimens are frequently changed and replaced by others which are kept in store. There are some specimens of Zurich silversmith work, but nothing else particularly worthy of notice.

In the School of Industrial Art there are both day and evening classes for drawing, painting, carving, photography, designing, &c.; the students attending the day classes generally go through a three or four years' course; the evening classes generally consist of young persons employed during the day, and they study for designing lace, furniture, porcelain and metalwork. I could not see the master of the school, but only the curator of the museum.

Antwerp.

I visited the Historical Museum in the Steen, which is a Mediæval fortified building used for many years as a prison. There are Roman remains and other antiquities, but the most interesting articles in the collection are some very good examples of Mediæval ironwork, bedsteads and other woodwork carved in Flemish style, some fine carvings from the ceilings of houses which have been pulled down, a good many brackets carved with coats-of-arms, some fine cast-iron fireplace backs, a quantity of Flemish, Venetian and other glass. The collection is not a large one, but it is well worth while to stop a day in Antwerp for the sake of seeing it.

Brussels.

In the museum buildings there is a fine collection of early and Mediæval art, which is very interesting in many respects for comparison with objects in our collection in Dublin. The following objects are particularly worthy of notice:—A mounted horn ornament with panels and recessed ornaments peculiarly like much of the ornament on the Cross of Cong, a similar likeness being discernible in the ornament on the stem. I could not get any photographs of this object, but a drawing of it has been published. Some carved walrus tusks found by the Meuse, the incised decoration on which shows a very curious mixture of styles; it seems most probable that these are of Norwegian origin, and brought southwards as articles of barter; some very fine early enamels, more especially a small portable altar of the twelfth century. The tapestries, as might be expected in this country, are remarkably fine, many of the pieces of the sixteenth-century manufacture are quite exceptional; and one of these, worked in wool, silk and silver thread, is perhaps unequalled elsewhere. A very interesting part of the museum consists of a suite of rooms fitted up for the King of the Belgians, and decorated throughout in Flemish style; the fireplace, doors, furniture and ornaments in each room are of one period, so that the different styles may be studied and compared.

Paris.

As the Louvre and Cluny Museums are so well known, I have noted only a few points which I noticed for some special reasons. The Cluny Museum is rather overcrowded, but the collections here have the great advantage to the general public of being exhibited in rooms built and decorated in styles which harmonise with that of the contents. The carvings, tapestries and embroideries are remarkably well shown. A very good carved chimney-piece from Rouen would, I think, be well worth reproducing, as also the splendid wood panels which are shown on screens in the same room, No. 3, on the upper floor.

Louvre.

One of the things that struck me particularly in the room devoted to Persian antiquities was that the frieze of the room itself is painted to show the landscape of the country from which the antiquities are brought. For our architectural collection large photographs of the model which represents a restoration of the Apactana, or throne hall, of the ancient Palace of Susa would be exceedingly useful, as the details are all taken from the actual remains. Among other antiquities, the necklet, earrings, cap and other objects found in the tomb of a woman at Olbia, which are of marvellously fine workmanship, are among the most remarkable, and if reproductions cannot be obtained good photographs would be useful.

Musée Historique.

The most interesting part of this museum consists of the rooms themselves, which have been carefully restored. It appears to me that no better models could be found for courts to contain French furniture than the room which is known as Le Salon Louis XIV. and the central part of the Salle de la Revolution. The walls are panelled and the ceiling is painted.

Guimet Museum.

This is a new building of two storeys; the upper floor is well lighted, but the ground floor is very defective in this respect, and at four o'clock in the afternoon it was very difficult to see the objects properly. The collections intended to illustrate the theology and mythology of various races consist in great part of Chinese and Japanese objects—one Chinese table in brown lacquer of the fifteenth century is particularly worth notice; also a number of rock-crystal vases and objects in jade. A very good specimen of bronze-work is a large four-armed figure in a wheel surrounded by frames and the hair standing out like wings. Irrespective of its value to students of mythology, it is a very fine piece of workmanship.

Garde Meuble Nationale.

In the two large rooms devoted to Louis XIV. and Louis XV. furniture the many very fine specimens of work of the best makers give good standards of comparison.

THE PAPYRUS.

THE publication by the Egypt Exploration Fund of about one hundred fragments of papyri through the agency of the Clarendon Press has renewed the interest in the ancient use of a material without which it is difficult to understand how civilisation could have advanced. The Fund was able to secure between five and six thousand documents in Egypt which were inscribed on the prepared leaves of the papyrus plant. They are not all of political or literary importance, for some relate to commonplace affairs and the ordinary transactions of everyday life. But there is undoubted interest in the discovery that over two thousand years ago life in Egypt bore much resemblance to life in England at the present day.

While giving attention to the biblical sayings, stanzas from poems and dramas, legal forms and other matters which the papyri furnish, we must not be indifferent to the material which has been of so much use to ancient writers, as well as to ancient ornamentists. Something is known about the papyrus, but not all that is desirable.

The literary history of the papyrus, says De Vriese, as of all the other plants of the ancients, has been divided into three periods. To the first belongs the series of writers anterior to the time of Alexander, who, by mentioning the name of this plant, have contributed to its history; but the work of Theophrastus is the most important in this period, the most ancient, and at the same time the best Greek botany that has reached our days. He treats briefly and circumstantially of the plant in question. Dioscorides mentions it cursorily, and lauds especially its healing powers; and other writers have followed his example, even to the pharmacologians of the seventeenth century. Besides Dioscorides, many other ancient writers have given no unimportant information on its history; for example, Herodotus, Diodorus Siculus, Strabo, Lucan and Plutarch. Pliny, however, is generally considered to have given the best account of it in the thirteenth book of his "Natural History." It is also mentioned in the Sacred Writings, in the books of Job, Isaiah and Exodus.

The second period of literary botanical history, so far as concerns the plants of the ancients, begins with the revival of letters. This is, perhaps, taking into consideration the few

advantages which then existed, to be called the brightest period of science, even our own not excepted. He who is acquainted with what was effected in the sciences at that time, must at all events readily allow it, especially if he be intimate with the works of Alpinus and Aldrovandi, the schools of Pisa and Florence, with Rembert Dodoens (whose real name was Jankema Friso Van Staveren), Charles de l'Ecluse, Matthias de l'Obel, Cæsalpinus and the brothers Bauhin, so learnedly immortalised by Linnæus, correctly called the great botanists of that day. Whoever reflects on the almost unsurmountable difficulties against which they had at that time to strive, may conceive the zeal with which they laboured, and be astonished at the 'Pinax' of the youngest of these brothers, that colossal work which comprehends a complete account of all that had been effected in the science up to that period, the progress of 2000 years. The writings of the ancients, particularly those of Dioscorides, were the text-books, and all the botanists of every country employed their endeavours and powers in their illustration, endeavours which, at that time, were the more useful to be acquainted with, when authors first ventured to regard the opinion of the ancients no longer as infallible, and to doubt their authority. Thus originated, along with many others of the same kind, the learned work of Matthiolus, a work which has been constructed in a manner quite inconceivable, and with incredible zeal. It has been reprinted thirty times, and is very important for the inquiry regarding the papyrus of the ancients.

Pliny's remarks on this plant have been especially explained, contradicted, and again defended, by the writers of the fifteenth and sixteenth centuries; by some his credibility has been doubted, by others—and particularly by the grammarians—it has been highly extolled; among the former is the famous Melchior Guilandinus (properly Wieland), who travelled in the Levant in 1559-60, and who, some years later, when professor at Padua, published as the result of his researches a commentary on the papyrus, which, according to the testimony of Mabillon, became rare in the beginning of the eighteenth century. Scaliger defends Pliny against Guilandinus, and he again is defended by Mabillon; Salmasius has also taken up the sword against him. But without noticing other commentators, we shall proceed first to speak of the names of this plant.

The papyrus, like almost all other products of nature, the names of which alter by the increase of the knowledge of species, has received various appellations, and the word itself is applied to more than one object.

Before the time of Theophrastus we find the term papyrus used especially by the poets for the plant itself, and all things made from it. It remained in use many centuries after the commencement of our reckoning and after paper had ceased to be made of it, which has occasioned great confusion in many writers; Salmasius has already protested against the use of the word papyrus for "charta." It is nothing strange to give the same name to a substance and the productions made from it; but it certainly is so to apply the name of papyrus to articles that have nothing at all to do with it, either in their origin or manufactory—it seems erroneous to call our writing paper "papyrus" or "papier," which is made of rags, as if it came from the plant which served for its composition in Egypt. The name papyrus was, in the first place, given to the plant itself; next to the outside layer of the stalk, to the uppermost part of the stalk, also to the outward covering of the stalk which was used in making paper, called likewise "philura," and to the paper when ready for use. The root also had the same name, as well as cordage, sails of ships, wicks of lamps, and clothes made from it. Does not the retention of this word in many diplomatic transactions even to recent centuries indicate that this sort of paper has been much longer in use than is generally supposed? So late as 1304 the term papyrus occurs in a decree of Philip le Bel, where the notary is enjoined to write upon good papyrus. Many authors of more recent date attest its long-continued use for various purposes. The words "charta papyracea," in use among Latin writers, naturally mean nothing but paper made from this plant.

There are many opinions as to the etymology of this word; some derive it from the Greek, others from the Coptic. Scholz is of opinion that it is a Coptic word, composed of "bir," to weave, and "pa," the name of the plant. This certainly presumes very great antiquity, and a very ancient use of it. Scaliger has derived it from the Greek. Bernard de Monfaucon is of opinion that the word is derived from the Egyptian, which would in some measure prove that the plant is of Egyptian origin.

The word "papyrio" signifies with many writers, and especially with commentators on the Scriptures, the place where this plant grew; it is not, however, in common use. The name, found in many authors of later date, naturally stands in connection with its place of growth. Prosper Alpinus calls it in Egyptian "berd," and he has been followed by succeeding authors. Whether Alpinus be worthy of credit in this portion of his work is doubtful; he is, with regard to this plant, very short, incomplete and inaccurate, and copies the errors of Pliny.

The Hebrew name "gomè" has been explained by Olaus Celsius as meaning "paper-rush," or "paper-plant." Earlier commentators on the Old Testament understood by this word every sort of rush or cane in general; but this interpretation was overthrown by Celsius, who, by a comparison of all the passages in which it is mentioned, has proved that the papyrus is meant and no other plant; it is believed he was the first who promulgated this opinion, and it has never since been contradicted.

The name of "biblos," given by the Greeks to this plant, is perhaps not less ancient than that of "papuros," and certainly as often used, especially by the poets. Theophrastus and all older and later writers used the word as synonymous with "papuros," to denote both the plant itself and all the articles manufactured from it. In process of time, it came to be applied to every sort of material used for writing upon, as the history of the progress of that art teaches us. Whether Theophrastus really meant by "biblos" the interior of the stalk (cortex interior vel liber) in opposition to "papuros," the exterior (cortex exterior vel cortex), as has commonly been supposed, is uncertain, because the papyrus has no bark either external or internal, which distinction of bark and bark-fibres or layers was made even by the ancients themselves (so far as applies to ligneous plants), according to commentators. The Latins also gave the name "biblos" to the plant, but although occurring in Lucan and other poets the word does not seem to occur in the best prose writers.

Figures of this plant have already been given by the oldest commentators on Pliny and his predecessors, but they have evidently just copied each other; for example, Alpinus, L'Obel, Morisson, Matthiolus, Scaliger, Chabræus, Micheli, Boccone, Scheuchzer and many others. They are generally bad, with few exceptions—indeed, so much so that the authors do not seem to have the smallest knowledge of the plant.

According to Pliny, Egypt was the country where the papyrus grew. This fact is quite indisputable, and can be confirmed by the best testimony; and an inquiry instituted in our days would show that there was yet a great deal of truth in the statements of Pliny eighteen centuries ago; most probably it would decide that Egypt was the original country of this plant; but we shall seek the solution of this question from what its own history teaches us.

We shall view it then first in Egypt; it grew there in the stagnant pools formed by the Nile from its annual inundations, and also in marshes. From this account of Pliny, which is certainly very indefinite, we are perhaps right in conjecturing that the plant was there very common (as the Nile ran through the whole of Egypt, emptying itself by seven mouths into the sea), which opinion there are many other reasons for believing, as the epithets generally applied by the poets to the Nile, "amnis papyrifer, Nili alba tabula, papyriferi septemflua flumina Nili," &c. It thus grew in shallow places. In this Pliny follows his predecessor Theophrastus. "But the papyrus does not grow in the depth of the water, but in about two cubits, and sometimes even less."

Pliny quotes from Varro that the papyrus plant was first seen in Egypt after Alexandria was founded, the probability of which he himself is rather inclined to doubt; and mentions in another passage that Varro is contradicted in this point by many other authors. Indeed, it is difficult to suppose that a people, who before the time of Alexander must have been so highly civilised, and had made such remarkable progress in the arts and sciences, could have been ignorant of one of the most useful plants which Egypt produces.

Two difficulties especially present themselves here. When was this plant first known in Egypt; and at what period was writing paper first made from it? The last question is still incapable of solution, and it is perhaps the most difficult in the whole history of the papyrus. Owing to the incompleteness of resources, it is no easy matter to decide at what epoch any important discovery has taken place among an ancient people. With regard to the first question, we can come to a more accurate conclusion than Pliny, who in this portion of his work is found fault with by no one more than his commentator, Melchior Wieland, or Guilandinus. He proves from a number of authors before this time that the papyrus must have been known many centuries earlier, as Æschylus, Anacreon, Alcæus, Herodotus, Homer, Plato, and others have all mentioned this plant at an earlier period.

It is also remarkable that Pliny says that Homer, through whom we learn that tablets or pocket-books (which were probably of wax and written on with a stylus) were used even before the Trojan war, could not have known the paper plant, nay, even, that the whole of Egypt then could not have understood its use; and although we give to the words of Pliny the meaning which Scaliger applies to them, we might still find a proof against what that celebrated writer has communicated to us concerning the era of the discovery. Though Homer did not know Egypt as it existed in the time of Alexander, the

whole of Egypt was not unknown to him, as we see from many passages in his poems. The Nile also runs in the older part of this country, in Ægyptus Superior, or Thebais of the ancients, which was mentioned by Pliny as the habitat of this plant; besides, Homer has noticed the plant, or rather, the productions made of it.

To define more closely what he at first had mentioned generally, Pliny proceeds to remark that this paper-rush only grew in the Sebennitic district (so called from the city Sebennus), which is in the Delta, which originated from inundation, and thus formed a part of Egypt. The word Sebenniticus in the text of Pliny has without sufficient reason been altered by Guilandinus to "Saiticus," but again restored by Scaliger, who thinks the reading is, when literally translated, "since at least in the district of Sebennys nothing but the paper plant grows." The remark of Pliny amounts to this:—There was no Ægyptus Inferior in the time of Homer, much less still was the plant there which grew there afterwards. There is more than one reason to believe that Homer knew of the Delta. If we hold it recorded in the "Odyssey" that Menelaus, after the fall of Troy, was driven by a storm on his passage back with his queen to his own kingdom, on the Egyptian coast near Canopus, where one of the seven mouths of the Nile was, then the Delta, where this city stood, could not have been unknown to him. If the papyrus was principally found on ground originating from inundation, then there is still greater probability that Homer was acquainted with it, because we in that case derive the origin of the papyrus from Ægyptus Superior, or even perhaps from more southern parts of Africa.

Besides the works of the classical age, we find also in the Old Testament a higher antiquity for the papyrus than Pliny would ascribe to it. In the 18th chapter of Isaiah, verse 2, not only according to Celsius, but also according to Hitzig, mention has been made of vessels of the paper plant. This prophet is said to have appeared in the year that King Uzziah died, about 759 B C. He mentions also the seven mouths of the Nile, chap. xii. v. 15, and thus knew the Delta. In the writings of Moses, we have perhaps no less strong proof of the antiquity of this plant belonging to a period long before Isaiah. The Pentateuch, in which this plant is mentioned, carries us back to a much earlier epoch. In a basket or boat of paper-rushes, as the historical relation purports, this famous child was saved from threatened peril, who was to be the greatest law-giver of the people of Israel. Brought up in Egypt, acquainted with Egypt, knowing their arts and institutions, Moses could not have been ignorant of the use of this plant; might he not even have written his Pentateuch upon the Egyptian papyrus? Winckelmann supposes that the books of Jeremiah were also written on the papyrus. In confirmation of this, it may also be adduced that Horapollo has mentioned that this plant was there used as the symbol of antiquity. We are aware that the Athenians represented the antiquity of their race by the symbol of a cicada; nor is this sort of symbolical representation strange in history. Who does not recollect the fable of Tithonus, the immortal grey-haired consort of Aurora?

Against the remarks of Pliny, it can be contended that—1. This plant, although a native of Egypt, has not yet been observed in that part of the country which has been known under the name of Ægyptus Inferior. 2. That Homer has known and mentioned this plant, as well as many others beside him, before the time of Alexander, and that therefore the use of it belongs to a much earlier period.

If we trace the multifarious uses of the papyrus in Egypt, we may thus prove that it must have been found in very great abundance. Dioscorides says of it:—"The papyrus is universally known."

It was previously quoted from Theophrastus and Pliny, that the paper plant grew on spots where the water was not deeper than two cubits, which agrees with the remarks of later observers. It chooses a moist marshy soil; in our climate it grows very luxuriantly in pools or cisterns, in moderately warm summer weather. The root (properly a stalk), which elongates itself in a slanting or horizontal direction, and develops new parts, is as thick as the wrist, which is literally what Theophrastus states. The stalks, as mentioned by Theophrastus and Pliny, are triangular, which agrees exactly with our knowledge of this plant. Bundles of papyrus stalks in museums confirm still more the statements of the ancients, in addition to other abundant proofs.

Pliny mentions that the papyrus never grows higher than 10 cubits, in which he has incorrectly translated Theophrastus. If, as he says, the root becomes longer than 10 cubits (as may be readily believed, this being a peculiarity of the root of many rush-like plants), and that the triangular stalks attain a height of 4 feet, then Pliny reverses this, and says that the stalks never reach a greater length than 10 cubits, a length which no one has yet seen in them. Guilandinus, who travelled in Egypt, never saw them longer than 7 cubits. Alpinus speaks of a height of 6 or 7 cubits above the water. If we suppose 2 cubits under the water, then we are not very far from what Pliny has incorrectly translated from Theophrastus. Veslingius, the commentator of Alpinus, confirms this observation.

Pliny mentions that this stalk encloses the summit like an oval cluster; but almost all commentators attack him on this point, and his meaning is not very plain. He is accused of having erroneously translated from Theophrastus, and, as far as we can gather from our knowledge of this plant at the present day, has asserted what was not intended. Theophrastus says, "having a useless weak down," and Pliny takes this as a characteristic of the yet undeveloped leaf or the summit; and if we take his words in this sense we see no reason for assuming the emendations of Scaliger in this passage or approving of the invectives of Guilandinus. The expression of Pliny could not, however, be improved. When we look at the smaller stalks of the plant we see on their summit the oval clusters or thyrsi, formed by the tufts of hair-like or fibrous leaves, still enclosed, and lying against each other, while they include the undeveloped flowers. This down or sheath was certainly not wholly useless, or at least unused, as we learn from Pliny and other sources, and the inspection of Egyptian mummies, but being esteemed as very beautiful, was used to ornament the statues of the gods and the heads of the deceased; the fragrant lotus, however, has been more generally found in mummies than the umbellæ papyri.

The third period of the literary botanical history of the ancients extends to our own time. Never, perhaps, did so many means exist of correctly investigating the plants mentioned by the ancient authors as at present. The great circuit of botanical science has brought this portion of knowledge to a degree of accuracy which could not previously have been calculated upon; the increasing knowledge of the geographical distribution of plants has advanced to such a wonderful degree, and the writings of the ancients have become so much better than ever interpreted and understood. If natural history and literature would but join hand in hand, one of the fairest periods of the history of science, which has long been enveloped in the deepest darkness, would come to light in all its dignity and simplicity. We should no longer see partiality and ignorance displayed by the one as well as the other in commenting on and illustrating the works of antiquity. Whoever thinks differently may enjoy his own opinion; he knows not perhaps what a Sprengel has already discovered, nor what has resulted from the inquiries of a Dureau de la Malle into the ancient Egyptian Cerealia. Lyngbye, Bonastre, Trattinnick, Sternberg, Fee, Tenore and Desfontaines have shown us how to set to work with most chance of success in researches of this nature.

The papyrus has been more written about in our time than minutely investigated; no one at least appears to have given his attention to this plant especially; a strange phenomenon surely, when Egypt in our time, more than any other country, we might almost say, has been exhausted by researches of every kind, and all sorts of learned inquirers; all, however, are silent about the papyrus, as if such a plant had never existed, or very cursory notice is taken of it, as a thing of no particular importance; or sometimes it is mentioned in a way which would almost cause a doubt of its ever having existed. Some notice of it might have been expected from the French savants who examined Egypt during the campaign of Napoleon; but in their great work on that country the name of this plant is only slightly touched upon, and nothing at all of its history. Since then archæologists have too much busied themselves to make out the written state of the papyrus, considering the inquiry into the matter itself, as it appears, of less consequence.

Is the papyrus still in Egypt? To this question we may answer, that those who should make mention of it pass it in silence. Has the assault of time here on this spot destroyed this remarkable product of nature, and is it no longer produced in this whilom so fruitful, so civilised Egypt?

According to Salt and Drovetti, it must still exist in the Delta. Minutoli found it on the marshy banks of the Phatnic Uylarus, and other canals in connection with it, flowering in August and September, agreeing perfectly with the description given of it by Linnæus, Willdenow, and the Count Henkel von Donnersmark. Minutoli says, "The papyrus plant, or the so-called cyperus grass, is found very rarely in Egypt, and peculiarly in small quantities in the district of Damiata." Landolina saw the papyrus in Egypt, as is mentioned by Bartels. Bruce has seen it in Upper Egypt and Abyssinia, in marshes formed by the overflowing of the Nile, where there was no reflux, and the water remained. Reynier mentions that the naturalists of the French expedition only found it on the banks of the lake Menzaleh. Ehrenberg does not appear to have discovered it. Minutoli asserts, though incorrectly, that Delile also did not find the papyrus, on the ground, perhaps, that he has not described it circumstantially in his "Illustratio Floræ Ægyptiacæ;" that author mentions Damiata as its habitat. Forskäl passes it over in silence, but perhaps he never reached the spot where the papyrus grows; it was Lower Egypt which he principally examined. Bovè, who enjoyed the most ample opportunity of examining the country,

found many Cyperaceæ; but has not hitherto, among his Egyptian plants, taken the slightest notice of the papyrus antiquorum. Rüppell has not detected it on the banks of the Nile, and although Bruce found it there he rather supposes that it is now a very rare plant in Egypt, although it must be regarded as a native of that country, and that Abyssinia equally deserves that distinction.

If we trace the cause of the decrease of this plant in Egypt we need not be surprised at its disappearance. Pliny has already in some measure made us understand this, and Strabo (xvii.) relates that the Egyptian Government, the better to preserve the trade in papyrus, resolved to root out all the plants to a certain point in the Delta. The export of this article was so great that it formed the principal part of Egyptian commerce, and was one of its greatest sources of revenue. Flavius Vopiscus mentions that the rich merchant Firmus could maintain a whole army on his returns from this trade. It is probable also that the Egyptians made this plant an object of culture, otherwise in a few years it would have disappeared from the whole land. If, in addition to the reasons already given for the disappearance of the papyrus in Egypt, we consider the alterations which the course of rivers and the condition of a country must undergo in the lapse of centuries, the changes which must occur in the distribution of plants (particularly the aqueous), we may thus more correctly account for the remarkable variation of the present from former times.

The paper plant of the ancients, however, is not so rare as some have said, for when Guilandinus was in Egypt, about two centuries since, the pith was then used as food; in 200 years a plant so easily cultivated along a considerable river would not readily die out, especially by a lessened use of it.

The family of the Cyperaceæ have this property in common with the Gramineæ, that the plants belonging to them are found in all climates and nearly in all parts of the known world; of the peculiar genus papyrus belonging to that family there are species in all parts of the globe. It is not to be met with in the interior of Italy, or else it must have been seen during the many researches into that country, particularly by Tenore. It is found, however, in Syria, Ethiopia, Abyssinia, on the Euphrates at its junction with the Tigris, and on the Jordan, also in the Isle of France, in Madagascar and in Sicily. De St. Non has given a full account of the Sicilian papyrus, with good figures. Willdenow obtained the ripe seed from this island, which has sprung up in the garden of Berlin. It there never reaches the height which Pliny ascribes to it. Micheli asserts that he has found the papyrus growing wild in the marshes of Calabria; other observers, as we have mentioned above, contradict this. Sibthorp did not see it in Greece.

It is now to be met with in almost all botanical gardens, and appears to have been brought from Egypt to Italy, and from thence to other parts of Europe. When this plant became an object of historico-botanical inquiry it soon became better known. It is mentioned among the plants in the garden of Pisa in 1677, as brought from Egypt; and in the garden of Florence in 1729, brought from Sicily; and previous to 1740 it is mentioned as being in that of Leyden.

PICTURE SALES AT THE ACADEMY.

ARTISTS who are exhibiting this year at Burlington House, says the *Westminster Gazette*, must find but small satisfaction in consulting the sale catalogues which are spread out on the little tables in the vestibule, for the sales at the present exhibition compare very unfavourably indeed with those o 1897, which was not itself by any means a prosperous year. It is difficult to account for this falling-off, for a cold, wet early summer like that of the present year is always beneficial to the exchequer of the Royal Academy. When the weather is fine and warm the Londoner at leisure naturally prefers to amuse himself out of doors, reserving chill and rainy days for the Academy and kindred institutions. This year there were many inclement days in May and June, and an unusual number of shillings were therefore paid at the turnstiles of Burlington House.

It might well be supposed that the sales of the pictures would bear some relation to the number of the visitors; but this, unfortunately for the artists, has not proved to be the case. To the Academy itself the season has been a prosperous one, but the entire amount realised by the sale of pictures up to July 15, by which time the sale season is practically at an end, was only 13,730*l.* 18*s.*, against 16,384*l.* 15*s.* in the corresponding period of last year.

Yet, curiously enough, though the sales, taken altogether, are disappointing, they show in one department a marked improvement upon 1897. This is in the Water-colour Room, where seventy-five drawings have been sold for a total sum of 2,005*l.* 17*s.*, while last year only fifty-six were disposed of for 1,282*l.* 17*s.* The prices of the sold pictures in this room range from 3*l.* 3*s.* to 162*l.* 15*s.*, the last-mentioned sum having been given for Mr. Archibald Thorburn's drawing the "Home of the Golden Eagle." Other water-colours which have realised more than a hundred pounds each are Mr. H. M. Rheam's "Quia Multum Amavit" (110*l.*), Mr. Tom Lloyd's "By Misty Stream and Meadow" (105*l.*), and Mr. Alfred Glendenning's "Haymaking," which the Chantrey Trustees have acquired for 157*l.* 10*s.*

Turning now to the oil pictures, it will be found that in the first gallery, always a good room for sales, ten works have found purchasers, the amount realised being 1,487*l.* 5*s.*, compared with 1,395*l.* 16*s.* last year. Chief among the pictures sold in the first gallery are the "City of Newcastle-on-Tyne," by Mr. Niels M. Lund (315*l.*); Mr. La Thangue's "Nightfall" (300*l.*); "Phyllis is my only Joy," by Mr. Seymour Lucas (250*l.*), and Mr. Sidney Cooper's "A Morning in Autumn" (250*l.*). In the second gallery the sales amount to 1,735*l.* 2*s.*, against 603*l.* 10*s.* in 1897. Here Mr. Melton Fisher has sold to the Chantrey trustees for 500*l.* his picture "In Realms of Fancy." Mr. Godward's "Nymph of the Chase" has gone for 250*l.*, Miss Jessie Macgregor's the "Room with the Secret Door" for 210*l.*, Mr. Logsdail's "Going to the Procession" for 175*l.*, and Madame Henriette Ronner's "Memories and Anticipations" for 150*l.*

So far the sales have shown an improvement instead of a depreciation when compared with those of last year, and it is not until the great third gallery is reached that the signs of falling-off become apparent. Here, however, the loss is a serious one. In 1897 the sales in the large room amounted to no less than 4,171*l.* 15*s.*, this year they are only 1,930*l.*, and the greater part of this is represented by the price of one picture, Mr. Frank Dicksee's "An Offering," which was disposed of for 1,200*l.* The other pictures sold in gallery three are "Charles II. at Whiteladies," by Mr. Ernest Crofts (400*l.*), the "Ash Grove," by Mr. G. D. Leslie (200*l.*), Mr. Ralph Peacock's "Ethel," which has been purchased by the Chantrey Trustees (105*l.*), and a small painting by Mr. Owen Dalziel, "A Rescue" (25*l.*)

In the fourth gallery the sales are considerably better than last year—1,289*l.* 7*s.*, compared with 989*l.* 12*s.* In this room Mr. Alfred Parsons's landscape, "The Mooters" (840*l.*) and Mr. C. E. Perugini's "Weary Waiting" (400*l.*) are the chief pictures sold. The sales in the fifth gallery show, on the other hand, a deplorable falling-off from the 1897 figures. Last year several important canvases in the fifth gallery found purchasers for a total sum of 1,762*l.* 10*s.*, but now only one picture is sold—only one, that is to say, of those priced for sale in the catalogue. This is "The Magic Mantle" (100*l.*), by Miss I. L. Gloag. The returns from the sixth gallery are more depressing still. Five pictures have been sold, it is true, but they realised between them only 78*l.* 3*s.*, while last year's sales amounted to 1,933*l.* In gallery seven, where Miss Margaret Dicksee's picture, "A Sacrifice of Vanities," has been disposed of for 250*l.*, the figures are better than those of 1897—497*l.* 10*s.*, against 254*l.* 15*s.*; but in gallery eight, where last year pictures to the value of 1,359*l.* 15*s.* were sold, the balance is once more on the wrong side. The sales this year in the eighth gallery amount only to 705*l.* 5*s.*, the highest price (400*l.*) having been given for Mr. Joseph Farquharson's "The Weary Waste of Snows."

This year at the Academy small pictures have sold much better than last. No fewer than forty of the 208 little canvases shown in the ninth gallery—a room which is always devoted to small pictures—have found buyers. The highest-priced picture sold in the ninth gallery is an interior by Miss Jessica Hayllar, which has been disposed of for 157*l.* 10*s.* The sum total of the sales in this room amounts to 951*l.* 8*s.*, compared with 826*l.* 16*s.* last year. In the tenth gallery, which is not usually a good room for sales, exhibitors have done very well this year. Nine pictures have found purchasers for a total sum of 1,788*l.* 5*s.*, compared with seven pictures and 903*l.* 15*s.* in 1897. In the tenth gallery the largest sums have been given for Mr. H. J. Draper's "The Lament for Icarus," bought by the Chantrey Trustees for 840*l.*; Mr. W. L. Wyllie's picture of "The Harbour Bar" (350*l.*); and Mr. Sidney Cooper's "On a Sunny Afternoon" (250*l.*). The sales in the eleventh gallery are also good, 840*l.* 8*s.*, against only 391*l.* 6*s.* last year. In this room, as in the last, the Chantrey Trustees have made a purchase, giving 500 guineas for Mr. Yeend King's "Milking Time."

In the sculpture galleries the sales, which were bad last year, show a further decline. Only seven of the works on sale in the Central Hall and Lecture Room have been disposed of, and two of these were sold for a guinea each, one for three guineas and one for eight guineas. Mr. Hamo Thornycroft is the only sculptor upon whom fortune has smiled at the Academy this year, his bronze statuette "The Bather" having been sold for 250*l.* Finally, in the little gallery devoted to works in black and white, seven drawings, at prices ranging from one to eight guineas, have been sold for a total sum of 30*l.* 15*s.*

It must, of course, be understood that the figures given

above refer only to the official sales at the Academy, and that a certain number of pictures, including some of the most important, are disposed of privately. The only pictures which have been dealt with are those which were sent to Burlington House priced for sale; but these naturally form the large majority of the exhibited works, for the Academy is incomparably the best selling gallery in England. Numbers of artists build their chief hopes on the chance of selling their works at the Academy, and to them the great falling-off in the sales is a matter of very serious import.

ART MUSEUMS.

THE select committee on the museums of the Science and Art Department have arrived at the following conclusions and recommendations :—

The collections would be more highly appreciated and rendered of greater value to the community if explanatory lectures were given. Such lectures have been delivered at Dublin and in Jermyn Street, and with encouraging results.

In forming a judgment as to purchases it must be remembered that there have been great changes of taste during the forty years which have elapsed since the museum was founded. There has also been a great extension of information, and the true value has been given to many objects respecting which little was formerly known. Mistakes have doubtless been made, but they have been unimportant compared with the magnitude of the collections. After withdrawing from circulation objects of no value there remains such an increase in the value of other objects purchased that the loss arising from those errors becomes of small account.

There are a number of duplicate prints; these might be disposed of as gifts to provincial museums and schools. The South Kensington authorities have recently taken a wise step in transferring to other public institutions objects which do not properly come within their own sphere. Thus the National Gallery has received several important Italian paintings by Perugino and the younger Bellini. They still belong to the Science and Art Department, but nobody could question the propriety of this transfer. So also the British Museum has taken over the custody of the collection of coins formerly shown at South Kensington. We are aware that the interrelation of our public museums and galleries involves issues of controversy as well as of importance. Our reference does not permit us to enter upon a discussion of this subject. We may, however, be allowed to indicate that the question is well worthy of detailed consideration by suggesting (*a*) the relations of Kew and Jermyn Street Museum respectively to the Natural History Museum; (*b*) of South Kensington to the British Museum; (*c*) of the three metropolitan picture galleries to the Chantry Bequest and South Kensington; (*d*) of the Public Record Office to the archive departments of various Government offices; (*e*) and, lastly, the general relation of our national collections to those maintained by municipal bodies. The Art Library at South Kensington has a large collection of "national portraits," engravings, prints and so forth. Some of these would be more appropriate to the National Portrait Gallery, whither they should be transferred. It has been pointed out that there would be no objection to this transfer provided that those engravings which were suitable to an art library as illustrating costume, lace, armour or styles of engraving were retained at South Kensington. The others, being of purely historical interest, should be handed over to the trustees of the National Portrait Gallery.

With a view to the efficient and economical management of the museums in London, to say nothing of other educational advantages not within the order of reference, your committee deem it of paramount importance that there be an Education Minister of Cabinet rank having a seat in the Legislature aided by a Parliamentary secretary.

They recommend that the Secretary for the Science and Art Department, like the Secretary of the Education Department, have his office at Whitehall.

That there be advisers or visitors who would assist the Department by suggestions or information in matters affecting the museums, but would not lessen the responsibility to Parliament of the Parliamentary chiefs. Such a system exists in Dublin, and works well. The Board of Admiralty and the Indian Council render valuable assistance to the great officers of State, but do not shelter them from responsibility.

That, with a view to facilitating communications between the Parliamentary heads and the principal officers of the museum, one at least of the former visit the museum weekly or more frequently and confer with such members of the staff as the state of current business renders it desirable that he should consult.

That a wide discretion as to the duties of the staff continue to be vested in the Parliamentary heads and those immediately responsible to them, it being impossible to foresee what modifications of any given system may be called for by new circumstances. Your committee desire, however, to state their opinion that (1) larger discretion as to purchases ought to rest with the director of the Art Museum as well as with the director of the Science Museum, and (2) scientific objects be placed on the west side of Exhibition Road exclusively, the Art Museum, the Art Library, provision for art teaching, and for loans for art objects being placed on the east side exclusively. The Royal College of Science may remain for a time, if the subjects taught be such as not to cause the discharge of gases injurious to art objects or danger of fire from inflammable and explosive substances. The scientific world have expressed their views in support of this arrangement of the buildings in a memorial presented to the Prime Minister by the Royal Society. Members of the Royal Academy and other artists have made like representations. The Department of Science and Art has not submitted to the committee any evidence in an opposite sense, but members of their staff have given testimony in favour of the views expressed by your committee.

That in accordance with the same report the Geological Museum in Jermyn Street be not occupied as now, but that the collections there exhibited be removed to the west side of Exhibition Road as a science collection. Care should be taken that all the special characteristics of the Jermyn Street Museum be preserved, and that the collection when removed be so served that officers be as far as practicable assigned to different divisions in the art museum in order that they may become accomplished experts.

That the director of the Science Museum should possess scientific attainments, and that the director of the Art Museum have like qualifications as regards art.

That the higher staff at the South Kensington Museum, being in point of numbers inadequate to the due discharge of the duties imposed upon it, ought to be increased.

That, having regard to the annually increasing demand made by local museums and schools of art on the South Kensington collection for circulation, it is desirable that the Parliamentary grant for purchases be increased.

That admission to all the museums be always free.

That in accordance with their first report of the present year there be in the Science Museum and Science Library, provision for science instruction and for loans for same purposes as at present, with the exception that the artistic pottery should be placed in the art museum. The relations between the Geological Survey and the Geological Museum are such that the offices of the former must necessarily be in close proximity to the Geological Museum.

That provision be made for the residence of some of the principal officials in the immediate neighbourhood of the museum within which they are employed.

That negotiations be carried forward with a view to transferring to some local authority the site and structure of the Bethnal Green Museum, the Dixon collection of pictures, and any other objects specially dedicated by donors under their wills or otherwise. They are of opinion that meanwhile more changes in the objects exhibited might be made with advantage to the district. The committee, however, call attention to the evidence of the difficulty, if not impossibility, of obtaining subscriptions from the ground landlords and industrial capitalists. They are of opinion that further gifts of public money should only be given to meet corresponding contributions from local sources, by way either of rates or of private subscriptions.

TESSERÆ.

Effects of National Taste.

UNLESS the national taste is improved we can hardly hope that the arts will rise to any great degree of perfection. The instructors of the public mind will mislead instead of guide those whom they profess to teach, and will be seduced and led astray by that meretricious ornament and false taste against which they ought to warn others, and from which they should divert them to the admiration of real excellence. It cannot be doubted, however, that there is a considerable love for art diffused throughout the nation, especially among the highly-educated classes, who evince their pleasure in the contemplation of the masterpieces of art, whether in painting, sculpture or architecture, by their thronging to the galleries and collections on the Continent as well as to those in our own country, and by the care and expense which they scruple not to incur in making and enriching their own collections. But even among these persons a very limited knowledge only is possessed of the real principles and objects of these last-mentioned arts, although with poetry and music they are tolerably well acquainted. Indeed, from the want of a proper study of the art of painting, and sculpture more especially, many men of talent know nothing of their capabilities and objects, and such persons form their ideas, or rather inadequate notions of them, from certain paltry performances which they have been in the habit of admiring. It is only when their capacities are known fully to persons of genius and cultivation, and are made a

branch of general study, that their real importance will be acknowledged, and that the patronage of the great will be extensively afforded to them. In the study of works of art of high intellectual merit, although we perceive not their excellence at first, by degrees it becomes developed to our minds. As we improve in our taste their value becomes apparent to us. The very cultivation which they serve to afford qualifies us to estimate their worth. It was not any deficiency in these works, but our own deficiency, which prevented us from doing justice to them originally. Our true and ample appreciation of them is the surest proof of our own advancement.

Giorgio Vasari.

Of modern writers on art Vasari leads the van; theorist, artist, critic and biographer in one. The history of modern art owes, no doubt, much to Vasari; he leads us from its cradle to its maturity with the anxious diligence of a nurse, but he likewise has her derelictions; far more loquacious than ample, and less discriminating of styles than eager to accumulate descriptions, he is at an early period exhausted by the superlatives lavished on inferior claims, and forced into frigid rhapsodies and astrologic nonsense to do justice to the greater. He swears by the divinity of Michel Angelo. He tells us that he copied every figure of the Cappella Sistina and the Stanze of Raphael, yet his memory was either so treacherous, or his rapidity in writing so inconsiderate, that his account of both is a mere heap of errors and unpardonable confusion; and one might almost fancy that he had never entered the Vatican. Of Correggio he leaves us less informed than of Apelles. Even Bottari, the learned editor of his work, his countryman and advocate against the complaints of Agostino Carracci and Federigo Zucchero, though ever ready to fight his battles, is at a loss to account for his mistakes. He has been called the Herodotus of art, and if the simplicity of his narrative and the desire of heaping anecdote on anecdote entitle him in some degree to that appellation, we ought not to forget that the information of every day adds something to the authenticity of the Greek historian, whilst every day furnishes matter to question the credibility of the Tuscan.

Royal Patronage in England.

From the age of Henry VIII. to our own Britain never ceased pouring its caravans of noble and wealthy pilgrims over Italy, Greece and Ionia, to pay their devotions at the shrines of virtù and taste. Not content with adoring the obscure idols, they have ransacked their temples, and none returned without some share in the spoil. In plaster or in marble, on canvas or in gems, the arts of Greece and Italy were transported to England; and what Petronius said of Rome, that it was easier to meet there with a god than with a man, might be said of London. Without inquiring into the permanent and accidental causes of the inefficacy of these efforts with regard to public taste and support of art, it is observable that whilst Francis I. was busied not to aggregate a mass of painted and chiselled treasures merely to gratify his own vanity, and brood over them with sterile avarice, but to scatter the seeds of taste over France by calling, employing, enriching Andrea del Sarto, Rustici, Rosso, Primaticcio, Cellini, Niccolo; in England, Holbein and Torregiano under Henry, and Federigo Zucchero under Elizabeth, were condemned to Gothic work and portrait painting. Charles, indeed, called Rubens and his scholars to provoke the latent English spark, but the effect was intercepted by his destiny. His son, in possession of the cartoons of Raphael, and with the magnificence of Whitehall before his eyes, suffered Verio to contaminate the walls of his palaces, or degraded Lely to paint the Cymons and Iphigenias of his Court; whilst the manner of Kneller swept completely what yet might be left of taste under his successors.

Winckelmann and Mengs.

About the middle of the last century the German critics established at Rome began to claim the exclusive privilege of teaching the art, and to form a complete system of antique style. The verdicts of Mengs and Winckelmann became the oracles of antiquaries, dilettanti and artists from the Pyrenees to the utmost north of Europe, have been detailed, and are not without their influence here. Winckelmann was the parasite of the fragments that fell from the conversation or the tablets of Mengs, a deep scholar, and better fitted to comment a classic than to give lessons on art and style: he reasoned himself into frigid reveries and Platonic dreams on beauty. As far as the taste or the instructions of his tutor directed him, he is right whenever they are, and between his own learning and the tuition of the other his history of art delivers a specious system and a prodigious number of useful observations. He has not, however, in his regulation of epochs discriminated styles and masters with the precision, attention and acumen which, from the advantages of his situation and habits, might have been expected, and disappoints us as often by meagreness, neglect and confusion, as he offends by laboured and inflated rhapsodies on the most celebrated monuments of art. To him Germany owes the shackles of her artists and the narrow limits of their aim; from him they have learnt to substitute the means for the end, and, by a hopeless chase after what they call beauty, to lose what alone can make beauty interesting—expression and mind. The works of Mengs himself are, no doubt, full of the most useful information, deep observation and often consummate criticism. He has traced and distinguished the principles of the moderns from those of the ancients, and in his comparative view of the design, colour, composition and expression of Raphael, Correggio and Titian, with luminous perspicuity and deep precision pointed out the prerogative or inferiority of each. As an artist he is an instance of what perseverance, study, experience and encouragement can achieve to supply the place of genius.

Greek Masonry.

What must be observed in the edifices of Greece is the high finish of all the parts. In them the object, which is not intended to be seen, is wrought with as much care as the exterior composition. The junctures of the blocks which form the columns of the Parthenon are so perfect as to require the greatest attention to discover them, and they leave a mark no thicker than the finest thread. In order to attain this extraordinary perfection, the marble was first reduced to its proper shape by a chisel. Afterwards the two pieces were rubbed one upon the other, and sand and water thrown upon the centre of friction. The courses, by means of this practice, were placed with incredible precision, and this precision in the shafts of the columns was determined by a square pivot of olive wood. The roses, the plinths, the mouldings, the astragals, all the details of the edifice, exhibit the same perfection. The lines of the capitals and the fluting of the columns of the Parthenon are so sharp, that you would be tempted to suppose that the entire column has passed through a lathe. No turners' work in ivory can be more delicate than the Ionic capitals of the Erechtheum; and the Caryatides of the Pandroseum are perfect models.

Province of Painting.

Though the painter borrows his subject, he considers his art as not subservient to any other. His business is something more than assisting the historian with explanatory figures; as soon as he takes it into his hands he adds, retrenches, transposes and moulds it anew till it is made fit for his own art; he avails himself of the privileges allowed to poets and painters, and dares everything to accomplish his end, by means correspondent to that end—to impress the spectator with the same interest at the sight of his representation, as the poet has contrived to impress on the reader by his description; the end is the same in both cases, though the means are and must be different. Ideas intended to be conveyed to the mind by one sense cannot always with equal success be conveyed by another. Even the historian takes great liberties with facts in order to interest his readers, and makes his narration more delightful; much greater right has the painter to do this, who, though his work is called history-painting, gives in reality a poetical representation of events.

GENERAL.

Mr. Ernest Crofts, R.A., has been appointed keeper of the Royal Academy in succession to the late Philip H. Calderon.

The Foundation-stone of an asylum for the county borough of West Ham was laid on Wednesday by the Mayor of West Ham, Alderman Ivey, at Chadwell Heath, Essex. The buildings, which cover more than 10 acres, with 90 acres of surrounding land, will accommodate 800 patients and staff. The total cost, when finished, will be about 300,000*l.* The architect is Mr. Lewis Angell.

The Monmouthshire County Council have appointed a committee to take such action as they may think necessary with a view to securing Raglan Castle and Tintern Abbey for the public. These properties are part of the Duke of Beaufort's estates in Monmouthshire which his Grace transferred to the Marquis of Worcester, and are now in the market with the rest of the estates.

The Mansion of Wester Livilands, near Stirling, is about to be demolished, and a new house erected on the site. According to tradition, General Monk resided in the mansion during the siege of Stirling Castle. Six painted panels of the Sibyls were found, of which the origin is uncertain.

The Bournemouth Town Council on Wednesday accepted tenders for carrying out a scheme for lighting the lower pleasure gardens, pier, and winter gardens by electricity, and it was decided to hold a special meeting to consider the desirability of applying for a provisional order empowering the Corporation to adopt a scheme for lighting the town generally by electricity.

THE
Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xv.

COMPETITIONS OPEN.

GLASGOW.—Aug. 15.—Designs are invited for the exhibition buildings to be erected on sites in the Kelvingrove Park and Bunhouse Ground. A premium of 200*l.* will be awarded to the author of the design considered first in merit, second and third premiums of 150*l.* and 100*l.* respectively. Mr. H. A. Hedley, general manager and secretary, 141 Buchanan Street, Glasgow.

LIVERPOOL.—Oct. 3 (time extended).—Designs for new buildings for Royal Institution. 50 guineas, 20 guineas. Mr. Harold Waterhouse, hon. sec., 3 Cook Street, Liverpool.

SALFORD.—Aug. 16.—Designs for three chapels, offices, lodge, entrance gates and boundary walls at proposed cemetery in Langley Road and Agecroft Road, Pendlebury. Premiums of 50*l.*, 30*l.* and 20*l.* respectively. Borough Engineer, Town Hall, Salford.

STOCKHOLM.—Aug. 31.—Designs for railway station, Particulars from the Offices of the Consulate, 27 Great Winchester Street, London.

CONTRACTS OPEN.

ABERDEEN.—Aug 8.—For erection of barn at Tillyfar, Udny. Messrs. Jenkins & Marr, architects, 16 Bridge Street, Aberdeen.

ABERDEEN.—Aug. 25.—For erection of byres, stables and men's room on the Farm of Auchmillan, Auchindoir. Mr. John Annand; Mr. John Craigen, solicitor, 193 Union Street, Aberdeen.

ALNWICK.—Aug. 8.—For erection of a cottage at Bog Mill Homestead. Mr. Wm. Robson Hindmarsh, jun., architect, Alnwick.

BARNSLEY.—Aug. 12.—For erection of two dwelling-houses in Longcar Lane. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnsley.

BARNSLEY.—Aug. 8.—For conversion of engine-house in furnace-yard, Worsbrough Bridge, into a dwelling-house. Mr. J. Whitaker, surveyor, Worsbrough Bridge.

BATLEY.—Aug. 11.—For erection of five shops with houses. Mr. B. Watson, architect, Bradford Road, Batley.

BATLEY CARR.—Aug. 8.—For erection of a branch store in Warwick Road. Messrs. Holtom & Fox, architects Northgate, Dewsbury.

BEXHILL.—Aug. 15.—For erection of boundary-walls, railing, kerbing, paving and channelling the footpaths and other works opposite the town hall. Mr. Geo. Ball, surveyor, Town Hall, Bexhill.

BILSTON.—Aug. 10.—For erection of a superintendent engineer's house at the Bratch Waterworks, in the parish of Wombourn. Mr. John Wassell, clerk, Town Hall, Bilston.

BLACKBURN.—Aug. 23.—For erection of probationer homes for pauper children and superintendent's house near the workhouse, also two homes in Cherry Street, and two homes in Poplar Street. Messrs. Stones & Gradwell, architects, &c., Richmond Terrace, Blackburn.

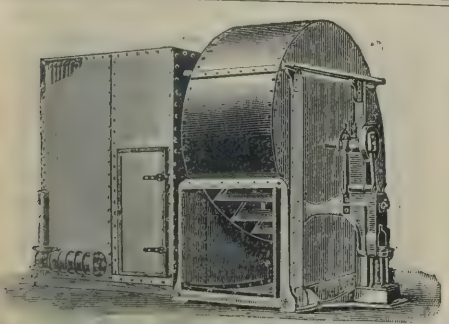
BURNLEY.—Aug. 13.—For erection of imbecile wards in the grounds of the workhouse. Mr. S. Keighley, architect, Nicholas Street, Burnley.

CONSETT.—Aug. 31.—For erection of the new institute buildings in Park Road, Consett. Messrs. Plummer & Burrell, architects, 13 Grey Street, Newcastle-upon-Tyne.

DARTMOUTH.—Aug. 8.—For erection of a villa at Ford Hill. Mr. J. A. Brand, architect, 32 Victoria Road, Paignton.

DUBLIN.—Aug. 12.—For sundry works at the Training College, Marlborough Street, and at 33, 34 and 35 North Great George's Street. Mr. J. F. Fuller, architect, Brunswick Chambers, Brunswick Street.

DUBLIN.—Aug. 16.—For erection of buildings and foundations in connection with the township electric-lighting works. Mr. Robert Hammond, 64 Victoria Street, London, S.W.



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DURHAM.—Aug. 13.—For erection of shop and dwelling-house in Middle Street. Mr. A. S. Coates, Havelock Street, Consett.

DURHAM.—Aug. 31.—For erection of institute buildings in Park Road, Consett. Messrs. Plummer & Burrell, architects, 13 Grey Street, Newcastle-upon-Tyne.

EASINGWOLD.—Aug. 19.—For erection of vagrant cells, &c., near the workhouse. Mr. F. J. H. Robinson, clerk, Easingwold.

GLOUCESTER.—Aug. 15.—For erection of infectious diseases hospital and buildings in connection therewith at Over. Messrs. Evans & Son, 7 John Street, Adelphi.

GRANGEMOUTH.—Aug. 22.—For erection of a block of dwelling-houses in Forth Street. Mr. G. Deas Page, architect, Old Glebe Chambers, Falkirk.

HALIFAX.—Aug. 12.—For alterations and additions to Pioneer Tool Works. Mr. Medley Hall, architect, 29 Northgate, Halifax.

HALIFAX.—Aug. 11.—For erection of a house, shop and offices, West Vale. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HANDSWORTH.—Aug. 8.—For erection of new schools at Woodhouse (West). Mr. John D. Webster, architect, Cairns Chambers, 19 St. James's Street, Sheffield.

HECKMONDWIKE.—Aug. 9.—For erection of engine and boiler house, chimney, &c, at the Central Stores. Mr. Arthur A. Stott, architect, Heckmondwike.

HUNSLET.—For erection of fourteen houses in Newport Street and Alton Street. Mr. W. Mason Coggill, architect, Beech Grove, Stourton.

ILFORD.—Aug. 23.—For erection of an underground latrine in the Broadway. Mr. Herbert Shaw, surveyor, 7 Cranbrook Road.

ILKLEY.—Aug. 9.—For erection of a block of three villas. Messrs. Isitt, Adkin & Hill, architects, Prudential Buildings, Bradford.

KILKENNY.—Aug. 11.—For erection of a dormitory annexe and other works at the workhouse. Mr. James F. Reade, John Street, Kilkenny.

KNARESBOROUGH.—Aug. 9.—For alterations to Parnassus Mount. Messrs. Buttery & Birds, architects, Queen Street, Morley.

KNARESBOROUGH.—Aug. 9.—For alterations and erection of stable buildings, &c., at the Fox and Hounds Inn at Stotton. Messrs. Buttery & Birds, architects.

MANCHESTER.—Aug. 10.—For alterations at the schools at Swinton. Mr. A. J. Murgatroyd, 23 Strutt Street, Manchester.

MARYPORT.—Aug. 13.—For alterations and additions to farm buildings on the Ewanrigg Estate. Messrs. Castiglione & Gibbings, surveyors, 31 Lowther Street, Carlisle.

NORMANTON.—Aug. 9.—For erection of glass factory about 180 feet long with boundary walls, &c., at Castleford. Mr. R. M. McDowall, architect, Carlton Street, Castleford.

NORTHFLEET.—Aug. 8.—For rebuilding of the Edinburgh Castle, High Street. Mr. G. Saltmarsh, Brewery Offices, Northfleet, Kent.

PERTH.—Aug. 8.—For additions and alterations to shooting lodge at Tullybeagles, near Bankfoot, Perthshire. Mr. David Smart, architect, Perth.

PRESTON.—Aug. 8.—For alterations and additions to buildings at the east wing, and heating and ventilation of buildings at the east wing. Mr. Whitwell, engineer, Fulwood Workhouse.

ROCHESTER.—Aug. 9.—For additions and alterations to the Wainscott schools, for the Frindsbury School Board. Mr. G. E. Bond, architect, High Street, Rochester.

ROCHFORD.—Aug. 8.—For certain repairs and alterations and construction of a filter-tank and outfall in connection with the sewage-tanks. Mr. Frederic Gregson, Alexandra Street, Southend.

ROMSEY.—Aug. 16.—For building a concrete retaining wall in the abbey. Mr. M. L. Harle, town clerk, Abbey Water, Romsey.

SANDWICH.—Aug. 10.—For alterations and additions to the U.D. Schools. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

SCOTLAND.—Aug. 9.—For erection of extensive warehouse at Speyside Distillery, Kingussie. Mr. Alexander Mackenzie, architect, Kingussie.

SCOTLAND.—Aug. 11.—For reconstruction of the Oakshaw public school, Paisley. Mr. Charles Davidson, architect, Paisley.

SHEFFIELD.—Aug. 15.—For erection of seven cottages at The Cross, Ecclesfield. Mr. G. A. Wilson, architect, Hartshead Chambers, Sheffield.

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SHEFFIELD.—Aug. 15.—For extension of car-sheds, consisting of two-span steel roof, car-pits, stores, boundary wall, latrines, foreman's house, &c., at Tinsley. Mr. Charles F. Wike, C.E., city surveyor, Town Hall, Sheffield.

SHOREDITCH.—Aug. 15.—For erection of a new battery-room, boiler-house and extension of offices at the electric supply station, Coronet Street. Messrs. Kincaid, Waller & Manville, engineers, 29 Great George Street, Westminster.

STURRY.—Aug. 13.—For the repair of Sturry National School. The Rev. George Billing, Sturry Vicarage.

SUNDERLAND.—Aug. 25.—For erection of a technical college at Green Terrace. Messrs. Potts, Son & Hennings, Ely Place, Holborn, London.

SWANSEA.—Sept. 19.—For erection of Manselton school, Mr. C. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

TAUNTON.—Aug. 9.—For erection of stores at Taunton Station, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

THEYDON GARNON, ESSEX.—For erection of a ward at the isolation hospital, and repairs to existing buildings with heating and hot-water supply. Mr. E. Egan, Holmdale, Loughton.

ULVERSTON.—Aug. 10.—For erection of caretaker's house, supper-room, &c., to the Jubilee Institute, Lakeside. Messrs. J. W. Grundy & Son, Brogden Street, Ulverston.

WALES.—Aug. 8.—For erection of a block of shops at Brynmawr. Mr. J. R. Williams, Railway Hotel.

WALES.—Aug. 9.—For construction of a new goods-shed, engine-shed and other works at Llantrisant, Glamorganshire, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

WARBOYS.—Aug. 8.—For additions, reseating, and other works to the Strict Baptist chapel, Warboys, Hunts. Mr. Samuel Fyson, Stoneleigh, Warboys, Hunts.

WHITBY.—For erection of house in Crescent Avenue. Mr. H. Walker, West Cliff Estate Office, Whitby.

WHITBY.—For erection of block of three villas in Crescent Avenue and Upgang Road. Mr. H. Walker, West Cliff Estate Office, Whitby.

WHITTLESEA.—For erection of a villa at Whittlesea. Mr. J. G. Stallebrass, architect, North Street, Peterborough.

WHITTLESEA.—For erection of six houses. Mr. J. G. Stallebrass, architect, North Street, Peterborough.

WILMINGTON.—Aug. 13.—For erection of a school. Mr. E. Vinall, architect, Southdown House, Silverdale Road, Eastbourne.

WINCHESTER.—Aug. 20.—For erection of buildings at Peter Symonds's school. Messrs. Cancellor & Hill, architects, 12 Jewry Street, Winchester.

WREKENTON.—Aug. 8.—For erection of an infants' school. Mr. Edwin Bowman, architect, County Chambers, Westgate Road, Newcastle.

WREXHAM.—Aug. 18.—For erection of a bridge over the river Gwenfro, at Stryt-y-bidden. Mr. John Strachan, Crispin Lodge, Wrexham.

WREXHAM.—Aug. 10.—For erection of a bridge over the river Gwenfro, at Stryt y bidden, in the township of Broughton. Mr. John Strachan, Crispin Lodge, Wrexham.

TENDERS.

ALLOA.

For formation of roadway, &c., Ashley Terrace, Sunnyside. Mr. G. A. KERR, engineer and architect, 37 Mill Street. Alloa.

R. Gall	£995 3 9
A. Gall	825 10 10
G. & R. COUSIN, Alloa (*accepted*)	705 17 5
W. Johnstone	484 0 6

ARMLEY.

For erection of two houses. Mr. F. W. RHODES, architect, Upper Wortley.

Accepted tenders.

H. Brook, bricklayer and mason	£306 0 0
J. Tate, joiner	152 0 0
J. Walsh, plasterer	48 10 0
A. B. Cromack, plumber	42 0 0
J. Atkinson & Son, slater	26 17 0
C. F. Brown, painter	10 10 0

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ASHFORD.

For erection of two houses on the Wall Estate. Mr. HENRY J. JEFFERY, architect.

H. Knock	£1,850 0 0
G. F. Davis	1,646 0 0
C. HOWLAND, Ashford (*accepted*)	1,475 0 0

BARNSLEY.

For painting, whitewashing and colourwashing the schools of the Barnsley School Board.

Accepted tenders.

T. Fidler, Eldon Street and Park Road Schools	£36 12 0
W. Beaumont, Agnes Road School	28 0 0
E. R. Fletcher, Old Town and Kier Street Schools	15 7 0

BOLTON.

For construction of settling tanks and drains at Firwood, near Bolton. Messrs. JAMES SELLERS & SON, surveyors, Union Chambers, Bury.

W. POLLITT, Pool Street, Bolton (*accepted*).

BRIGHTON.

For painting the exteriors of the Brighton workhouse and parochial offices.

Workhouse.

G. F. Morgan & Co.	£779 0 0
Botting & Son	420 0 0
Barber & Olliver	420 0 0
J. J. Wright	410 0 0
Worsley & Co.	401 10 0
Brown & Sons	398 0 0
J. J. G. Saunders & Sons	396 10 0
Gates & Sons	390 0 0
T. F. HOLLAND & Co., Brighton (*accepted*)	385 0 0

Parochial Offices.

J. J. G. Saunders & Sons	34 10 0
Worsley & Co.	25 8 0
J. J. Wright	23 0 0
T. F. Holland & Co.	23 0 0
Brown & Sons	19 15 0
Gates & Sons	19 10 0
Botting & Son	19 0 0
BARBER & OLLIVER, Brighton (*accepted*)	15 15 0

BRISTOL.

For extension of Greenbank Board schools. Mr. F. BLIGH BOND, architect, Alliance Chambers, Corn Street, Bristol.

Keen & Keen	£2,035 0 0
W. J. Tanner	1,972 0 0
E. Clark	1,950 0 0
J. Hatherley	1,937 0 0
E. Walters	1,920 0 0
W. CHURCH, Bristol (*accepted*)	1,887 0 0

Plumber.

Keen & Keen	77 10 0
E. Wilkins	64 0 0
Tuckey	55 10 0
Scull	45 0 0
J. WILKINS (*accepted*)	42 0 0

BUCKLOW.

For construction of main sewers and outfall works for the township of Hale. Mr. J. M'D. M'KENZIE, surveyor, 7 Market Street, Altrincham.

J. HAMILTON & SONS, Altrincham (*accepted*) £1,565 0 0

CARDIFF.

For forming, metalling, paving, kerbing and channelling in Harrowby Lane and Harrowby Lane East. Mr. W. HARPUR, borough engineer.

Harrowby Lane.

T. Rees	£417 9 10
J. RICH, Cardiff (*accepted*)	376 11 2

Harrowby Lane East.

T. Rees	37 6 0
J. RICH (*accepted*)	32 4 9

CHESTER.

For erection of shedding, &c., for the annual exhibition of the Cheshire Agricultural Society to be held on September 7 at Macclesfied.

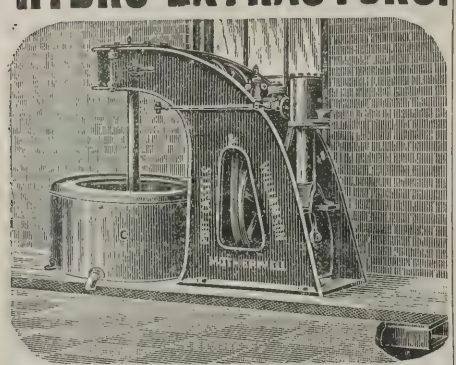
L. H. WOODHOUSE, Nottingham (*accepted*) £449 0 10

CLOVA (N.B.).

For making approaches to new stone bridge at Clova, and alterations on roadway there. Mr. ROSS, road surveyor, Brechin Road, Kirriemuir.

D. HOOD, Southmuir (*accepted*).

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For erection of an additional classroom, to accommodate fifty children, and other works at the Board schools. Messrs. ROSSER & ROBERTS, architects, Abercarn.

Rowland & Lloyd	£421 0 0
D. Lewis	380 0 0
E. Williams	343 0 0
Lawson & Co.	340 0 0
C. F. MORGAN, Newbridge, near Newport, Mon. (*accepted*)	314 0 0

CULLINGWORTH.

For erection of a Baptist Sunday-school at Cullingworth. Messrs. JOHN JUDSON & MOORE, architects, Keighley.

Accepted tenders.

Mitchell & Co., Cullingworth, builder.
Greenhow & Murgatroyd, Keighley, joiner.
W. Thornton, Bingley, slater.
Park & Lodge, Keighley, plumber.
H. Spurr & Sons, Bingley, plasterer.

CUMBERLAND.

For cutting and laying of about 100 yards of 4-inch and 6-inch sewerage pipes, High Harrington.

J. T. HARRISON, Distington, near Whitehaven (*accepted*)	£18 0 0

DARTFORD.

For making-up Priory Lane, and laying therein artificial stone footways. Mr. W. HARSTON, surveyor, High Street, Dartford.

Mowlem & Co.	£210 0 0
T. Adams	196 0 0
KENT ROAD COMPANY, Gravesend (*accepted*)	195 15 0

DEWSBURY.

For erection of five shops and offices in New Bridge Street. Messrs. HOLTOM & FOX, architects, Westgate, Dewsbury.

Accepted tenders.

W. Scott & Son, mason	£945 0 0
G. G. Smith, joiner	270 0 0
F. Newsome, plumber	110 0 0
W. H. Thompson, slater	56 0 0
F. Richardson, plasterer	36 10 0
C. Bailey, ironwork	26 5 0

DIDSBURY.

For erection of a residence. Mr. J. SWARBRICK, architect.

BURGESS & GALT (*accepted*)	£3,645 0 0

DUNMOW.

For alterations and additions to the Sunday Schools at the Congregational Church. Mr. CHARLES PERTWEE, architect, Bank Chambers, Chelmsford.

E. West	£379 0 0
F. Harman	305 10 0
A. M. Warren	250 0 0
J. PEPPER, Dunmow (*accepted*)	222 0 0

FENTON.

For stone paving required to be laid in Back Edward Street. Mr. S. A. GOODALL, surveyor.

H. Moulton	£240 0 0
J. Bagnall	189 10 0
BROWN & BLURTON, Longton (*accepted*)	178 18 6

GLAMORGAN.

For altering and repairing the Truant School, Quaker's Yard.

M. JULIAN, Pontypridd (*accepted*)	£474 0 0

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G. CLARKE & SON, Manchester (*accepted*)	£1,094 14 0

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For painting, whitewashing and repairs at the Mount Pleasant, Priory Road, Waterloo Place, Tower Road, Ore, and Hollington schools.

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HORTON.

For erection of fifty-eight houses, in four blocks, at St. Margaret's Road. Mr. Abm. Sharp, architect, Albany Buildings, Market Street, Bradford.

Accepted tenders.

W. R. Booth, Bradford, contractor.
Crabtree & Thornton, Bradford, joiner.
G. Jackson, Bradford, plumber.
J. & W. Bates, Bradford, plasterer.
J. Smithies, Bradford, slater.

IPSWICH.

For alterations in the sanitary arrangements at St. John's Home.

G. Grimwood & Sons	£163 0 0
H. Avis	114 0 0
C. Stearn & Co.	108 10 0
J. Boyce, 5 Nicholas Street, Ipswich (*accepted*)	97 5 0
F. Pollard	96 0 0

LANCASTER.

For erection of a residence at Caton. Mr. N. G. Lewis, architect, 1 New Road, Lancaster.

T. Burscough	£1,028 0 0
R. T. Constable, Carnforth (*accepted*)	971 0 10

LEAMINGTON.

For painting and colouring the Shrubland Street Schools. Mr. F. Foster, architect, 4 Euston Place, Leamington.

C. Riley	£112 0 0
D. Thomas, 1 Chapel Street (*accepted*)	101 15 0

For erection of private rooms at the Crown Hotel. Mr. F. Foster, architect. Quantities by the architect.

G. F. Smith & Sons	£771 0 0
R. Bowen	749 0 0
S. Bailey, Clarendon Avenue, Leamington (*accepted*)	710 5 0

For erection of engine-house in connection with the Lillington supplemental water supply.

R. Bowen, Tavistock Street (*accepted*)	£797 0 0
R. P. Gathercole	780 0 0

LEICESTER.

For construction and erection of wrought-iron hurdle fencing, field-gates, cast-iron stock posts, &c., at the Oval and West Walk. Mr. E. George Mawbey, borough surveyor.

Walker Bros.	£186 0 0
G. B. Smith	172 19 0
Raybould & Co.	139 19 2
J. Priest & Son.	137 17 6
Gimson & Co.	134 16 9
S. Wright	128 1 6
W. T. Burbidge, Leicester (*accepted*)	118 0 0
Surveyor's estimate	120 0 0

For construction of a new macadamised road, 30 feet wide, along the southern boundary of the Spinney Hill Park, with storm and foul water sewers, manholes, lampholes, kerbs, channels, &c. Mr. E. Geo. Mawbey, borough surveyor.

J. Holme	£1,602 2 5
Stimpson & Rollstone	1,541 15 10
Bentley & Lock	1,538 16 10
T. Philbrick, Earl Howe Street (*accepted*)	1,498 8 5

LONDON SCHOOL BOARD.

For enlargement, &c., Homerton Row school.

J. Grover & Son	£9,070 0 0
Perry & Co.	9,064 0 0
W. M. Dabbs	8,989 0 0
E. Lawrance & Sons	8,814 0 0
C. Cox	8,582 0 0
J. & C. Bowyer	8,551 0 0
W. Shurmur*	8,235 0 0

* Recommended for acceptance.

For stone staircase, Horseferry Road school, Westminster.

T. Cruwys	£348 0 0
Lathey Bros.	242 0 0
E. Triggs	241 0 0
F. G. Minter	239 0 0
W. Hammond (*accepted*)	224 0 0

For heating apparatus for enlargement, Childeric Road school, New Cross.

Stevens & Sons	£255 0 0
Samuel Mason, Limited	235 9 0
Strode & Co.	212 0 0
J. Grundy	200 0 0
Wenham & Waters, Limited (*accepted*)	174 0 0

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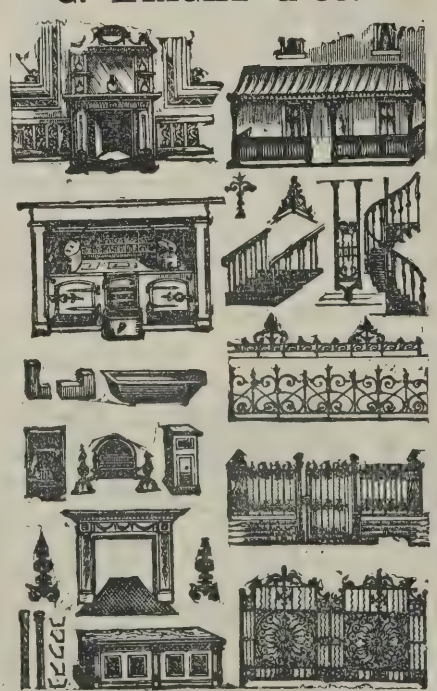
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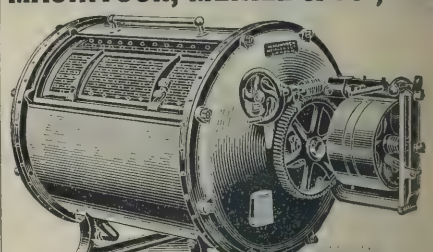
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Estab.] Willesden Junction, London, N.W. [1870.

LONDON SCHOOL BOARD—*continued.*

For works to additional land, &c., Gravel Lane school, Hounsditch.

W. Irwin	£540	0	0
W. Hornett	419	0	0
J. Kiddle & Son	397	0	0
H. Line	397	0	0
Johnson & Co.	368	0	0
G. Barker	330	0	0
STAINES & SON (*accepted*)	296	0	0

For adapting girls' old school for cookery and laundry, Dulwich Hamlet school.

H. Line	£179	0	0
T. Freeman & Son	170	10	0
J. Smith & Sons	169	0	0
W. Akers & Co.	165	0	0
J. & C. BOWYER (*accepted*)	165	0	0

For reconstruction of boiler flue, Crampton Street school, Newington Butts.

W. V. Goad	£178	0	0
J. F. Ford	154	0	0
J. MARSLAND (*accepted*)	137	0	0

For reconstruction of boiler flue, Haseltine Road, Lower Sydenham.

J. & C. Bowyer	£155	0	0
G. Kemp	120	0	0
C. G. JONES (*accepted*)	115	0	0

For Kindergarten gallery, &c., Central Street school, St. Luke's.

W. Irwin	£166	0	0
W. Martin	155	0	0
G. Wales	142	0	0
Johnson & Co.	125	0	0
Marchant & Hirst	119	0	0
McCormick & Sons	113	0	0
J. KIDDLE & SON (*accepted*)	113	0	0

For channels, &c., in connection with new heating apparatus, Flora Gardens school, Hammersmith.

G. H. Sealey	£225	10	0
W. Brown	150	0	0
W. R. & A. Hide	142	10	0
H. C. CLIFTON (*accepted*)	87	0	0

LONDON SCHOOL BOARD—*continued.*

For reconstruction of boiler flue, Oldridge Road school, Balham.

Heinemann & Brown	£130	0	0
R. E. Williams & Sons	110	0	0
J. Garrett & Son	102	0	0
H. BROWN (*accepted*)	87	0	0

For new school, Essendine Road site, Shirland Road, Paddington.

F. Gough & Co.	£25,096	0	0
T. L. Green	24,669	0	0
F. & H. F. Higgs	24,508	0	0
J. & M. Patrick	24,017	0	0
R. A. Yerbury & Sons	23,608	0	0
Kirk & Randall	23,549	0	0
Lathey Bros.	23,394	0	0
J. Carmichael	23,360	0	0
L. H. & R. Roberts	23,335	0	0
W. Downs	23,285	0	0
W. Johnson & Co., Limited	23,120	0	0
E. Lawrance & Sons	22,938	0	0
C. Cox*	22,249	0	0

* Recommended for acceptance.

For erection of junior mixed department, Montem Street school, Tollington Park.

J. Longley & Co.	£13,548	0	0
G. S. S. Williams & Son	13,442	0	0
W. Johnson & Co., Limited	13,437	0	0
J. Grover & Son	13,320	0	0
L. H. & R. Roberts	13,190	0	0
W. M. Dabbs	12,993	0	0
C. Cox	12,624	0	0
E. Lawrance & Sons*	12,465	0	0

For sanitary and drainage work, Curtain Road school, Shoreditch.

W. V. Goad	£1,980	0	
Harrison & Spooner	1,979	0	0
F. G. Minter	1,869	0	0
G. Parker	1,714	0	0
E. Triggs	1,615	0	0
Lathey Bros.	1,599	0	0
Johnson & Co.	1,576	10	0
F. BULL (*accepted*)	1,571	0	0

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LONDON SCHOOL BOARD—*continued.*

For enlargement, &c., Risinghill Street school, Pentonville.

J. G. Cowell	£9,617 0 0
McCormick & Son	7,850 0 0
L. H. & R. Roberts	7,756 0 0
J. Smith & Sons	7,752 0 0
Snewin Bros. & Co.	7,743 0 0
W. Shurmur	7,659 0 0
G. S. S. Williams & Son	7,514 0 0
J. Garrett & Son *	6,122 0 0

For sanitary and drainage work, Smeed Road school, Old Ford.

F. Bull	£2,820 0 0
G. S. S. Williams & Son	2,701 0 0
G. Parker	2,450 0 0
W. Akers & Co.	2,445 0 0
G. Munday & Sons	2,441 0 0
Lathey Bros.	2,318 0 0
J. Garrett & Son	2,211 0 0
Johnson & Co. (*accepted*)	2,186 10 0

For additional heating, Southwark Park school, Bermondsey.

S. Mason, Limited	£284 0 0
E. Oldroyd & Co., Limited	188 0 0
W. J. Cooper	158 10 0
Rosser & Russell, Limited	157 10 0
J. C. Christie	127 0 0
Bates & Pearce	123 15 0
Duffield & Co.	120 0 0
Berry, Campbell & Co.	119 0 0
Russell & Co. (*accepted*)	118 10 0

For additional heating, Vicarage Road School, Plumstead.

H. C. Price, Lea & Co.	£98 0 0
W. G. Cannon & Sons	98 0 0
Strode & Co.	93 0 0
G. Davis	78 0 0
J. Grundy (*accepted*)	69 8 6

For duplicate electric plant, "Shaftesbury" training ship.

Drake & Gorham	£1,369 0 0
L. C. Tate	1,360 0 0
Laing, Wharton & Down, Limited *	1,312 0 0
H. F. Joel & Co. and T. Potter & Sons United, Limited	1,130 0 0

* Recommended for acceptance.

LONDON SCHOOL BOARD—*continued.*

For additional heating, Popham Road School, Islington.

W. Simmons	£69 13 6
J. & F. May	64 0 0
W. G. Cannon & Sons	55 0 0
G. & E. Bradley	47 15 0
J. Wontner-Smith, Gray & Co.	44 10 0
G. Davis	35 0 0
Sharp, O'Brien & Co. (*accepted*)	29 17 0

For new system of heating apparatus, Stephen Street school, Lisson Grove.

J. C. & J. S. Ellis, Limited	£549 0 0
W. G. Cannon & Sons	489 0 0
H. C. Price, Lea & Co.	489 0 0
G. Davis	440 0 0
Wippell Bros. & Row	425 0 0
J. Grundy	416 14 0
J. Wontner-Smith, Gray & Co.	390 0 0
Dargue, Griffiths & Co., Limited	345 15 0
J. C. Christie (*accepted*)	341 0 0

For additional heating, Poole's Park School, Upper Holloway.

A. Dougill & Co., Limited	£402 0 0
E. Oldroyd & Co., Limited	397 0 0
Strode & Co.	373 0 0
J. Grundy	308 0 0
Matthews & Gates, Limited	300 0 0
J. Esson	295 0 0
Russell & Co.	288 10 0
Bates & Pearce	260 0 0
J. Defries & Sons, Limited (*accepted*)	253 10 0

For additional heating, Eltringham Street school, Wandsworth.

A. Dougall & Co., Limited	£487 0 0
W. G. Cannon & Sons	459 0 0
B. Harbrow & Son	405 0 0
E. Oldroyd & Co., Limited	392 0 0
J. Fraser & Son	388 0 0
J. C. & J. S. Ellis, Limited	379 10 0
J. Grundy	351 11 0
Rosser & Russell, Limited	316 0 0
J. C. Christie	305 0 0
Dargue, Griffiths & Co., Limited	245 10 0
Duffield & Co. (*accepted*)	242 0 0

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LONDON SCHOOL BOARD—*continued.*

For additional heating, Ivydale Road School, Nunhead.

J. Fraser & Son	£147 0 0
W. Simmons	131 10 0
J. Wontner-Smith, Gray & Co.	127 10 0
J. C. & J. S. Ellis, Limited	112 0 0
Berry, Campbell & Co.	106 10 6
J. Grundy	99 6 0
W. G. Cannon & Sons	99 0 0
G. Davis	83 0 0
DUFFIELD & Co. (*accepted*)	76 0 0

For additional heating, Waldron Road school, Earlsfield.

J. Esson	£195 0 0
Rosser & Russell, Limited	163 0 0
J. & F. May	163 0 0
Strode & Co.	158 0 0
J. C. & J. S. Ellis, Limited	150 0 0
Comyn, Ching & Co.	147 15 0
Z. D. Berry & Sons	133 0 0
Sharp O'Brien & Co.	115 0 0
DUFFIELD & Co. (*accepted*)	96 0 0

For additional heating, Haverstock Hill school, St. Pancras.

H. C. Price, Lea & Co.	£93 0 0
J. C. & J. S. Ellis, Limited	92 10 0
W. Simmons	78 19 0
G. Davis	75 10 0
Berry, Campbell & Co.	68 10 0
J. Wontner-Smith, Gray & Co.	68 10 0
G. & E. BRADLEY (*accepted*)	49 10 0

For additional heating, Prospect Terrace school, Gray's Inn Road.

H. C. Price, Lea & Co.	£145 0 0
Comyn Ching & Co.	139 10 0
J. & F. May	139 0 0
G. & E. Bradley	97 0 0
G. Davis	94 10 0
Sharp, O'Brien & Co.	80 5 0
DUFFIELD & Co. (*accepted*)	76 0 0

For partitions, &c., Holmes Road school, Kentish Town.

G. Chase & Son	£534 0 0
F. Britton	321 8 0
MARCHANT & HIRST (*accepted*)	259 10 0

LONDON SCHOOL BOARD—*continued.*

For additional heating, Neckinger Road school, Bermondsey.

A. J. Kalloway & Co.	£107 0 0
G. Davis	105 10 0
W. G. Cannon & Sons	79 0 0
Turner & Co.	76 17 6
J. & F. May	74 0 0
J. C. Christie	70 0 0
Berry, Campbell & Co.	58 15 0
J. Defries & Sons, Limited	58 0 0
J. Wontner-Smith, Gray & Co.	57 0 0
J. Grundy	54 10 0
C. SEWARD & Co. (*accepted*)	50 0 0

For additional heating, Stockwell Road school.

J. & F. May	£106 0 0
W. G. Cannon & Sons	103 0 0
G. Davis	98 0 0
W. Simmons	84 18 6
G. & E. Bradley	81 0 0
J. Wontner-Smith, Gray & Co.	79 16 0
J. Grundy	69 0 0
SHARP, O'BRIEN & Co. (*accepted*)	57 10 0

For enlargement of deaf centre, Stanley Street school, Deptford.

Thomas & Edge	£400 0 0
E. Proctor	370 0 0
Rice & Son	325 0 0
J. Marsland	305 0 0
JONES & GROVES (*accepted*)	282 0 0

For cleaning boiler, &c., and pointing brickwork in boiler-room, Head Offices.

J. C. & J. S. Ellis, Limited	£119 0 0
J. & F. May	114 0 0
Rockhill Bros.	112 10 0
W. G. Cannon & Sons	110 0 0
J. Grundy	96 10 6
Fraser & Son	96 0 0
J. ESSON (*accepted*)	69 18 0

For providing cupboard for science apparatus, Flora Gardens.

J. Martin	£41 10 0
Rice & Son	40 0 0
W. H. LASCELLES & Co. (*accepted*)	38 0 0

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Wall and Ceiling Coverings.
THE ENAMELLED METAL DECORATION COMPANY,
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LONDON SCHOOL BOARD—*continued.*

For enclosing arches in covered playground, &c., Caledonian Road school, Islington.

A. M. Sparks	£127 10 0
Stevens Bros.	119 10 0
Marchant & Hirst	112 0 0
F. Britton	99 0 0
G. Kirby (*accepted*)	98 10 0

LONDON.

For making-up, &c., main road of the North-Western Hospital.

B. Nowell & Co.	£1,286 0 0
A. J. Cole	1,215 7 6
R. Jackson	1,187 0 0
G. Bell	1,079 0 0
W. Griffiths	1,040 0 0
T. Adams	1,035 0 0
C. W. Killingback & Co.	997 0 0
E. Hollingsworth	996 10 0
Ballard, Limited, Child's Hill, N. (*accepted*)	643 0 0
Architect's estimate	1,080 0 0

For erection of head office buildings, for the Metropolitan Asylums Board.

B. E. Nightingale	£54,827 0 0
E. Lawrance & Sons	54,127 0 0
Leslie & Co., Limited	54,043 0 0
W. Pattinson & Sons	51,243 0 0
Foster & Dicksee	48,980 0 0
J. Shillitoe & Son, Bury St. Edmunds (*accepted*)	47,532 0 0
Architect's estimate	46,328 0 0

For supply of boilers for electric light installation at the Northern Hospital.

Hawksley, Wild & Co.	£900 0 0
J. Thompson	870 0 0
Fraser & Fraser, Limited	827 0 0
Tinkers, Limited	800 0 0
Davey, Paxman & Co., Limited	780 0 0
E. Danks & Co., Limited	725 0 0
R. Taylor & Sons, Yorks (*accepted*)	725 0 0

Consulting engineer's revised estimate (including the cost of certain mechanical stokers, tenders for which were still under consideration) was £1,000.

LONDON—*continued.*

For building new projections to contain additional lavatory and water-closet accommodation at the Strand workhouse, Edmonton, for the guardians of the Strand Union. Messrs. W. S. Cross & Kekwick, architects, 18 Outer Temple, Strand. Quantities by Mr. W. T. Farthing.

Allan & Stanley	£5,925 0 0
W. Lawrence	5,730 0 0
Merredew & Wort	5,409 0 0
T. G. Sharpington	5,368 0 0

LEWISHAM.

For enlargement of the committee-room at the lodge in the Sydenham recreation ground.

C. G. Jones, Forest Hill (*accepted*)	£93 0 0

MYTHOLMROYD.

For erection of a foundry. Mr. W. Wrigley, architect, Albert Street, Hebden Bridge.

Accepted tenders.

W. Clark, mason and bricklayer.
K. Smith, carpenter and joiner.
Boulton & Kershaw, plumber.
J. Robinson, slater.

NUNEATON.

For construction of filter-bed tanks and laying and fixing of mains, &c., at the pumping station, Stockingford. Mr. J. S. Pickering, engineer, Council Offices, Nuneaton.

J. Holme	£2,336 0 0
R. Wilson	2,231 0 0
Bentley & Loch, Leicester (*accepted*)	2,201 0 0
J. Ford	2,192 0 0

RADCLIFFE.

For erection of a broker's shop and house in Church Street. Messrs. James Sellers & Son, architects, Union Chambers, Bury.

Smith Bros., Summerseat, near Manchester (*accepted*).

RAWTENSTALL.

For painting and decorating Water Board schools.

Lord & Hodgson	£45 12 0
C. Fielding, Holt Street, Baltic, Waterfoot, near Manchester (*accepted*)	36 0 0
E. Taylor & Sons	30 0 0

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LOCKPLATE WITHOUT FURNITURE, **45**/- each.

T 2172.
MORTISE FURNITURE, WILKE'S, **23**/- set.

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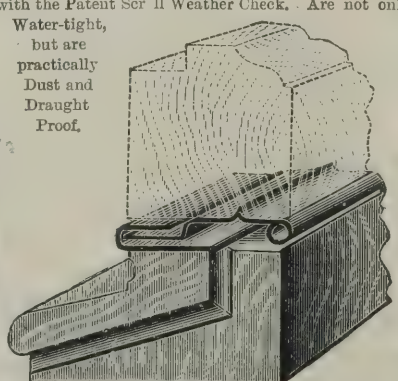
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Slipping rendered impossible!
Practically noiseless.
3 in. by 30 in. 3/3 each.

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Doors, Casements, Fanlights, &c., &c., fitted with the Patent Scroll Weather Check. Are not only Water-tight, but are practically Dust and Draught Proof.

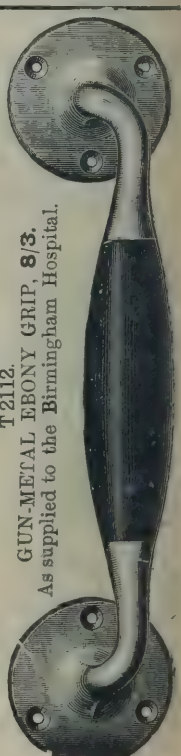


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Opening inwards.

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T2219.
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BURGH HALL, BATHGATE.

VILLA AT BARTON-ON-SEA.

COTTAGES IN THE ETONWICK ROAD, ETON.

SHEPSHED.

For drainage, roadmaking, levelling, &c., required in extending the cemetery. Mr. W. T. HAMPTON, surveyor, Loughborough.

General Work.

J. Gorvett	£1,393 0 0
Blood Bros.	1,347 17 0
Moss & Son	1,050 0 0
J. Holme	1,003 7 0
Ford & Hudson	822 0 0
A. Faulks	815 0 0
E. Orton	807 0 0
J. K. SMEDLEY, Leicester (*accepted*)	700 0 0

Retaining Wall.

Moss	60 0 0
Blood Bros.	50 7 9
J. WEBSTER, Shepshed (*accepted*)	41 10 0
A. Faulks	40 0 0

Iron and Railing.

W. Hayward & Sons, Brunswick Works, Wolverhampton.

STOCKPORT.

For decorating and painting the inside of the technical school. Mr. JOHN ATKINSON, borough surveyor.

J. Wrigley	£300 0 0
W. Fantom	275 0 0
T. A. Barns	169 15 0
ASHTON & TOWNSEND, Stockport (*accepted*)	148 0 0

SOUTHWARK.

For construction of an underground convenience at the St. George's Circus end of Borough Road, and an underground urinal at the Newington Causeway end of the same road.

Convenience.

G. Newton	£2,215 8 4
Water Carriage Engineering Co.	1,959 0 0
Doulton & Co.	1,770 0 0
B. FINCH & Co., Lambeth (*accepted*)	1,659 0 0
B. E. Nightingale & Son	1,175 0 0

Urinal.

G. Newton	1,161 7 2
Water Carriage Engineering Company	1,104 0 0
B. E. Nightingale & Son	985 0 0
Doulton & Co.	950 0 0
B. FINCH & Co. (*accepted*)	879 0 0

STRATFORD.

For painting St. Paul's Schools. Mr. J. T. BRESSEY, surveyor, 70 and 71 Bishopsgate Street Within, E.C.

J. Stewart	£283 0 0
Whitelaw & Wright	239 1 0
W. H. Jones	213 15 0
C. North	208 2 0
E. F. Folley	201 0 0
J. & R. Cleminson	158 0 0
J. Young	140 10 0
G. Wales	139 17 0
H. S. Horswill	137 0 0
J. R. Jackson	135 0 0
F. Hoe	129 15 0
J. H. Bamber	129 5 0
R. Athey	127 10 0
F. W. Harris	127 0 0
H. Rogers	126 10 0
C. H. RICHARDSON, 188 Romford Road, Stratford, E. (*accepted*)	111 10 0
Surveyor's estimate	121 3 0

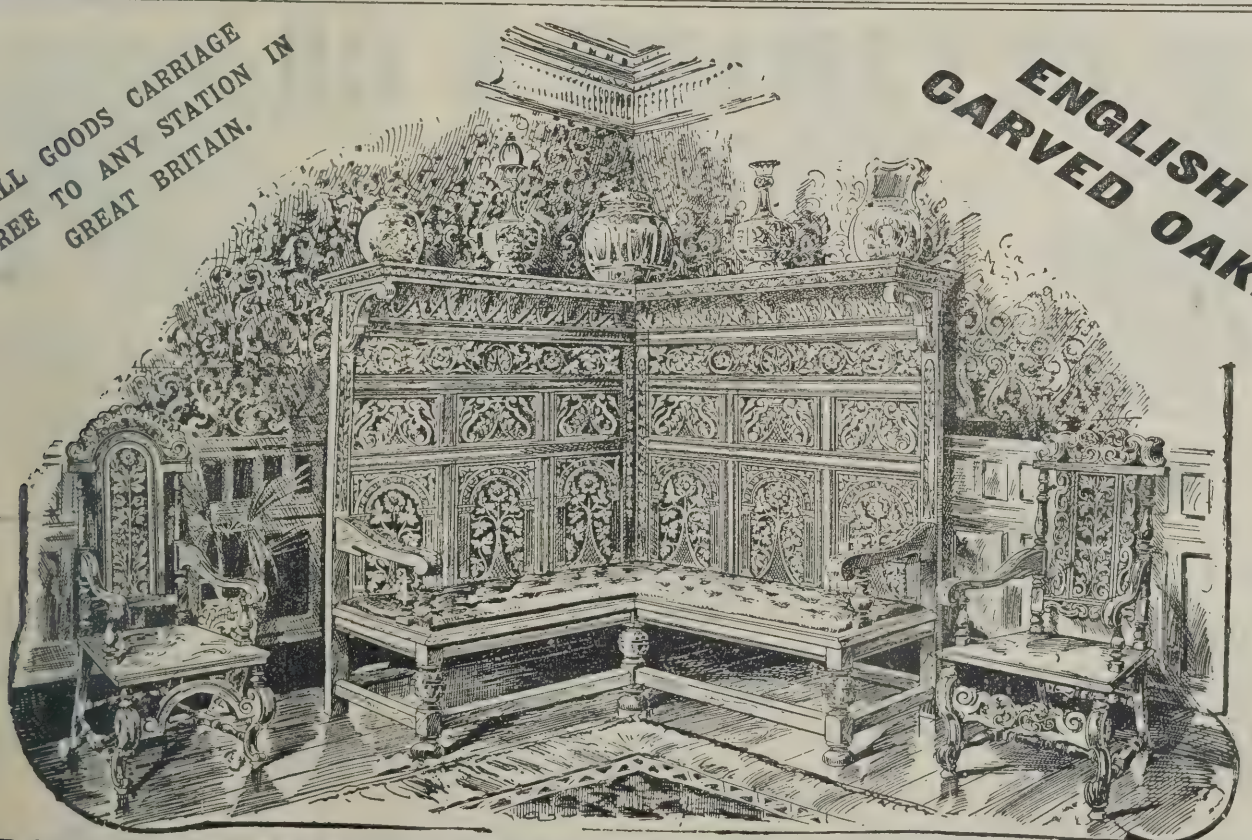
TOTTENHAM.

For Limmer asphalte paving and repairs for year ending June 24, 1899. Mr. P. E. MURPHY, C.E., engineer and surveyor.

GROUNDS & NEWTON, South Tottenham (*accepted*).

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SWINDON.

For erection of manual workshops at the rear of the technical schools, Victoria Road, New Swindon. Mr. H. J. Hamp, surveyor.

C. Williams	£833 0 0
J. Williams	813 0 0
H. & C. Spackman, Clifton Street, Swindon (*accepted*)	804 19 7

TRIMLEY ST. MARTIN.

For interior painting, washing and distempering walls and ceilings, and repairs at the schools.

F. W. Pearce	£75 0 0
R. Allen	45 10 6
F. H. Orvis, Ipswich (*accepted*)	41 18 6

BUILDING AND BUILDERS.

In carrying out the programme of Her Majesty's Government additional buildings are required at Lancaster and Bury. These are to be erected immediately, and the contracts have been given to Mr. Samuel Warburton, of Miles Platting.

A freehold site in Nightingale Lane, Clapham Common, has been secured for the new premises of the Jews' Deaf and Dumb Home, whose building in Walmer Road, Notting Hill, has been condemned by the inspector of the Education Department as inadequate.

The erection of a cottage hospital for Morecambe will shortly be proceeded with. At a meeting of the diamond jubilee committee, held in the Albert Hall, several tenders were recommended for acceptance by the building committee, these amounting in all to 1,900*l.* 14*s.* To this sum, however, the chairman explained, must be added the cost of the furnishing, which would bring the total cost to 2,500*l.*

A new parish has been formed in Llandaff diocese. The parishes of St. Woollos and St. Mark, Newport, Monmouthshire, have yielded a portion within their area to form a new district to be known as St. John the Baptist, and a church is in course of erection.

The Bristol Town Council have resolved to promote a Bill for spending 350,000*l.* on dock extension works at Portishead, in order to meet urgent requirements of the Elder Dempster, Canadian and American traffic and other Transatlantic trade.

Plans for the reconstruction of the interior of South Queensferry parish church, Linlithgowshire, prepared by Mr. Chalmers, architect, have been approved of by the Kirk Session and Presbytery. The cost will be 400*l.*

A new school is about to be erected at Thornhill, about half way between Partick and Whiteinch, on a slope overlooking the Clyde. The proposed buildings will form a square, to be surrounded by four new streets which have not yet been finished. Accommodation will be provided for 1,332 scholars, and the estimated cost of the entire buildings is 18,000*l.*

The plans for an archbishop's residence at Canterbury have now been definitely settled by the Ecclesiastical Commissioners. Additions are to be made to the house that was in former times the archbishop's palace, and some houses in Palace Street are to be pulled down for the purpose of allowing of the extension. The scheme is a large one, and when carried out will greatly add to the architectural features of the cathedral precincts.

The site of the new lunatic asylum for the county borough of West Ham, the foundation stone of which was laid on the 3rd inst., is at Chadwell Heath, Essex, and the building is designed for the reception of 800 patients in various blocks, distributed in the following proportion:—Males: Sick and infirm, 88; acute, 70; epileptic, 80; chronic, 112. Total, 350. Females: Sick and infirm, 112; acute, 90; epileptic, 98; chronic, 150. Total, 450. The administration block is placed centrally, the front portion being occupied on the ground-floor by the chief medical officer's, steward's, and clerk's offices, board room, dispensary, library, &c., the museum and laboratories and assistant medical officer's rooms being on the first floor. At the back are the waiting-room, matron's apartments, recreation hall, rooms for male and female attendants, kitchen, bakery, general stores, laundry, boiler, engine-house, workshops, &c. The main buildings will be two storeys in height, and will occupy an area of about 10 acres, with 90 acres of surrounding land. The foundations have been put in by Messrs. Gregar & Son, of Stratford, at a cost of about 16,000*l.* Messrs. Leslie & Co., of Kensington, have the contract for the superstructure—210,000*l.* In addition to the main buildings there will be a medical officer's residence, also steward's, chief attendant's and married attendants' houses, isolation block, mortuary, lodges, and a chapel to accommodate 550 adults. The total cost when finished will be about 300,000*l.* The architect is Mr. Lewis Angell, the borough engineer of West Ham.



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TRADE NOTES.

We understand that Messrs. Francis Morton & Co., Limited, of Hamilton Ironworks, Garston, are now in a position, as will be seen by our advertising columns, to execute orders. The undertaking has been acquired by a strong syndicate of Liverpool and Manchester gentlemen, and the services of Mr. Malcolm Blair, who was for eighteen years in the engineering department of the Pearson & Knowles Coal and Iron Company, have been secured. In addition to the extensive fencing and galvanising works handed over by the old company, the directors are laying down the latest machinery for drilled girders and bridge work.

The new workhouse hospital, Birkenhead, is being warmed and ventilated by means of Shorland's patent Manchester stoves, with descending smoke flues, and patent Manchester grates.

Billing's Burner Syndicate, Limited, of 180 Wardour Street, W., have supplied a large number of non-mantle incandescent gas light burners to light the Washington Music Hall, Battersea, S.W., which has recently undergone extensive alterations and redecoration.

Messrs. J. Carter, Sons & Co., of Salford, Manchester, have just purchased the business carried on by the late Mr. Edwin J. Oxley for the past seventy-eight years in Port Street, Manchester, as a mill and machine ironmonger and tool maker. Messrs. Carters have been established over forty years in the same class of business.

ELECTRIC NOTES.

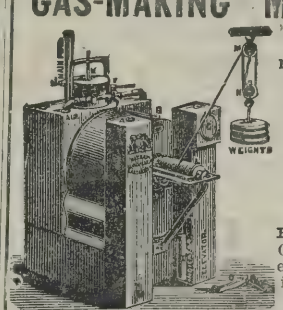
The provisional orders granted to the Charing Cross and Strand Electricity Supply Corporation, Limited, for the supply of electric energy in that part of the St. Giles and Holborn districts lying to the south of New Oxford Street and High Holborn respectively have now been confirmed by Parliament, and only await the Royal assent to become law.

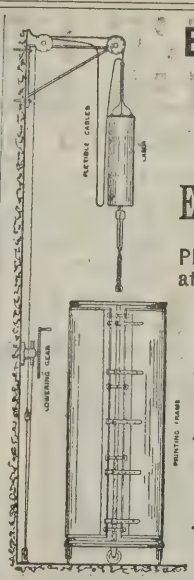
At the request of the Douglas Corporation, Professor Fleming presented a report with regard to the lighting of Douglas by electricity. It is in favour of such lighting by the Corporation, and he adduces the following grounds:—The profits accruing go to the ratepayers; monopolies of the kind should be in the ratepayers' hands; private consumers will be sure of fair treatment; the prospects for electric lighting in Douglas are encouraging, and the extra expenditure produces a superior illumination of which the public get the benefit. The estimated cost is about 30,000*l.*

The committee on electricity of Glasgow Town Council, in their sixth annual report, embracing the year ending May 31 last, state that the gross revenue amounts to 36,360*l.* 14*s.* 10*d.*, and the gross (or working) expenditure to 18,889*l.* 18*s.* 8*d.*, to which is added depreciation written off capital 8,945*l.* 1*s.* 9*d.*, the balance carried to profit and loss account being 8,524*l.* 14*s.* 4*d.* Out of this balance the committee had to meet interest on loans, 4,814*l.* 3*s.* 10*d.*, and sinking fund, 1,537*l.*, leaving a balance of 2,174*l.* 10*s.* 6*d.*, which has been placed to credit of reserve fund account.

An enquiry was held on Friday last, at the Salford Town Hall, into an application by the Salford Corporation for power to borrow 33,000*l.* for purposes of electric lighting. From the opening statement of the town clerk, and the evidence of the borough treasurer, the electrical engineer, and the chairman of the electricity committee of the Corporation, it appeared that 57,770*l.* has been already borrowed for the purposes of the electric installation, and that of the 33,000*l.* now sought to be borrowed, 10,000*l.* is required for land for a large new generating station at Strawberry Hill, Pendleton, 10,700*l.* for electrical mains, and 11,300*l.* for three battery sub-stations in the different districts of the borough, together with accumulators and the necessary machinery for charging and discharging the accumulators. In illustration of the urgent necessity for the provision of land for a new station, figures were given showing the great increase in the demand for the current. In the quarter ended in June 1897, the amount of current sold was 11,513 units, in the quarter ended September 1897 it was 16,234 units, in the quarter ended December 1897 it was 67,876 units, in the quarter ended March 1898 it was 89,898 units, and during the quarter ended June last it was 43,944 units, or getting on for four times the quantity sold in the corresponding quarter of last year. The demand was still increasing, and if one of the battery sub-stations was not completed by the coming winter the electricity committee would be in a fix. The witnesses said they expected to have in the coming winter new customers for 20,000 8-candle power lamps; applications had been received for motive power equal to about 2,000 horse-power, and motive power equal to about 6,000 horse-power would be required to drive the tramcars by electricity. The 10,000*l.* for the land it is proposed to borrow for 50 years, and the remainder of the sum for as long a period as the Local Government Board will allow.

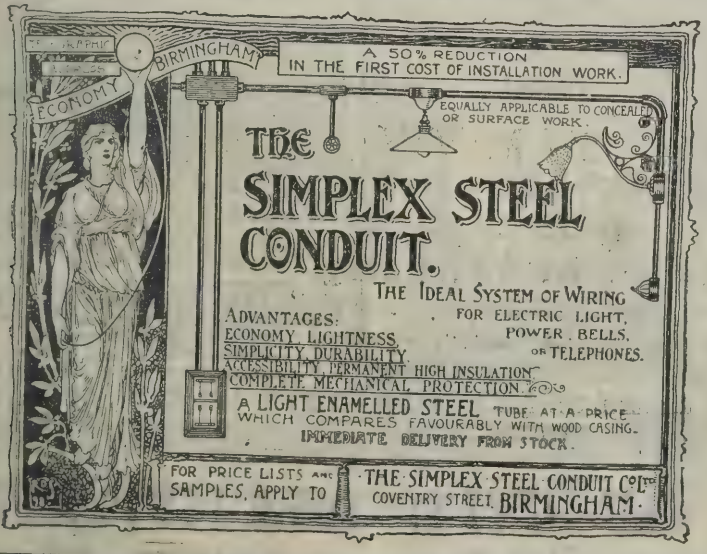
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VARIETIES.

On Monday a new board school was opened at Brynsiencyn, Anglesey, by the Hon. W. Irby, in the unavoidable absence of Lord Boston, who gave the site of the building.

Designs for the new railway station to be erected at Stockholm will be received up to Wednesday, 31st inst., at the offices of the Consulate, 27 Great Winchester Street.

The new chapel which has been erected at Mar Lodge was consecrated on Sunday last in the presence of the Duke and Duchess of Fife. The chapel, which is of Norman architecture, is situated at the back of the mansion, is beautifully designed both internally and externally, and is admirably equipped in every way.

The sixth annual Laundry Exhibition, which will be held at the Royal Agricultural Hall, Islington, from Monday, August 22, to Saturday, September 3, will contain a large number of novelties, and will show a distinct advance in laundry engineering. There will be a beautiful display of finished linen.

Within a brief period a new town has sprung into existence at the south end of Temple, near Kilpatrick. On land which was purely agricultural some eight or ten years ago there now stands a village of nearly 3,000 inhabitants, and when the extensive building operations at present going on in all parts of this district are completed, it is expected the number will be raised to over 5,000. The valuation of the parish in 1895 was 103,000*l.*; at present it is 127,000*l.*—an increase of 24,000*l.*

By the opening of the new and commodious harbour at Cologne an important addition has been made to the works undertaken for the advancement of the German water transit. The ancient fortifications proved for a long time a serious obstacle to any material extension of the harbour accommodation, and it was not till the former had vanished that the contemplated extension could be taken in hand in earnest. The bank of the Rhine has been regulated and turned to account for a distance of over 7 miles.

The City Corporation has decided to expend 2,500*l.* in carrying out certain alterations at the Basinghall Street entrance to Guildhall. These have become necessary through the demolition of the offices of the Chamberlain and the Weights and Measures Department and the erection of the new Public Health offices. A permanent entrance will be made from Basinghall Street, starting from the library and running northward to the new block of offices. This will form a public approach to the strangers' gallery of the Council Chamber and the eastern portion of the Guildhall and its committee-rooms. The entrance will be fitted with gate piers of wrought iron, and the footways and carriageways will be paved with asphalte. The opportunity will be taken to complete two buttresses and to add a new window to the Council Chamber, thus finishing the façade. A connection will also be made between the library and the Common Council Chamber for use on ceremonial occasions.

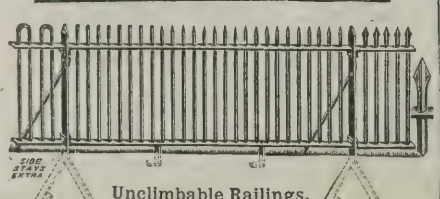
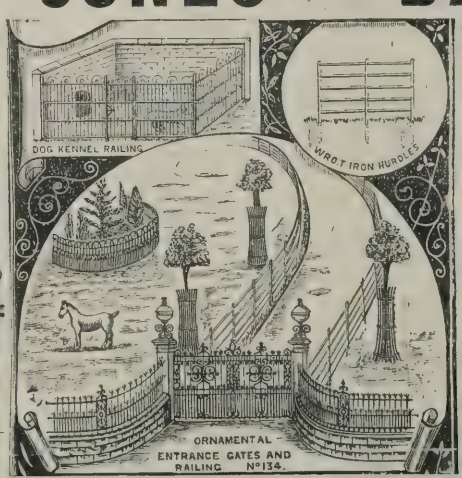
The Barton-on-Humber Waterworks were officially opened last week. The original works were built in 1888. The works consist of boiler, engine, and filtering houses, manager's house, and storage tank, capable of holding 120,000 gallons. The well is 120 feet deep, with a bore 25 feet deeper. There is a set of double pumps, capable of raising 23,000 gallons of water per hour.

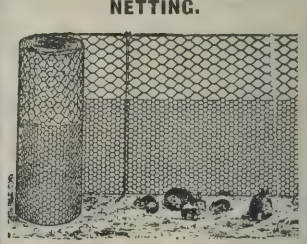
At the annual meeting of the Royal Botanic Society, to be held in the Gardens on the 10th instant, at 1 P.M., Mr. J. S. Rubinstein will recommend that the present system of electing members of the Council, whereby they are practically elected and re-elected year after year by the Council itself, should be brought to an end; and further, that the scientific and administrative branches of the Society's work should be divided, and that each branch should be supervised by a competent manager. He will also propose (1) the establishment of classes for the study of botany to be open to all students; (2) the reorganisation of the refreshment department, and the obtaining of a license for the restaurant newly built in the Gardens; and (3) the erection of a large floral hall to serve as a winter garden, and wherein exhibitions, flower shows, receptions and musical promenades can be held in all seasons and in any weather, architects being invited to send in plans in competition.

NON-INFLAMMABLE WOOD.

Upwards of a year ago—in our issue of May 14, 1897, to be exact—we gave a description of the successful demonstration by the British Non-Flammable Wood Company of the fireproof qualities of their prepared wood. These qualities received abundant recognition here as they had previously done in America—whence the invention comes—and a demand for the prepared wood has arisen, large orders having been given by

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(among others) the British Admiralty. To meet the demand the company found it necessary to erect extensive works. These having been completed were formally inaugurated on the 28th ult., and as they are the first of the kind erected in England and possess some features of novelty, a description will not be without interest.

The site of the works, situate at Wandsworth Bridge, Fulham, consists of an area of nearly 3½ acres on the riverside, and includes a wharf and river wall 100 yards in length, as well as ample stacking accommodation. The works comprise a cylinder-house, a boiler-house, drying-room, chemical store-room and offices, all of which are included in the one building. The cylinder-house is 125 feet long and 48 feet broad, and contains the three treating cylinders, the largest of which is 105 feet long and 7 feet in diameter, and is capable of holding a charge at one time of about 20,000 feet of timber board measure.

Above the cylinders are the large feed tanks, each having a capacity of 24,000 gallons. These tanks are in connection with the cylinders, and hold the fireproofing solution, which, before being run into them, is prepared in a special mixing tank in the boiler-house. A point of interest in connection with these cylinders is the doors or lids. Some idea of the pressure on these doors may be gathered from the fact that the internal pressure at times is between 200 and 300 lbs. per square inch, and the doors have an area of nearly 6,000 square inches. It is necessary, therefore, that some means be adopted which, while rendering the door water tight and pressure proof, will not cause too long a delay in opening and closing it. These requirements have been fully met. The doors, although weighing 7 tons, can be operated in a few seconds by two men working an ingenious system of radial steel bolts. The boiler-house, which is 42 feet square, contains the boilers, which are of the latest pattern steel Cornish boiler of 70 horse-power each. These boilers supply the necessary heat to the cylinders, and the steam required to work the pumps, drying fans and other machinery. The mixing tank for mixing the fireproofing solution is also in the boiler-house.

Since the wood by treatment is saturated to the heart, special drying capacities are required. The company's drying-room is of the latest design, and is 82 feet long by 40 feet wide, fitted with the most modern drying machinery specially adapted for the work required. It has a capacity for nearly 300,000 feet of timber, which can be thoroughly and equally dried in from twenty to forty days according to the thickness.

In the chemical storeroom are stored the chemicals required to manufacture the fireproofing solution. The room is 53 feet long and 42 feet wide, and will hold 200 tons of the chemicals required, which are specially manufactured for the company's use.

The offices include the test-room, in which the chemicals and solution are tested for strength and impurities.

In connection with the building is the traverse table which works on rollers in a traversing pit, and is a convenient method for conducting the cars loaded with wood from the timber yard to the cylinder-house, and from the cylinder-house to the drying-room; and, lastly, from the drying-room to the storehouse.

The ground adjoining the buildings is laid out with lines of rails, on which the cars or trolleys carrying the wood are easily conveyed to all parts of the works or grounds. Owing to the weight of a train of cars loaded with saturated wood it is necessary to employ mechanical power to move them. To effect this a system of sheaves has been inaugurated, around which travels a steel wire rope operated by a steam winch. By this means the cars are moved easily and safely, enabling timber to be taken either from the river or from the road, and discharged either into barges or into waggons, or if necessary into specially constructed storehouses to await despatch.

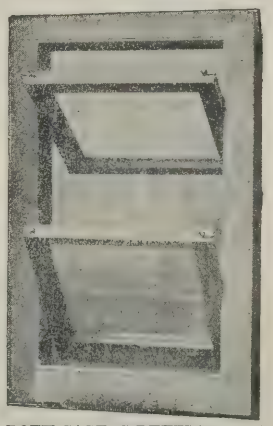
"SCAGLIOL" BUILDING SLABS.

WE were invited last week by the London Portland Cement Company, Limited, to visit their extensive works at Northfleet in order to witness a practical demonstration of the excellent fireproof qualities of their new "Scagliol" building slabs, and we were interested and gratified in watching the behaviour of the material throughout the severe ordeal to which it was subjected, and from which it is not too much to say it emerged triumphant.

A pavilion, measuring some 8 feet by 12 feet, built entirely of "Scagliol" in slabs 4½ inches thick, and divided in the centre by a partition 3 inches thick, was filled on the one side of the partition with wood, shavings, &c., saturated with petroleum and ignited. The "Scagliol" chimney of the building insured an ample draught, and the pyrometer within the building soon registered 1,600 deg., a height which has, we are informed, been considerably exceeded on some other occasions; but notwithstanding this great heat and the playing of the flames no one side of the partition against which they were drawn by

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the action of the chimney, a thermometer inserted in the plaster of the other side registered under 80 deg. until water was thrown on the burning mass, when the temperature at once rose to 160 deg., which was the maximum heat obtained, and it is needless to say that neither some paper which was pasted on the wall nor a muslin curtain suspended against it was in the slightest degree affected. The fire was allowed to burn fiercely for 30 minutes, and on its extinction the building was found to be in every respect intact, while a specially constructed register indicated that the total expansion occasioned by the heat had not exceeded one-eighth of an inch.

In view of this satisfactory test of its fire-resisting capabilities, a brief description of "Scagliol" will no doubt be acceptable to our readers, and for this we cannot do better than make the following extract from the pamphlet issued by the manufacturers :—

"Scagliol is a mixture of plaster of Paris, slaked lime and other ingredients, subjected to a complex chemical treatment, to which sand, coal ash, or other suitable material is afterwards added. For mortaring purposes the dry scagliol 'powder' is mixed with lime-water and used liquid. Scagliol is used for making wall slabs, ceiling slabs, ceilings, chimneys. The most important articles made are the patented wall slabs invented in 1893. Walls made of these slabs are extraordinarily stable, fireproof and light, and will receive preference over thicker and bulkier walls where no great supporting strength is required. Owing to their light weight, scagliol walls may be erected where brick walls would weigh too heavily on the supports. Both wall and ceiling slabs are non-conductors of sound (an extremely important point in the building of flats), and they also afford protection against atmospheric changes of temperature. Their compactness also effectually excludes vermin, and is an absolute preventive of mould, fungus and dry-rot, as there is no vegetable matter in the slabs, the ingredients of which, as already stated, are solely mineral powder and burnt-out coal-ash or the like. In building, the slabs are set up lengthways in single horizontal rows. The joints between them are smeared over on the outside with scagliol mortar (which dries in a few seconds), the superfluous mortar being scraped off with a trowel. Very liquid mortar is next poured into the tube formed between each pair of slabs by the side-grooves, and running downwards it fills in turn the bottom grooves, the grooves and holes at the sides, and finally wells up to the top of the tube, showing that the mortaring is complete, and cementing the whole wall solidly together. Owing to the perfect smoothness and dryness of scagliol walls, they may be papered a few hours after erection, as no plastering at all is required, whereas an ordinary plastered brick wall, which takes a day to erect, would not be fit for papering until ten days or a fortnight after being built. Walls which are to be painted may be suitably prepared in a few hours by rapid plastering with scagliol powder and water. In a wall of 16 to 18 feet in length, the tie of one slab to another is so great that if it has been carefully built the entire bottom row of slabs (with the exception of the two end ones) may be removed without rendering the wall unsafe."

WAGES IN THE METROPOLIS.

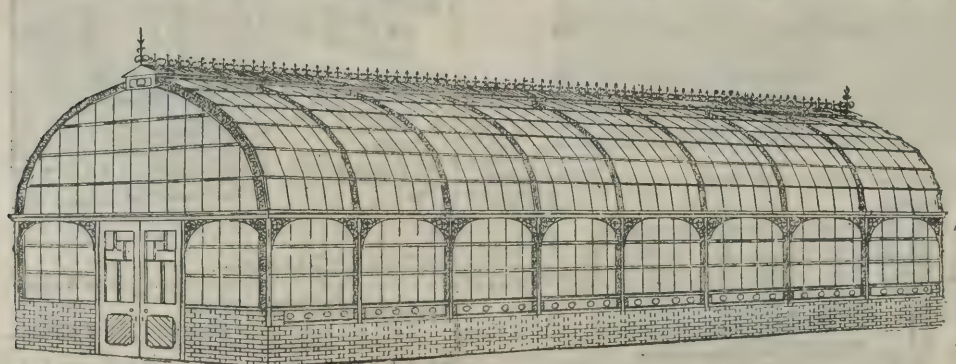
A COMMITTEE of the London School Board recently agreed to make the following recommendation to the Board :—"That where, in any well-defined and extended trades, evidence is furnished to the Board of a recognised rate of wages accepted between employers and employed, such rate of wages be filed in the head offices of the Board, and be inserted in the contracts in like manner to the schedule of wages inserted in the building contracts of the Board."

The committee have since endeavoured to ascertain what are the "well-defined and extended trades" which would be concerned in the running contracts specified in the above list; and in these cases to communicate with the respective trade unions and the associations of employers, where they exist, with a view to obtaining information as to the recognised rates of wages accepted between employers and employed in each case. For this purpose the committee have been in communication with the labour department of the Board of Trade, and have consulted the publications issued by them bearing on the subject, including a list of the trade unions in existence throughout the country. The Commissioner of the Board of Trade (Mr. Llewellyn Smith) has also forwarded to the chairman of the committee a manuscript list of all the associations of employers of labour.

The following statement contains the result of these inquiries :—

1. *Furniture.*—The recognised minimum standard rate of wages for carpenters and joiners is 10*d.* per hour, as given in the wages schedule inserted in building contracts. It appears, however, that some firms engage cabinet-makers to manufacture the furniture. Inquiries have, therefore, been made

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with regard to the minimum rate of wages for cabinet-makers with the following result:—The Alliance Cabinet Makers' Association (representing the workmen), which contains the largest number of members in this trade, states in its printed rules, dated April 1896, that the minimum wage is 9*d.* per hour, and for members working for firms undertaking shop fittings and interior cabinet fittings 9½*d.* per hour, the recognised hours of working being 52½ per week. The Cabinet Trades' Federation (representing the masters) states that "the rates of wages paid by members of the Cabinet Trades' Federation are from 8*d.* to 10*d.* per hour for efficient cabinet-makers, according to the class of work done," and adds that the working hours are 52½ per week. A copy of the statement of the Federation was forwarded to the Workmen's Association, who were asked if they had any observations to make upon it, but no reply has yet been received. The Bennet Furnishing Company, who hold the Board's contracts for dual desks, state that there is no standard rate of wages for cabinet-makers, but a minimum rate of 9*d.* per hour, or 9½*d.* per hour if working as shop fitters. Under the circumstances the committee are of opinion that a rate of 9*d.* per hour might be inserted in the schedule of wages which is now attached to all building contracts, and that this schedule (which also includes carpenters and joiners, painters, glaziers, labourers) should be inserted also in the contracts for woodwork furniture when fresh tenders are obtained.

2. *Locks and Ironmongery.*—There does not appear to be any union in connection with this trade.

3. *Gas Mains and Fittings.*—The work in connection with the fixing of gas mains and fittings is done by smiths and fitters. The Board will recollect that when the schedule of wages was inserted in the building contracts in 1895, there was some discrepancy in the statement forwarded by the masters and men as to the rates of wages of smiths and fitters. The committee find that this discrepancy still exists, the Central Association of Master Builders of London stating that the rates of wages of smiths and fitters are from 9*d.* to 10*d.* per hour, and the Society of General Smiths, Fitters, Bellhangers and Whitesmiths (representing the men) stating that the wages are for each of these trades 10*d.* per hour. The committee are unable to recommend that the trade of smiths and fitters should be inserted in the schedule, and they recommend that a letter be forwarded to the society stating that, so long as this discrepancy exists, the committee will remain under the same disability, but will be prepared to reconsider the matter so soon as a recognised rate shall have been agreed to between the employers and employed.

4. *Iron Founders.*—The Board are not largely concerned in this trade, as it would only apply to grate fronts, tubular boilers and radiators. The work is not done in London, and the British Iron Trade Association state that each district has its own rate of wages. This statement appears to be confirmed by the report of the Board of Trade.

5. *Brushmakers.*—The United Society of Brushmakers (representing the men) forward a schedule, consisting of several pages of piecework prices for the making of brushes, based on various methods of payment, from which it is to be assumed that there is no daily or weekly rates of wages recognised in the trade. This information is confirmed by Messrs. Kent & Sons on behalf of the Master Brushmakers' Association and also by the report of the Board of Trade.

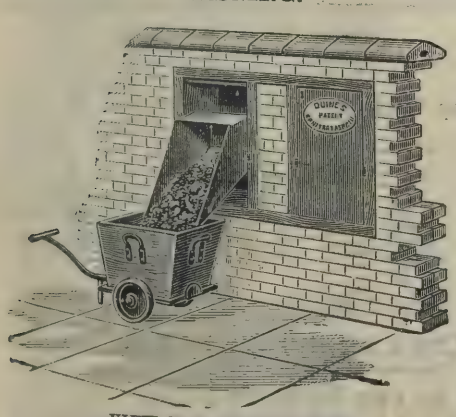
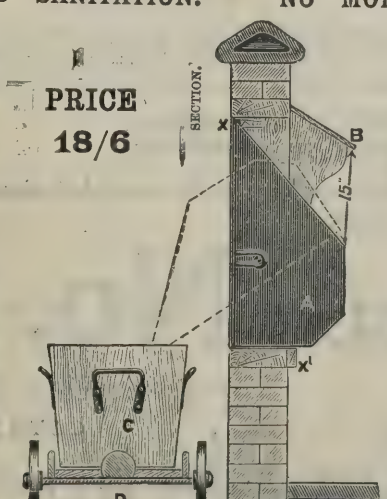
6. *Tar-Paving.*—There does not appear to be any association of masters or men. Messrs. Hobman & Co. state that the wages paid are as follows:—Spreaders, 8*d.* per hour, or 6*s.* to 6*s.* 6*d.* per day; potmen, 6*d.* per hour, or 5*s.* per day for two turns of boiler 10 hours per day. Messrs. Constable & Co. state that the work is executed by a foreman and second layer at fixed weekly wages, *plus* expenses; that additional assistance is supplied by local labourers at rates payable in the respective districts, and that the men work 9½ hours on week days and 6½ hours on Saturdays. Mr. Neal states that the wages are 6*d.* per hour, the day consisting of 10 working hours. It will be remembered that the Board have already decided to treat the contracts for tar-paving and asphalte as building contracts, and as a result the schedule of wages attached to all building contracts will be inserted in these contracts also. The committee, however, do not see their way to recommend the extension of this schedule by the insertion of the wages for the special classes of workmen referred to above.

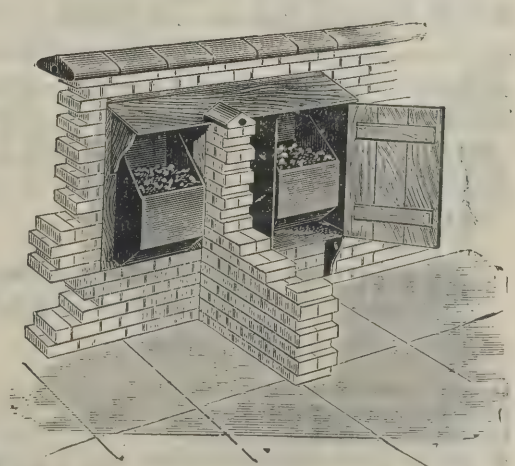
7. *Gas-meters, &c.*—The Amalgamated Society of Tin and Iron Plate and Gas-meter Makers forward a book of 40 pages of piecework prices, together with a list of six firms who, they state, have agreed to recognise these rates. None of these firms, however, are on the lists of contractors who supply ironmongery or gas-meters to the Board.

8. *Clocks.*—There is no association of masters or men in this trade, the work being mostly done as piecework, and paid for according to the quality of the work.

9. *Chairs.*—These articles are made in High Wycombe, Bucks, payment being made by piecework.

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THE BRONZE MEDAL, SANITARY INSTITUTE, 1897.
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VIEW FROM THE STREET.



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THE BIRMINGHAM SANITARY CONGRESS.

The local general committee appointed to make arrangements for the forthcoming visit of the Sanitary Institute to Birmingham met on the 21st ult. The Lord Mayor (Councillor Beale) presided. He said that would probably be the last opportunity which the committee would have of meeting, and he thought the public should know that the arrangements for the forthcoming congress were well forward. They might with confidence, he thought, look forward to a complete meeting in September. Over one thousand delegates had been appointed to attend by the different organisations, and if they added that number to those who are locally interested, they might be sure there would be large audiences. He was glad to know that there would be a most interesting collection of papers.

The officers, in their report, stated that the date fixed for the Sanitary Institute Congress is from Tuesday, September 27, to Saturday, October 1, inclusive. The inaugural address of the president will be delivered on Tuesday afternoon, September 27, and the conferences will be held in Mason University College on Wednesday, the 28th. The mornings of Thursday, the 29th, and Friday, the 30th, will be devoted to the sectional meetings. The arrangements for the Congress are in a forward state. The preliminary programme is now ready for issue, and it is expected that the full programme of local arrangements will be issued early in September. Tickets of membership of the Congress will be ready for issue at an early date, and may be obtained at the local offices, which are situate in the council-house. Holders of Congress tickets will be entitled to attend all the conferences and meetings of sections, to join the excursions, to admission to the exhibition, and will receive invitations to the reception given by the Lord Mayor and to the garden party at the Edgbaston Botanical Gardens. The Lord Mayor and the president of the Congress (Sir J. Fayrer, Bart.) will, in accordance with practice, attend a public luncheon, which will be held on September 27 at the Grand Hotel. The list of subjects to be discussed is an exhaustive one, principal among them being:—"Facts, Fancies and Fallacies of Vital Statistics," by Dr. E. F. Willoughby; "Antiseptics in Food," by Dr. A. P. Luff; "Prevention of Tuberculosis in Regard to Meat and Milk Supply," by Dr. T. M. Legge; "Birmingham Water Scheme," by Mr. J. Mansergh; "Sanitary Defects in Rural Districts: Remedies," by Mr. G. H. Smith; "Deep-well Boring in Warwickshire," by Mr. J. E. Willcox; "Construction and Ventilation of House Drainage," by Dr. A. Bostock Hill; "Natural Purification of Sewage," by Dr. Kenwood and Mr. W. Butler; "The Flora of Sewage," by Professor Boyce; "Dwellings of the Working Classes," by Dr. J. F. J. Sykes; "Cleansing of Persons Act," by Mr. A. Wynter Blyth; "Bacteriological Diagnosis and Infectious Disease," by Dr. Washbourn; "Relation of Medical Officers of Health to Schools," by Dr. Manley; "Precautions Observed in the Ventilation of Sewers and Drains," by Mr. T. J. Moss-Flower; "Teaching of Sanitation in Elementary Schools," by Mr. E. Day; "Sanitary Knowledge for Working Women," by Mrs. Wakeford; "Village Nursing and Infectious Disease," by Miss Wood; "Slaughterhouses in which Continental and English Methods are Compared," by Councillor Parkes, M.P.; "The Removal of Insanitary Areas and the Management of Improvement Schemes under the Housing of the Working Classes Act," by Mr. Peter Addie.

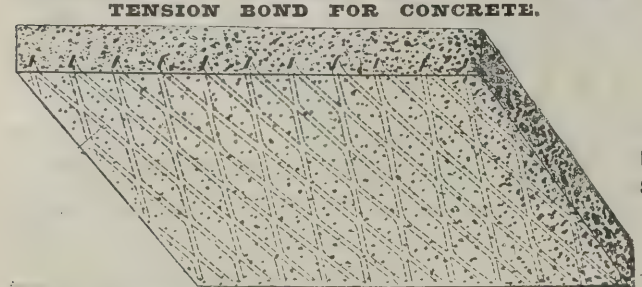
The reception and hospitality sub-committee reported, with regard to the entertainment of distinguished visitors, that the President of the Congress will be the guest of the Lord Mayor. For the reception of the Congress the Lord Mayor has granted the free use of the Town Hall for the purposes of a reception-room. The building will be fitted with writing and reading tables, easy chairs and lounges. The Council of the Midland Institute have granted the use of the large lecture theatre on the afternoon of Tuesday, September 27, for the President's inaugural address, and on the evening of Friday, September 30, for the lecture to the Congress, which will be delivered by Dr. C. Chiles. The council of the Mason University College have also granted the use of rooms in the college for the meetings of conferences and sections.

The report was presented by Councillor Godlee, who moved its adoption.

The excursion sub-committee reported that the following excursions had been arranged:—Friday, September 30—(1) To Dudley Castle and caverns; (2) to Whitacre reservoirs and pumping-station; (3) to Saltley sewage farm. On Saturday, October 1, to Stratford-on-Avon, Warwick and Malvern. Through the kindness of the Earl of Dudley visitors would be received by his lordship's representative, and conducted to the Wren's Nest limestone caverns, which would be reached by boat and water subway. The caverns would be illuminated by limelight, and after inspecting them the party would proceed to Dudley Castle, where tea would be provided. The chairman of the water committee (Alderman Lawley Parker) had offered to

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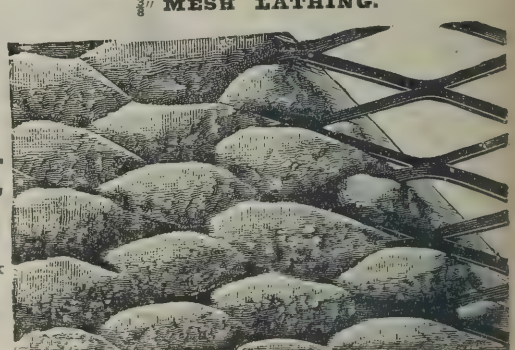
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provide tea for the visitors to the Whitacre reservoirs and pumping-station, and Alderman Baker (chairman of the Tame and Rea District Drainage Board) had extended a similar invitation to the visitors to the sewage farm. The party travelling to Stratford-on-Avon and Warwick, after lunching at Stratford, would proceed to Warwick, where they would be received by the mayor of the city (Councillor Glover) and conducted over Warwick Castle. The authorities of Stratford had consented to waive the usual charges to the various places of interest, and the Earl of Warwick had also consented to forego the usual charge of admission to the castle. The visitors would be invited to tea by the Mayor of Warwick at the conclusion of their inspection. The Lord Mayor had consented to entertain members of the congress at a reception at the Council House on the evening of September 28, and the chairman and members of the health committee would invite the members to the garden party at Edgbaston on the afternoon of Thursday.

In their report of the arrangements of the exhibition the sub-committee state that they have rented Bingley Hall for a month—that being the only suitable building available. It will be necessary to board over the whole of the floor of the hall, to provide efficient electric lighting, gas for the stallholders, water and drainage, and to decorate the interior of the hall. It is estimated that the sum of 1,000*l.* allocated for these purposes will be sufficient to cover the total cost.

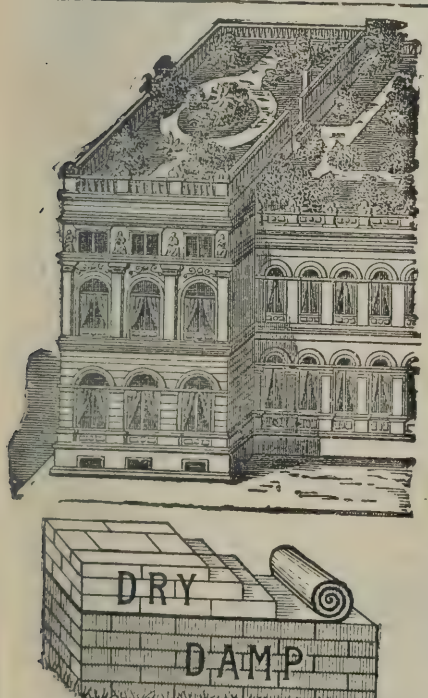
The expenses attendant upon the congress are estimated at 1,500*l.* This sum is made up as follows :—For rent and equipment of Bingley Hall for the purposes of the sanitary exhibition, 1,000*l.* ; for the general local expenses of the congress, 500*l.* A public appeal for guarantees to meet these expenses was issued to members of the local general committee, and widely in other directions in the city and neighbourhood, with the result that 2,005*l.* 5*s.* 6*d.* has been guaranteed by 396 persons.

WORKMEN'S COMPENSATION ACT.

A NEW departure of some importance has just been taken, says the *Times*, by four of the principal offices which undertake insurance against employers' liability under the Workmen's Compensation Act, which came into force on July 1, and under the Employers' Liability Act, 1880, and liability at common law. The Guardian and the Law Union and Crown, which have both for many years transacted life and fire insurance, and the Rock and Sun Life, which are very old life assurance companies, have joined forces for insurance against employers' liability of all kinds, including colliery, mine and quarry owners. This is an unusual course for companies to take in insurance matters, and therefore deserves special mention ; but probably other groups of companies will take similar measures. The more the provisions of the new Act are studied the more onerous the burdens imposed by it are seen to be, and it is found to bristle with difficulties and doubtful points from beginning to end. One feature of special importance is that the compensation that may be claimed under the Act involves in some cases periodical payments during the whole continuance of the life of an injured workman. This makes it essential for employers to satisfy themselves of the financial stability of any companies or schemes by means of which their liabilities are provided against. A company may be sound to-day, but some ten or fifteen years hence its position may be less favourable, and the annuities it has contracted to pay the workman on behalf of the employers may no longer be forthcoming. The same consideration applies with even greater force to combinations among employers, the permanence of which presents many difficulties. It is not easy to see how adequate safeguards can be introduced to prevent the breaking up of such combinations in the course of a few years. Some members of the combination may fail or discontinue business, or may be dissatisfied with the operation of the scheme as working unfairly towards the more careful employers. In such cases employers who had incurred responsibilities to workpeople might find themselves in a serious position.

For those employers, therefore, who place security and certainty in the front rank such a combination of wealthy and old-established companies as is mentioned above may prove attractive. Under the scheme they have adopted these four offices divide the responsibility incurred under the policies issued by any one of them, and so offer to the owners of collieries, mines and quarries their combined protection. An important feature of the scheme that is especially suitable to the risks incurred under the new Act is that employers will participate in the profit realised, and should the premiums charged exceed the cost of the insurance and a moderate profit to the offices the surplus will be returned to the policy-holders. After paying the claims and expenses of settlement, together with a fixed percentage of the premiums for expenses of management, 10 per cent. of the premiums will be taken as profit by the companies, 5 per cent. will be set aside to form

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a "catastrophe" fund, and the balance will be returned to the employers. This seems a perfectly adequate way of solving the difficulty of the rates of premium, about which so much controversy has raged. By the scheme of profit-sharing the rates, which by some people are said to be excessive, can be readily and equitably brought to fair proportions, should experience prove that the people who are likely to be the best informed on the question are wrong and that the rates now being quoted are too high.

The following scheme has been posted up at three collieries belonging to the Marquis of Bute. They are the Bute Merthyr, in the Rhondda Valley, and the Tower and Aberdare Merthyr, in the Aberdare Valley. The scheme has been approved by the Registrar of Friendly Societies, and will be carried out by Lord Bute for the benefit of every miner who is disposed to enter into it :—

Workmen's Compensation Act, 1897.

Scheme under the Workmen's Compensation Act proposed to be adopted at Lord Bute's collieries.

Contributions.—The employer, 5*d.* per week ; the workmen, 3*d.* per week.

Benefits :—

Accidental death :—

Workman leaving no dependent relative	£20	0	0
Workman leaving dependent relative :—			
Funeral allowance	5	0	0
Widow, per week	0	5	0
Each child under thirteen, per week	0	2	6

And the following additional benefits to Widows and children :—

1*l.* on birth of posthumous child.
2*l.* on child going off funds.
1*l.* on death of child.
15*l.* on remarriage if no child.
12*l.* 10*s.* on remarriage if one child.
10*l.* on remarriage if two children.
7*l.* 10*s.* on remarriage if three children.
5*l.* on remarriage if four children.
2*l.* 10*s.* on remarriage if five children.
1*l.* 5*s.* on remarriage if six children.
3*l.* funeral allowance on death of widow.

Non-fatal Accidents.—An allowance from the date of injury, and to continue throughout the first twenty-six weeks of disablement, at the rate of 10*s.* per week ; throughout the remaining period of disablement 8*s.* per week. For any disabled member in receipt of relief whose death does not result from the accident which placed him on the funds, 5*l.* funeral allowance.

Aged and Infirm Miners.—Upon the attainment of age sixty-five, and being unable to work through infirmity, an allowance of 5*s.* per week.

Notice.—Any workman is at liberty within fourteen days from the date hereof to send in writing to E. W. Brabrook, Esq., C.B., Chief Registrar of Friendly Societies, 28 Abingdon Street, London, S.W., any observations he may wish to make upon this scheme, and such observations will be considered by him at the expiration of that time.

Dated this 30th day of June, 1898.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C. from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

15901. John Pollock, for "An improved process for polishing wood, marble, metal and other substances, and machinery connected therewith."

15960. Elmer Ellsworth Van Wie and Joseph John Jacobs, for "Improvements in the construction of building tiles."

16076. Robert Robson Speris, for "Improvements in the construction of portable sectional buildings of wood and iron, or other composite materials."

16780. Beer, for "roofs and roofing."

19105. Maxted and McDermott, for "Brickmaking machines."

20980. Collier, for "Apparatus for pressing bricks, tiles and the like."

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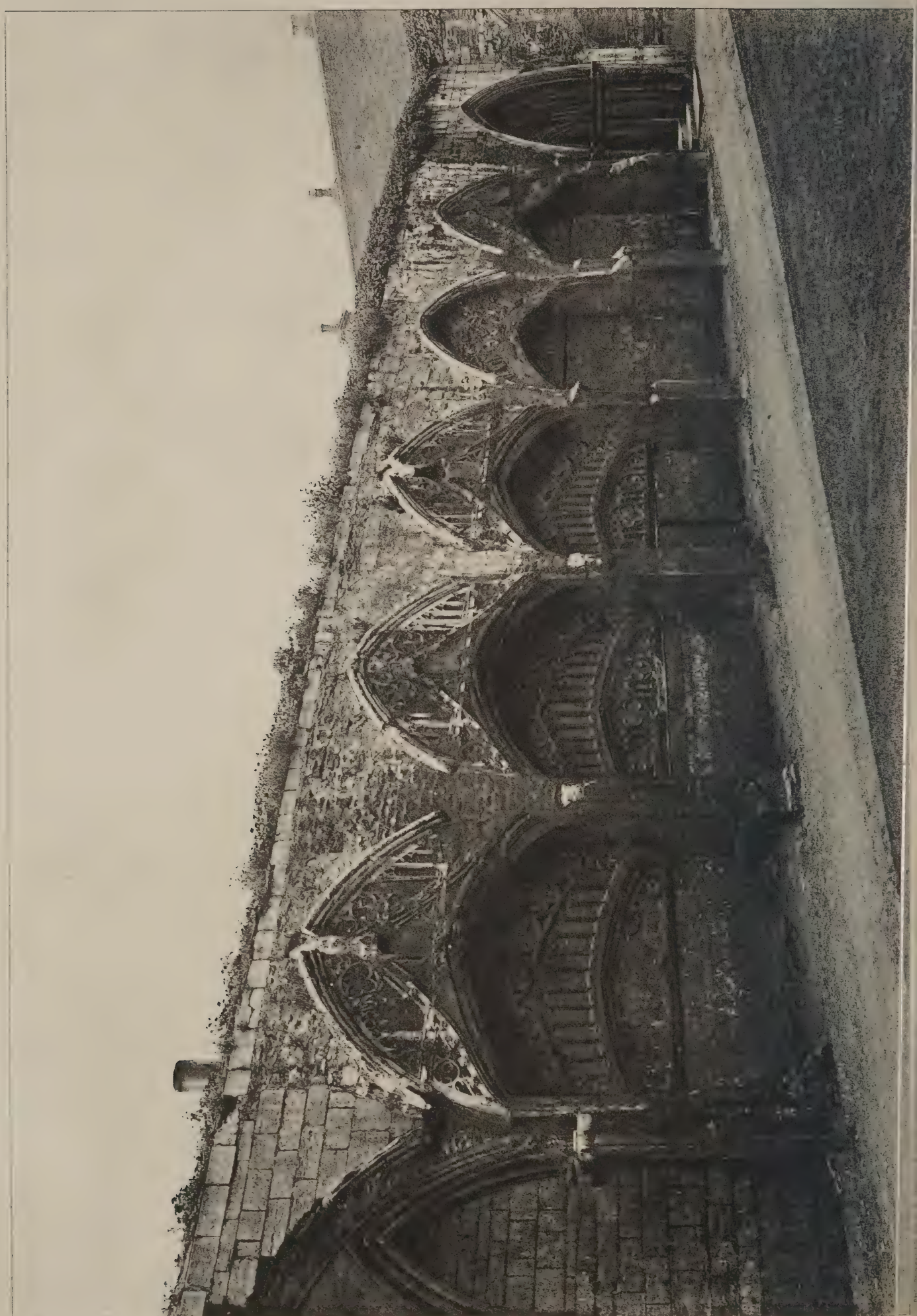
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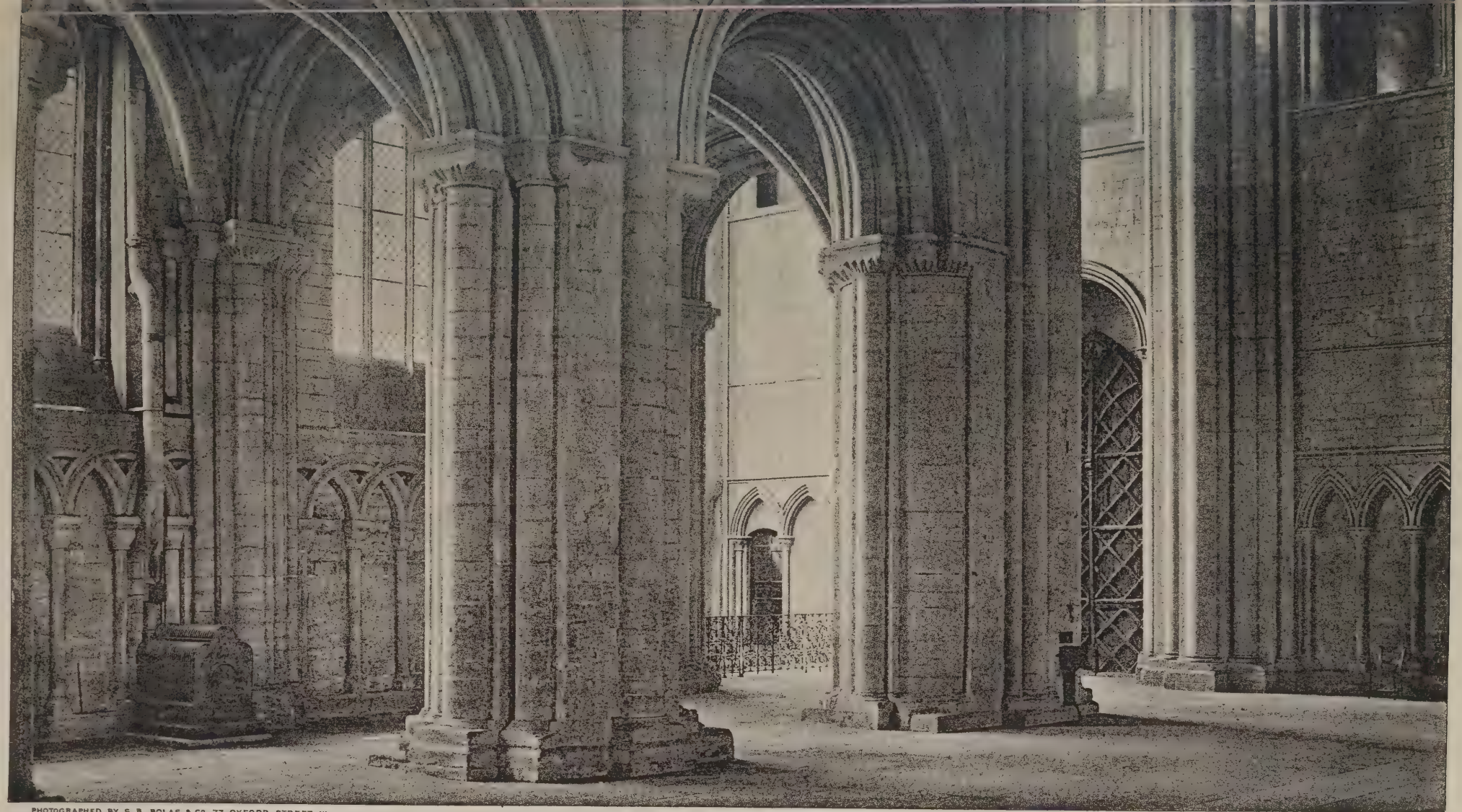


BURGH HALL, BATHGATE.

J. GRAHAM FAIRLEY, F.R.I.B.A., Architect.

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CATHEDRAL SERIES, No. 153.—PETERBOROUGH: NORTH-WEST CORNER OF NAVE.



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CATHEDRAL SERIES, No. 155.—PETERBOROUGH: SPECIMEN OF "CHEESE MOULDING" IN CLOISTER WALL.

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COTTAGES IN THE ETONWICK ROAD, ETON.

ARTHUR H. RYAN-TENISON, A.R.I.B.A.,
EDWARD THORNTON, A.R.I.B.A., } Architects.

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The Architect.

THE WEEK.

Professor Georg Ebers, who died on Monday in his sixty-first year, did much to popularise the works of the ancient Egyptians. His large book on Egypt, which is so abundantly illustrated with German woodcuts, has no rival; but he rendered no less service by presenting his lore in the form of fiction. In his stories he was able to allow himself more latitude and to exercise more dramatic skill than was possible in his archæological volumes. His "Homo Sum" is more interesting as a piece of composition, for when describing the life of the early Christian Anchorites he had not such information as can be drawn from Egyptian paintings and other works. It must be owned that in reanimating the past he was more successful than Théophile Gautier when with the aid of Ernest Feydeau he wrote "The Mummy." Ordinary readers were not able to realise that Ebers was one of the most learned Egyptologists in Germany and that his romances were only recreations after his professorial duties in Leipzig. For nearly forty years he devoted his life to Egyptology, and none of his predecessors made the subject so interesting.

At last the contractors are able to advertise the sale of the materials of Vauxhall Bridge. It was better adapted from its appearance to be considered a Bridge of Sighs than old Blackfriars Bridge. With all its strangeness it only dates from 1816, and was designed by James Walker. The bridge cost 260,000*l.* to build, and was purchased by the Metropolitan Board of Works for 75,000*l.* It was then a toll bridge. Originally it was called "Regent," Lord Dundas, who opened it, having acted for the Prince Regent, afterwards George IV. The association with Vauxhall Gardens was, however, more powerful, and the bridge ceased to be called after the Prince. In 1881 Parliament gave power to repair and alter the bridge at a cost of 40,000*l.*, but no patching could make it suitable to modern requirements.

It is satisfactory to learn that the scheme for placing one of the clerks of the Science and Art Department at the head of what is now called the Royal College of Art has been abandoned. That office has been offered to Mr. Walter Crane, and accepted by him. Artists especially will be gratified by the appointment. Mr. Crane is not one of those gentlemen who contrive to gain reputation by the labour of assistants. He was always a working artist, and he has gained success in those fields which South Kensington should cultivate. He has been and is a decorator, taking the word in a comprehensive sense. His example will excite the ambition of teachers and students who work under him, and the results will, no doubt, be advantageous for the country.

The decision of the Lords Justices in Marrow *v.* Flimby and Broughton Moor Coal and Fire Brick Company, which was given on Wednesday, may have the effect of diminishing the number of actions taken under the Employers' Liability Act by making the position of sub-contractors more clear. A workman who was employed in sinking a shaft for which a man named Evans had taken the contract at a certain rate per fathom was killed. His wife brought an action in the county court not against Evans, but against the Fire Brick Company, and obtained a verdict for 234*l* damages. The Company appealed, and the Divisional Court entered judgment for them on the ground that the man was not in their employment, but in that of an independent contractor. The plaintiff appealed, but without success. The Lords Justices held that the men employed looked to Evans for the payment of their wages, and to him alone, and he was therefore their employer in the terms of the Act. It was asserted that Evans was no more than a ganger, but that theory was not upheld. As no evidence was brought forward to show that the deceased man was a workman in the employment of the defendants when he met with the accident, and as there was no evidence to go to the jury in support of the plaintiff's case, the judgment of the Divisional Court was confirmed. The appeal was therefore dismissed with costs.

The House of Commons should exemplify the latest improvements in sanitation. Acting on that belief, or rather in order to ensure their own safety, the members of the House of Commons have caused large sums to be expended on drainage and other works. But the new works have not extended to the committee rooms, where private Bills are investigated. There are no appliances for the introduction of fresh air or the extraction of air that is vitiated. The occasional exhibitions of ill humour which occur between counsel and witnesses may be partially due to the condition of the rooms, which becomes oppressive especially when there is a crowd assembled, as in the case of Irish Bills.

In Glasgow progress is admired, but we hope there is no intention to imitate the go-aheadness of America by the erection of cloud-capped blocks of offices. A few weeks ago application was made in the Glasgow Dean of Guild Court to erect an eight-storey building of about 100 feet in height in Waterloo Street. The building would appear almost diminutive if compared with some of the sky-scrapers in American towns. However, the Dean of Guild referred to the great height of the contemplated structure, and to the risk to the public and adjacent buildings in the event of fire. The Master of Works, it appears, had pointed out that the water supply would not rise to such a height. Subsequently the neighbouring proprietors lodged objections to the plans on the ground that the titles provided that the buildings on the site should not exceed four storeys above the street, and that the walls, so far as fronting Waterloo Street, should not be more than 52 feet in height. There was a postponement of the decision, but at the last meeting of the Court the Dean of Guild declared that he could not uphold the objections, and that he had no alternative but to grant the permission that was craved. Glasgow is rather notorious for its fires, and apparently there is great risk in raising a building to a height which cannot be controlled by the water supply, although that is of unusual abundance.

A very creditable story comes to us from New York. In that city Messrs. Carrere & Hastings have gained much reputation as architects, and there was no surprise expressed when they obtained the commission for the New National Art Club. They, however, remembered that art is a republic, and they considered that it was invidious to select them without an opportunity was offered to rival architects to try for the work. They accordingly proposed that some other architects of recognised ability should in a friendly way draw lots in order to discover if chance would give the preference to another firm. Generosity was rewarded, for Messrs. Carrere & Hastings succeeded in drawing the lucky billet.

In the parish church of Fittleworth, near Petworth, in Sussex, is a remarkable tombstone which the rector is anxious to have identified by archæologists. He writes:—"It has been described in guide-books as the tombstone of some 'Knight of St. John,' on account of the so-called Maltese cross worked on the upper face of it. If this is correct, there is nothing specially interesting about it. But I have from the first strongly suspected that it is British, and this opinion was unhesitatingly confirmed by Bishop Cornish, sometime Bishop of Madagascar, and formerly curate of this parish. If so, we possess in it an almost unique relic of the ancient British Church in Sussex, an honour which one would be proud enough to claim if it were beyond dispute. The stone was dug up from a depth of about 5 feet in the year 1870, when preparing the foundations of a part of the church then rebuilt. It is of local material—what we call Pulborough stone—about 50 inches long, 24 inches wide at the head, and 20 inches at the foot, and just 1 foot thick. The face has bevelled sides, and on it is worked an equal-limbed cross, 20 inches each way, with a shaft or blade 21 inches long, terminating in a point, the whole very rough and primitive."

CHARLES GARNIER.

ONLY a few weeks have elapsed since, in mentioning the success of a son of M. CHARLES GARNIER, who although an invalid won one of the prizes of the Institut, we referred to the vigour of his father. By one of the ironies of the conditions under which life is held, CHARLES GARNIER, who might easily be considered as a professional athlete, has suddenly passed away, and his delicate son will probably long remain to lament him. Paris has lost not only an able architect but her representative artist. The picturesque figure of CHARLES GARNIER appeared to be a necessity in any assembly where the arts were recognised. It was no less essential in any picture which was intended to suggest the intellectualism of the city for his strongly marked features to be introduced. Many qualifications were required to attain so much prominence, and they were united in the architect. He was a Parisian by birth, he won his position by merit, he was witty, good-natured, capable, but above all, he never made a pretence of taking things too seriously. To the last there was much of the *gamin* about him, and he spoke and acted as if he believed the streets of Paris were equal to a university in affording instruction to all who cared to learn. He had to contend with imperialist, communistic and republic an officials, but he contrived to hold his own against them, and to bring his Opera House to completion without any serious disturbance of his own idea. If within the last year he had to succumb in the arrangements for the introduction of engines for electric lighting, it was owing to a sort of conspiracy of dull people. Against stupidity, said the Greek proverb, the gods are helpless, and GARNIER was defeated because, for the first time, he was compelled to encounter authorities who were deficient in respect for art, and who were therefore invulnerable in a place where even the red-handed communists were susceptible.

But regret for his loss will not be confined to Paris. CHARLES GARNIER came nearer to being an universal favourite than any other man in the profession. There is no country where his name was unknown, and among the expectations which would have hold of foreign architects when arranging a visit to Paris in 1900, the chance of seeing and hearing GARNIER would not be the least important. There was a fascination about him which shows that the routine of an architect's life cannot entirely stifle imagination. There were architects no less able in Paris, but somehow their reputation was not widely spread, or they were supposed to be too potent and grave to allow of any familiarity on the part of a stranger. No artist in Paris had on that account to pay a heavier tax than GARNIER for the reputation he possessed, and his urbanity in receiving those who considered him to be one of the spectacles of the city could not be surpassed by an American President.

But while so many were ready to appreciate the man, they hesitated about giving commissions to the architect. CHARLES GARNIER found, like architects elsewhere, that the designing of a work which cost 35,000,000 francs was no recommendation to lovers of economy, or, in other words, to the majority of people who contemplate building. The late WILLIAM BURGES used to lament half cynically, half sadly, the want of confidence in him which the wealthy people of Cardiff displayed, in spite of the evidence of genius which all could see at the Castle. Numerous as were the new houses and business premises, there was no call on him for a design. The owners were afraid that he would involve them in expenditure on marbles, bronzes, mosaic and coloured sculpture, from which no profit would be derived, and consequently buildings were run up which, if economical, are not beautiful. In the same way CHARLES GARNIER was compelled often to see countless buildings arising which were designed by architects whose reputation did not extend beyond their own arrondissements, while he whose fame was supposed to be world-wide was without a commission in his office, or was merely consulted as a referee. In the latter capacity he too often acted under honorary conditions, especially in connection with projects of the Government or the Municipality. GARNIER was inventive, and he was always glad of an opportunity to talk freely about what was feasible in arranging buildings or fêtes. Once on his hobby there was no care about fees. His influence could be traced in many of the Paris buildings, although next to his great work the only building of any note in the city which he designed was a club on the Boulevard Saint-Germain.

Yet it was impossible to have a better advertisement of power than was to be found in the Opera House. It is by far the most important of modern French buildings, and rivals the Louvre in suggesting what architecture can do to embellish a city. It is not necessary to pay for admission to the Opera in order to appreciate the ability of the architect. The vestibule and staircase which all can see are sufficient. But it may be doubted whether the building will stand the criticism of a later time as well as the Louvre. It was built for an age when costliness was preferred to beauty, and in its excess of ornament, colour and gold it expresses the luxury of a period of decadence. For opera-goers who care to enjoy music it has not the best auditorium of the Continent, but it was intended for the gratification of the eyes rather than the ears. It is a gorgeous house where there are no shams, for in all that dazzles and fascinates the most expensive materials are employed. The public money was laid out as liberally on the building as in an earlier time it was on the cathedral. The Opera House was a type of modern Imperialism ; it was generally accepted as such, and consequently, when the group representing *Dancing*, by CARPEAUX, was desecrated by means of a bottle of black stain, everybody concluded that the writing on the wall was visible, and that Bonapartism was at an end. NAPOLEON III. deserves credit for what was done by VISCONTI and LEFUEL at the Louvre, but what will be most generally accepted as the memorial of his reign was raised by CHARLES GARNIER.

Bonapartism, as we are repeatedly told by its representatives, is only a consolidation of the forces produced by the first revolution, and therefore is based on equality. The Opera House was to be a palace where the Emperor could meet his subjects without the restraints which tradition prescribed in the Tuileries. Consequently there was only one staircase for grandees and "gods." In a constructive sense that is not a safe arrangement, for the French are as liable to panics as the rest of men, and a couple of years ago, when the gasalier in the house broke down, a catastrophe was very nearly occurring on the staircase. But the common approach was supposed to be as effective an aid to Imperialism as a pamphlet by DE LA GERRONIÈRE or ABOUT, although it could not save the doomed system.

In another sense especially the building is a memorial. Many of the Paris improvements were set about with the intention of keeping the working-classes quiet by providing them with occupation. The extent to which subsidiary arts are introduced in the Opera House testifies to the same belief in co-operation as a political agency. CHARLES GARNIER'S ability is seen in the manner of combining them to produce a harmonious result. He resembled the conductors who were subsequently to officiate within the house, and make a variety of performers subservient to their desires. They could not be successful without acquaintance with the capability of every instrument, and GARNIER'S employment of sculpture, painting, gilding, reveals the genuine architect, the chief of the artists who controlled because he understood. In most theatres what is ornamental too often suggests something that is applied, and could often be removed without much detriment to the architecture. The busts, masks, symbols, amorini, musical instruments are as necessary to the completion of the architect's meaning in the Paris Opera House as the larger groups of sculpture. They are not supplementary, but seem to grow out of his original idea and to be inevitable. The manner of employing sculpture is enough to demonstrate how much was gained by GARNIER through his early exercises in the art. Notwithstanding the amazing variety which comes from the introduction of so many decorative elements, the whole building impresses one as no more than the realisation of a first thought.

In fact, there was so much haste about the earlier stages of the project, there was little time allowed for experiments or alterations. When the site became available through the street improvements, the Emperor appeared to be afraid it would be utilised for a building of a different sort. The competition was hurried. When GARNIER was selected he made a sort of flying visit to foreign theatres before preparing definite plans. But, owing to the expedition employed,

in less than nine months after the announcement of the competition the foundations of the building were commenced. In 1861, when so onerous a task was undertaken by CHARLES GARNIER, he was in his thirty-sixth year. His training resembled that of the ordinary Prix de Rome winner. He had travelled in Italy and Greece, had measured and prepared plans for a Temple of Jupiter, and made a series of admirable water-colour drawings of ancient buildings in Naples and Salerno, to illustrate a book by the DUC DE LUYNES, which was never published. Still he was poor and without patrons. On his return to Paris in his twenty-ninth year he was glad to serve under BALLU in the restoration of the beautiful Tour de Saint-Jacques la Boucherie in the Rue de Rivoli, and finally was admitted among the municipal architects. But he was not favoured with opportunities to display constructive skill.

He was not long engaged at the works before his courage was tried. It was necessary to make excavations to a depth of about 70 feet, and in the course of the work springs were tapped which seemed to be inexhaustible. A concrete bed was laid under water, and it was not until towards the close of 1862 that the masonry could be commenced. GARNIER had a temporary house and offices fitted up on the site, and there he lived until the works were advanced. Under his constant supervision the construction was carried on, and after seven years the building was ready for roofing. Then the war with Germany commenced and the operations were suspended. The building was not, however, allowed to remain idle. French ingenuity was often exerted on it. The Opera House served as a military store, a hospital, a prison, a barrack, an observatory, &c. It could not be employed for such various purposes without suffering injury, but the wonder is that it was spared from destruction, for it was the most imposing building of the Empire. When peace was restored CHARLES GARNIER persuaded the Government to resume the works, and in January, 1875, the building was opened for performances. St. Paul's Cathedral is not stronger evidence of WREN'S toughness in meeting opposition with equanimity, and in overcoming difficulties more annoying than those arising from materials, than is the Paris Opera House for CHARLES GARNIER. Some of the battles he had to engage in are easily inferred by all who have had to encounter officials, whether temporary or permanent, for they are alike all the world over; but whenever the particulars are made known they will convince Frenchmen of the bravery of the artist they have lost.

His theatre at Monte Carlo is on a very small scale if compared with the Paris building. It is, however, almost as characteristic in expressing showiness and lavish expenditure. CHARLES GARNIER was essentially the architect for princes and millionaires who were indifferent to economy. For that reason the *bourgeoisie* were afraid to trust him. His remarkable series of buildings illustrative of the History of the Habitation, which were set up in the International Exhibition of 1889, served his interest as little as his theatres. Archæologists and architects of course did not accept the houses as indisputable examples of ancient dwellings from the days of the troglodytes, and the honest citizens concluded that CHARLES GARNIER was a scenic artist who preferred flimsy construction.

The habitations were however a proof of the thorough knowledge of architectural forms which GARNIER possessed. Although he never posed as an erudite scholar he was acquainted with everything that was even remotely related to his art. His books on the Opera House, theatres, habitations and art in general reveal more literary skill than is commonly found with men who do not make a profession of the *belles-lettres*. He was a capital after-dinner speaker, whose words set the table in a roar, especially when they took the form of verse and were pointed by expressive looks and gestures. In our reproduction of the large wall-painting, the *Union of the Arts*, by the late GUSTAVE BOULANGER, a portrait of CHARLES GARNIER is introduced, and he forms part of a group consisting of ALEXANDRE DUMAS fils, GERÔME, GUILLAUME, CABANEL, &c., none of whom could consider an intruder the able artist who passed away exactly fifty years after he had won the coveted Prix de Rome.

THE IDEAL IN ART.

THE expression "beau-ideal" is not often heard nowadays. Although no longer in use few would have the courage to say that the aim, quality, creation, or fancy signified by the words had ceased to exist. What has happened is that various other terms are now substituted for beau-ideal, and it must be said without any loss or gain to whoever employs them. The old expression occasionally helped to lead artists and amateurs astray, but with a different phraseology we are not necessarily secure about always keeping on the right track.

What did the beau-ideal signify? We cannot always be sure about the definitions which were accepted by people who lived in a past age, but apparently there were at least two significations for the phrase. One would mean the more or less hazy vision of a form which appeared before the mind's eye, but which could not be always represented by the hand. When RAPHAEL said his figure of GALATEA was to be painted from a mental conception alone, when DA VINCI allowed the space on the Milanese convent wall to remain a blank because he was unable to realise the vision of the head of CHRIST, which was always coming and going; when MULLER the engraver first thought of suicide while engaged on his plate of the Sistine Madonna, because his hand was powerless to represent the black and white version of the original, with which he was haunted, they all had a perception of a certain form. One school of psychologists would say the artists must have seen such a form with their bodily eyes, but neglected the opportunity to make a sketch of it, for there could be nothing in the mind which did not enter through one or other of what JOHN BUNYAN called the Five Gateways of Mansoul. FUSELI was of the same opinion when he asserted that "our ideas are the offspring of our senses: we are no more able to create the form of a being we have not seen, without retrospect to one we know, than we are able to create a new sense."

The beau-ideal was also said to be the form which was made up of the most perfect parts of various objects or individuals of the same species. The Greek painter who was allowed to have a bevy of maidens in order to compile a single figure from them, was supposed to have gone in the right way to attain the beau-ideal. If he had first imagined a figure and then copied the models, as it were, for details, the Greek would not differ much from RAPHAEL or DA VINCI, except that his idea of attaining perfection was more mechanical.

When it is said that Greek statues of the great period or of the Periclean age are better adapted to help a painter or sculptor towards perfection than a collection of beautiful women, we see the influence of theories which treated painting and sculpture as if they were branches of mathematics and bore no relation to life. What is the ideal, the spiritual, the most perfect, but an extension of the geometric truth which believes that a line can have length without breadth, and a surface length and breadth without even infinitesimal thickness? It was a similar doctrine which affirmed that in architecture certain proportions were arrived at and were to be considered as infallible as long as men required to build. It was not realised that the proportions which were suitable in a region where the sky was always clear would produce a different effect in a country like England, where the light is often dim, and where the surroundings of an object must be considered in order to prevent an appearance of distortion. Men's eyes also are subject to changes, and it is not impossible that the impression which Greek statues and buildings make on us is not identical with that which was enjoyed by the Athenians when the works were first produced. REYNOLDS was honest enough to confess that he did not appreciate the works of RAPHAEL when he first saw them in the Vatican, and in spite of all he said in praise of them at a later time, they do not appear to have had the least influence on his practice as a painter. If the fear of being considered as wanting in taste did not prevent men from being frank, a great many of them would side with REYNOLDS in speaking of the Roman pictures, and would be no less doubtful about the perfection of works by more ancient architects and sculptors.

But there is another cause besides those which arise from difference in atmospheric conditions and physical

changes to prevent us from enjoying the old ideals. It is the love of plain, simple truth. Why were the Tanagra statuettes prized so highly? Because in them it was imagined reality was resuscitated. The little figures which were deposited in the cemetery were assumed to correspond with modern photographs and to represent everyday life and the fashion of the time. The ideal Venuses lost much of their fascination, for we were not akin to them, while the statuettes were taken to be relations of our sweethearts and daughters. In the same way the Egyptian portrait statues of scribes and overseers were preferred to the hosts of figures which were idealised according to hieratic canons and were executed under the eyes of the priests. It was a satisfaction to make acquaintance with the brawny overseer, for he corresponded with the builders' foremen, who stand no nonsense from anyone employed under them, while the figures usually represented by the Egyptian sculptors and painters have as little individuality as geometrical diagrams. Men have been so long the victims of theories, by a reaction they prize everything which bears the stamp of reality. They would therefore be better pleased if they could have veritable portraits of the five Croton girls who posed as models for Zeuxis than the Helen of Troy he deduced from them. Few modern painters can be so fortunate. Their goddesses must generally be fashioned with the aid of a single model, and the idealisation often consists in transforming into their original condition the lines which time has taken long to form.

It has been supposed that the progress of art is from the real to the ideal. First, objects are represented, if not with servility, at least without much discrimination; secondly, there is choice of objects; and thirdly, there is an imitation or collection of elegant extracts. In truth, the earliest art comes nearest to the ideal, for the representations are not faithful to the characteristics of the originals. If little reality was attempted by the Greek sculptors and painters, it was not altogether owing to their ambition to surpass nature in order to suggest the appearance of the gods and deified heroes. The aversion to the introduction of portraiture in such subject was also potent with the artists. The inane smile we see on the faces of the Æginetan figures and the expressionless features of the statues of a later period could not have been dictated by any canons prepared by artists. The peculiarities were more likely to be due to amateurs who, if wanting in taste and good sense, were possessed of power to make opponents suffer.

The Æginetan warriors were no doubt supposed to correspond exactly with the beau-ideal, and the sculptors may have imagined they were preparing models which after ages would be proud to follow. But the beau-ideal is, like everything else, subjected to the universal law of change. The figures that seem to delight in being transfixed with arrows were not more of a canon for all time than the special work of Polycletus, which was made with that intention. The Greeks corresponded with ourselves. They sought after novelty, and although they were restrained from possessing so many new things as we enjoy, they at least made it plain to all but the prejudiced that they were not conservative to excess.

The variations of sentiment about art which were exhibited during a period of little more than a century is enough to suggest that, with excellent materials to select from, there is no determining of an ideal. According to Winckelmann, there was no work to equal the *Apollo Belvedere*. He thought it was more of an abstraction than a piece of marble, the image of a spirit rather than a man. But it was supplanted in the favour of dilettanti by some of the Parthenon figures. The *Venus of Milo* had then its turn of supremacy, until the *Hermes* of Praxiteles was excavated. We hope many another masterpiece will appear to contest for acceptance as the beau-ideal.

If, as the psychologists teach, beauty is the expression of moral and spiritual perfection, what morecan be done at any time by mortal man than attempt an approximation towards that end? There must, therefore, be as many ideals as there are notions of what that perfection means. No two philosophers would agree in their definition of it, or of beauty. We may say that beauty consists in unity amidst variety, in power and order, in force alone, in the removal of the superfluous, in the imparting of qualities by which a beautiful thing becomes not only lovable but loving; but the attempt to define is like wandering in a maze without a clue and without a light. Followed out properly, what is called the science of the beautiful, a science which is exceptional in having nothing certain, embraces all philosophy and ethics—nay, it is by some made to comprise theology. It is melancholy to attempt to lay down a general law which will equally apply to things of which we can have no real cognisance, as well as to buildings, pictures and statues. It is much better to assume that we can only do what pleases us as individual legislators, and to allow others equal liberty. It is unsatisfactory, perhaps, but there must be as many beau-ideals as there are individuals.

THE ROYAL EXCHANGE.

UNDER the auspices of the Gresham committee and the Mercers' Company, Messrs. W. Cubitt & Co. are preparing niches on the walls of the ambulatory of the Royal Exchange for the reception of further mural decorations. The following scenes will form the subjects of the various designs:—William the Conqueror granting a charter to the citizens of London (Mr. Seymour Lucas, R.A.), the gift of the Corporation; the opening of the Royal Exchange by Queen Elizabeth (Mr. Ernest Crofts, R.A.), the gift of the Mercers' Company; the Crown of England being offered to Richard III. at Baynard's Castle (Mr. E. Goetze), the gift of Mr. Carl Meyer; a scene from the Great Fire of London, 1666 (Mr. Stanhope Forbes, A.R.A.), the gift of the Sun Fire Insurance Company. These pictures are fixed by Messrs. Charles Roberson & Co.'s new process of "Marouflâge," and are painted on a new medium-termed spirit fresco. The colours ground in this medium are used in a somewhat similar manner to ordinary oil colours on a specially prepared, highly-absorbent canvas, which, when the picture is finished, is laid solidly on the wall. It is expected that the Lord Mayor will unveil these panels in September, and it is stated that the cost of each is upwards of 500*l*.

HUTTON CASTLE, BERWICKSHIRE.

FOR some time past Lord Tweedmouth has been carrying out improvements upon the ancient historic building known as Hutton Hall, Berwickshire, the name of which has been changed to Hutton Castle. Hutton Hall is one of the most interesting edifices that remain in the soil of Berwickshire. Long under the feudal influence of the noble family of Home, it was granted by its chief in the fifteenth century to the Kerrs of Samuelton. It was one of the places in the district stormed by Gloucester during his disastrous inroad in 1742. After the fatal battle of Flodden it came into the hands of Home of Manderston, one of the Seven Spears of Wedderburn alluded to in the "Lay of the Last Minstrel" as coming to the aid of Branksome. He was deputy warden of the Marches, and his armorial bearings are still displayed on a mouldering stone over the principal doorway. The place is alluded to by Ford in his dramatic chronicle of Perkin Warbeck, who makes Surrey, the English general, taunt the Scots with allowing its glory to be diverted and yet not peeping abroad to retaliate. In later times it became the possession of the Johnstons of Hilton, a family who, deriving their origin from Annandale, rose, flourished and decayed on the soil of "The rich Merse." Here for a long time they maintained their territorial state. Within its walls, in all probability, was born the fairest daughter of the race, the celebrated Miss Lucy Johnston, afterwards Mrs. Oswald of Auchincruive, whose amiability and accomplishments inspired the muse of Burns in his "Wat ye wha's in yon toun," and whose mild, delicate and beautiful features, as they look from the canvas of Raeburn, are yet potent to raise the admiration of one sex and excite the envy of the other. There are other and not less interesting traditions relating to this old and time-honoured pile, but it would require much space to recount these in detail. Lord Tweedmouth has effected extensive additions to the historic building, so as to make it a residence in Berwickshire during certain seasons of the year, and Mr. G. George Duns, of Duns, the architect, has displayed great skill in carrying them out in order to preserve as much as possible the original character of the architecture. The old tower has been made habitable, the centre portion of the building has been raised one storey and four pepper-box turrets placed at the corners; the west wing has been extended and a new range of kitchen offices added. Lord Tweedmouth has made two new approaches to the building, the one from the west by way of Berwick or Chirnside across the Whitadder at the Blue Stone Ford; and the other from the east of the castle by way of Berwick, or through the Whitadder by Edington Mill Ford. At the west drive a handsome lodge has been constructed

ROYAL SOCIETY OF ANTIQUARIES OF IRELAND

THE Royal Society of the Antiquaries of Ireland last week visited the ancient territory of Hy-Fiachra, of which Ballina, co. Mayo, may be said to be the modern capital. In the immediate neighbourhood of the town the districts extending from both sides of the river Moy are studded with memorials of prehistoric and Christian times. Cromlechs, primitive churches, holy wells and tumuli are quite numerous within a circuit of a few miles.

The ancient church of Kilmore-Moy and its surroundings received much attention. This memorial is coeval with the early days of Ireland's Christianity, being founded by St. Patrick. The site is full of associations of the national apostle. A huge stone, which crowns the summit of the declivitous graveyard, is inscribed with an encircled cross, wrought, it is said, by the saint's own hand, and identified as being the "standard of salvation" referred to in the annals of his life, displayed by him on this hilltop when he first visited Hy-Fiachra. The sacred emblem is most distinctly traced, and reveals a striking amount of ornamental detail in its design. Beside the roadway leading to the churchyard is the Saint's Well, still greatly venerated, while at a little distance from it, beside the waters of the stream flowing from the well, is the site of the Princess Ectra's tomb, which the annals poetically tell us stood close to the sparkling spring, "a fitting place for the grave of a queen." The cromlech or tomb of the Meels is a ponderous table-stone some 10 feet in diameter resting on three single supports. A paper was read by Monsignor O'Hara, dealing at length with the tragedy this memorial commemorates. Though miles apart, it stands in sight of "Ardnareagh," on "the Hill of Execution," where four chiefs suffered death for murder. Subsequently the ruin of the old Priory of St. Augustine was inspected. The western doorway, formed of deeply-splayed mouldings, wrought in limestone and ornamented with crockets, is an example of late fourteenth-century work. Almost adjoining is the Roman Catholic cathedral, the spire and tower of which form a striking feature in the general view of Ballina. Interiorly the effect of the building is imposing, the characteristic depression of its style being somewhat increased by the pervading gloom caused by the stained-glass with which the cathedral is filled.

Rosserick Friary, some four miles distant from Ballina, was next visited. The drive thither, from the varied character of the scenery it affords, is strikingly impressive. The ruins of Rosserick are in excellent preservation, the foundation being rather late, dating from 1400. When the priory and church were erected and endowed by a member of the Joyce family for the Third Order of St. Francis, the members of this grade of the Franciscan Order, being of the less strict observance, devoted themselves to literary pursuits and education of youth, in addition to their spiritual ministrations. At Rosserick the Franciscans, as in many other places, seem to have retained possession of their home for a considerable time after the general suppression of the monasteries, as the schools existed down to the close of the sixteenth century. The priory and domestic offices are of the usual type adopted by the Franciscan Order. Here, however, the tower and chancel arch, which in many other convents were insertions or afterthoughts, form part of the original plan. From the excellent workmanship and materials used the effects of time have been frustrated. Though roofless, many portions of the building are as perfect as if they had only just been vacated.

The next object of interest included in the excursion was Moyne Abbey. This convent (as Franciscan settlements are correctly designated) is beautifully situate, being built close to the sea, at the mouth of the river Moy, about a mile distant from Killala. This once magnificent church and group of conventual buildings were founded by a member of the family of De Burgo, A.D. 1462. The ancestors of this illustrious house were among the Poitevin favourites of Henry III., who secured large possessions from their royal patron in many parts of Mid-Western Ireland. The military achievements of the first De Burgo were often marked by the devastating of the Church lands and monasteries of the ancient Irish, while with rather consoling inconsistency they are frequently recorded as founders of religious houses, and as giving many illustrious members to the Dominican and Franciscan orders. De Burgo, Bishop of Ossory, the Dominican historian, came of this noble line. The family is now represented in the earldom of Clanricarde. The situation of Moyne Abbey allowed ships of heavy tonnage in its time to moor at high water close to its very walls, opposite the island of Bartagh. The plan of the convent being so distinctly traceable, the Moyne may be said to supply the key to the construction of many of its more ruinous sister houses scattered so numerously over Ireland.

Thence the excursionists trended towards Killala, which ancient town lies north of Ballina, at the head of the bay that bears its name. The line of coast adjacent is varied and broken by bold headlands and deeply-indented bays and creeks. Between Kilcummin and Downpatrick Heads stretches a fine tract of country known as North Tirawley, on the shore of the Atlantic seaboard here. About a mile from the shore was part of the conventual property, and although so far distant could be reached by fjord at low water. In the thirty-seventh year of Elizabeth's reign this friary and its possessions were granted to Edmund Barrett at the annual rent of five shillings. However, as we have said regarding Rosserick, the Franciscans occupied the place for many years afterwards, paying an annual rent to the grantee. This was discharged by Sir Thomas de Burgo, knight, the munificence of whose family to the friars of Moyne continued from the beginning to the end. The vicissitudes and sufferings of the last inmates of this convent fill some of the saddest chapters of the chronicles of the Irish Franciscans. From an architectural point of view Moyne Abbey is most interesting. There is much in it to remind travelled visitors of Adare Convent, co. Limerick. Like the latter, as one lingers over all its features of loveliness, little touched by time, it seems as if some mysterious hand has just stolen the roofs away, and might perhaps return and drop them back in their place once more.

THE EGYPTIAN BARRAGES WEIRS IN 1898.

AS a commencement to the work of building the subsidiary weirs at the Barrages near Cairo, which will be taken up vigorously on the falling of the Nile after the flood of this year, some very interesting work has been done this summer. These weirs are designed, says the *Scotsman*, to hold up about half of the total head of water that will in future come on the Barrages when they are closed. The level of the water upstream of the Barrages will be allowed to rise 2 metres higher than is possible at present with the lowest water level downstream. This will give a total difference of 6 metres between the water-levels up and downstream in place of the present 4 metres. As 3 metres of the full head will be ponded up between the old and the new works, the actual strain on the former will be diminished, while its efficiency will be largely increased. The new weirs will traverse the river about a kilometre below the present works, in lines parallel to them.

The experience gained during the repairs to the Barrages, carried out immediately after the British occupation of Egypt, showed that the founding of a large work on the bed of the Nile at that neighbourhood would be a very difficult and costly undertaking, if carried out in the ordinary way by drying the foundations. It was decided that the core walls, on which the water-tightness of the structures will depend, should be built without lowering the surface of the water. The weirs are composed of a mass of dry rubble, with gradual slopes on the up and downstream faces. In the heart of the weir, and at the foot of the downstream slope, are two cores of solid masonry. Downstream of the lower wall is a large mass of stones, none of which are less than 2 tons in weight. These last will take the scouring action of the water passing over the weir, and will keep the river from cutting back the bed under the weirs. For the building of the walls the bed was first dredged out to the required depth. A case of sheet piling, of the exact dimensions, of a length of about 9 metres of the wall, was fixed in position and strengthened by large piles driven down outside. This was filled to the surface of the water with stones, and cement grout was run in by means of vertical perforated pipes, standing at intervals in the mass, in order to fill up all the interstices and to form a solid block. To prevent the grout finding its way through cracks or joints in the piling, the sides of the case were lined with a large continuous sheet of sacking. The foot of this was turned back along the bottom, so as to make a tight joint with the ground. A diver arranged this sheet under water, placing stones on the turned back portion to keep it in place till the mass of rubble was tipped in. The cement was mixed in long iron troughs, radiating to the pipe into which it was to be poured. It entered the trough at the outer end, and water was added. As it was turned over by men stationed along the sides of the trough, it found its way to the inner end, where it was lifted out in a liquid state, in a convenient position for being at once poured down the pipe. It was endeavoured to keep a steady stream of cement flowing down the pipe, and to this end a smaller pipe, with no perforations, was kept inside the other, discharging the grout just above the level of the cement already down. This small pipe had a funnel to facilitate the pouring of the grout, and a wire screen to keep lumps of unmixed cement and pieces of paper from the lining of the cement barrels from going down.

When one block was finished and the cement had set the piling was removed and the case set up further along the line of the wall, the end of the first block now forming one side of the box. The same operations were then repeated. Various mixtures of different sizes of stones were tried, with a view to lessening the contents of the spaces between the stones and economising cement. At the same time care was taken that

the interstices were not choked up so much as to prevent the grout from finding its way to all parts of the mass. This was seen by the way the level of the cement rose in other pipes than the one which was being filled at any moment. The experience thus gained will prove very useful when the work is attacked on a large scale next year. At each side of the main wall the triangular space formed by the side of the wall and the sloping side of the dredged trench was filled with good clay to a height somewhat above the original bed of the river. On this the dry rubble was laid, the weight of which, pressing on the clay below, will tend to consolidate it and to stop leakage below the wall. Above water the building was done in the dry in the ordinary way. Only about a fifth of the length of the weir across the Damietta branch of the river has been done this year, and a cross wall has been run between the two others to finish off the season's work strongly.

The work will be left in this condition to stand the action of this year's flood, and an examination on the falling of the water will show whether the trust placed in this simple and expedient method of construction has been justified.

PROFESSIONAL ETIQUETTE.

THE following is the substance of suggestions offered by the Société Centrale of French Architects for the guidance of members on their relations with other architects, contractors and clients :—

As "the artist who designs buildings, determines their proportions, arrangements, decorations, causes them to be erected under his orders and controls the expenditure upon them," the architect practises a liberal profession, not a commercial calling. His position is incompatible with that of contractor, manufacturer or furnisher of material in any way, and he is compensated entirely by fees to the exclusion of every other source of emolument resulting from his work or the exercise of his powers. If, therefore, he has taken out a patent for a product connected with building he does not exploit it himself, but sells it and all proprietary rights in it. Not being engaged in a commercial calling, he does not have any dealings which involve discounts or commissions, either received from those who wish for his patronage or given by him to agents and solicitors for capitalists or others whose patronage he himself desires. Nor does he seek publicity by advertising his capabilities in a commercial manner. In general, the architect must have no dealings with anyone of those dealings must be a secret between him and his clients, either actual or prospective.

The architect refrains from hostile criticisms, and does not aim at a situation or connection obtained by a *confrère*. If by the death, retirement or dismissal of an architect another architect is called to take up his work, the new architect considers himself as the guardian of the honour and interests of the former one. An architect recognises the condition of brotherhood in the profession ; he is careful to let the rules of consideration between equals govern all transactions between architects, such, for example, as arranging that meetings between architects shall be held in the office of the oldest without reference to standing of success. In the same way an architect treats young men obtaining their professional training in his office as members of his profession, and lets them have the full benefit of his experience.

In his relations with his client the architect devotes to him all his knowledge, and gives opinions and counsels with entire regard to advancing the interests committed to his care. At the same time the architect does not allow his client to exact from him operations which would injure the rights of others, or which would compromise his client himself, or which would bring about accidents. In these cases he warns his client that he cannot fulfil his wishes. He also warns his client when his instructions are such as to increase the proposed expense of his work. He gives from beginning to end a clear statement to his client of what is proposed by the plans and what the estimates and tenders come to, and forwards to him all accounts when he has verified and corrected them. He is remunerated by his client and by his client only, without receiving anything from any one else connected with the works. Even when the works involve services to another person the fee based upon this expenditure is paid by his client, who recovers the amount from the other party or parties. In matters of litigation an architect declines to act as an expert in a matter in which one of his clients is a party. He declines to act as expert if he has already published an opinion upon the matter in litigation. If he is nominated as expert by a client, as, for example, in a question of insurance, he ceases to become the agent or representative of his client, and becomes merely an expert.

The architect is fair and disposed to smooth the work of contractors as much as possible, but, as before said, he has no dealings with them which place either them or himself under money obligations one to another. He deals promptly and openly with all accounts between them and the owners, but does not pay them unless he receives a special commission from his client to do so. When an architect has a contractor or body of contractors as client, he is remunerated by fees in precisely the same manner as by any other client, and does not become involved in any element of commercial speculation which may be connected with the work. An architect who becomes a contractor or the clerk of a contractor loses the quality of architect. He does not lose this in becoming the clerk of an architect.

EDINBURGH MUSEUM OF SCIENCE AND ART.

THE subjoined report was prepared by the director of the Edinburgh Museum for 1897 :—

The large room in the north-east angle of the building into which the lecture-hall is being converted is approaching completion, and will soon be available for exhibition purposes. It will be appropriated to furniture and wood carving, the specimens of which have hitherto been more or less scattered in different parts of the museum. By the removal of those which were formerly placed in the north corridors of the great hall an improvement in the arrangement and classification of architectural casts, &c., has become practicable. The north-west corridor has now been appropriated to Indian and the north-east one to Renaissance casts and reproductions. The collection of economic botany has been entirely rearranged in natural orders in long ranges of suitable new casing that occupy the greater portion of the upper gallery of the great hall. The old casing in the textile gallery has been entirely overhauled and made practically dust-proof. The collections it contained, illustrative of textile materials, processes and products, will now be rearranged, and where necessary supplemented or renewed.

Considerable additions, both by purchase and gift, have been made to the art industry collections in the course of the year. Among the purchases may be mentioned the following :—Ten specimens of silversmith's work, embracing casters, candlesticks, paten, &c., English and Italian. A Persian *kalian*, or hookah, in silver and enamel. Eleven specimens of sewed work, comprising a long linen cover embroidered in silk, seventeenth century ; a piece of blue linen stuff with representation of Daniel in the lions' den, from an ancient tomb at Akhmin, Egypt ; and examples of embroidered fabrics from Alosno, Andalusia, eighteenth century. A Scottish basket-hilted sword of the early part of the eighteenth century. A table made of various ornamental Scottish serpentines. Four electrotypes of parts of the shrine of St. Simeon at Zara, Hungary. Series of 199 photographs of the Bethnal Green loan collection of English furniture of the seventeenth and eighteenth centuries. Series of 427 photographs of the silversmiths' work in the South Kensington Museum.

Plaster casts as follows :—Statue of Gudea (Chaldean) ; statue of Sheikh-el-beled (Ancient Egyptian) ; Sopra Porta of south sacristy of Milan Cathedral ; woodwork from the Peyre collection ; statues of Mausolus and Artemisia, from the mausoleum, Halicarnassus ; Assyrian bas-reliefs and classical busts ; five bronzed bas-reliefs after R. Caldecott.

Model reproduction in wood and plaster (scale, two-thirds of original) of Paradiso apartment of Isabella d'Este at Mantua.

Terra-cotta reproductions of Etruscan chair, and statuette of boy with dolphin, by Verrocchio.

Large and important additions to the section of ethnography, the most noteworthy being a representative series of the native weapons of the Dutch East Indies ; an interesting general collection from Tibet and Sikkim, and valuable additions to the collections illustrative of the New Hebrides, New Caledonia and America.

Among the gifts may be noted :—Cabinet of rosewood and ebony inlaid with ivory, Indo-Portuguese of seventeenth century ; five painted Urbino majolica plates, by Orazio Fontana, about 1540 ; three Chinese blue and white porcelain vases and a Cinque-Cento group in silver gilt, enamel and distorted pearls, given by the Misses Forbes, of Callandar House, Falkirk, in accordance with the wish of the late Right Hon. Lady Jane Dundas. Old charter chest of the Græmes of Inchbraikie, given by Colonel J. P. Robertson, C.B., Callandar Lodge, Callandar. Large model of a Baghla or native Persian Gulf sailing vessel, given by Mr. G. S. Mackenzie, C.B., London. Piece of fifteenth-century wattle-work from Holme Farm, Bumworth, near Bolton, given by Mr. W. W. Midgley, Chadwick Museum. Native objects from Samoa, including a robe laid upon the bier of Robert Louis Stevenson by Tupuola, chief of the Tanugamanono, Upolu, given by Miss Balfour, Edinburgh. A collection of Chinese pictures and maps, given by Mr. W. F. King, F.R.S.E., Trinity.

The following bequest has also been made :—Swiss carving of "The Last Supper," after Leonardo da Vinci, in ebonised

case, bequeathed by the late C. M. Kerr, 11 Dean Terrace, Edinburgh.

The chief work done in the Geological Survey collection has been the rearrangement of the specimens of rocks, with the object of incorporating specimens of particular interest, revising the nomenclature and gaining exhibition space for districts not previously represented. Many specimens have been examined by the petrographical staff of the Survey, and sent to the museum. Some additional specimens have been sent in by the field collectors, and a large number of others from various Scottish localities have been selected for exhibition from the Heddle collection. By judicious selection and arrangement it has been found possible to insert these and to make room for rock specimens from five of the Scottish counties not previously represented. As soon as any new publications of the Geological Survey appear they are placed in this gallery for the use of the public. Some improvements in the mode of exhibiting the survey maps have been carried out in connection with six of the counties.

The principal work done in the Scottish Mineralogical Collection has been the transfer from St. Andrews of the late Dr. Heddle's various residues of his collections of rocks and minerals. Amongst these are many specimens of rocks from Scottish localities which are in general difficult of access. These, labelled as part of the Heddle collection, have been incorporated with the general collection of rocks. But the greater part of this residue consists of duplicate specimens of Scottish and other minerals, which Dr. Heddle gave to be used in exchange for Scottish rocks, minerals or fossils for this department of the museum. The list of specimens is too long for insertion here ; but among specimens of particular value may be mentioned several examples of abriachanite, thorite, allanite, harmotome, brewsterite, mountain leather, brucite, prehnite, xantholite, serpentine and others. As the second edition of the guide to this department was out of print, a third and enlarged edition (Part I., Geological Survey Collection) was prepared, and is now on sale in the museum. Part II., Scottish minerals, is being proceeded with. In addition to the Heddle donations already referred to, others of interest and value have been received.

The additions to the library by donation and purchase amounted to 621 volumes, besides pamphlets. The principal donation was one of 299 volumes of works relating chiefly to mineralogy, geology and chemistry, given by Dr. M. Forster Heddle, Emeritus-Professor of Chemistry in the University of St. Andrews, and since deceased. Among the other donors were the Governments of France and the Netherlands, the Prefect of the Seine, Paris, and the authorities of the India Office, British Museum, Science and Art Department and Smithsonian Institution. The patent library received, as usual, the various publications issued by H.M. Patent Office, as well as the specifications of United States patents. There was a slight increase in the number of visitors by whom the library was consulted during the year. A classified catalogue of the publications in the library (including the Cleghorn Memorial Library) relating to botany and forestry was issued, and is now on sale at the museum, along with the following library catalogues, previously published, viz.:—Architecture, Arms and Armour, Furniture, General Catalogue of the Library, Glass, Pottery, Textiles and Costume.

SUSSEX ARCHÆOLOGICAL SOCIETY.

ON Monday the annual excursion of the Sussex Archæological Society took place, but the proceedings were deprived of some interest by the rain. There was, however, a large attendance of members and their friends. The first rendezvous was Bexhill railway station, whence the party was conveyed in brakes to Ashburnham Church. The visitors were received by the Earl of Ashburnham and conducted to the church, the archæological treasures of which were exposed to view. These included the massive communion plate presented to the church by its founder, John Ashburnham, groom of the bedchamber both to Charles I. and Charles II., and the parish registers dating from 1538. The chancel contains a curiously worded epitaph on this John Ashburnham, describing him as son of "that unfortunate person, Sir John Ashburnham." There is also among other memorials a fine sculptured tomb in memory of Jane, Countess of Marlborough, who married into the Ashburnham family, and whose virtues are extolled in a high strain. An account of the church was given by the vicar (the Rev. Charles Baker), who said there had probably been a church on the site from the eleventh century, though the present edifice was built in 1663. The special features of the architecture were the wooden mullions of the windows and the seven steps from the floor of the tower to the nave, and seven steps again from the nave to the chancel gave the altar a very lofty position.

In the hall at Ashburnham Place were to be seen the famous relics of Charles I., including linen garments worn by the unfortunate king, his watch, a lock of his hair, and the sheet which was laid over the body after execution. The authenticity of these relics is beyond question. The party were also shown Vandyke's portraits of the Duke and Duchess of Richmond and other family portraits of great beauty and interest.

From Ashburnham the party drove to Battle, where there was luncheon in the Drill Hall, under the presidency of the Earl of Ashburnham.

Battle Abbey was next visited. Mr. W. H. St. John Hope who had undertaken to describe the building, found it convenient to address the members from the shelter afforded by the noble gateway. The abbey, he explained, was founded by William the Conqueror as the tardy fulfilment of a vow made before the battle of Hastings. The site was on the very scene of the battle, and the high altar was supposed to have been placed on the very spot where Harold's body was found. The later history of the abbey was practically *nil*, except such as was written on its stones, for though part of it had been destroyed sufficient remained to enable them to put together a fairly intelligible story. The abbey he described as of the normal Benedictine type, and he identified the remaining portions of the building as the guest-house, refectory, dormitory, infirmary, locatorium, &c., pointing out the special features of each. He particularly called attention to the fine gateway, the beautiful twelfth-century work on the exterior of the guest house, and the ruins of the dormitory. The principal points on the field of battle were to have been pointed out by Mr. W. A. Raper, but owing to the continuous rain this portion of the programme was omitted, and the archæologists filed into the church, where the Norman font and the splendid monument to Sir Anthony Browne, master of the horse to Henry VIII., were centres of attraction.

The Very Rev. Dean Currie gave a description of the church from the historical point of view. He thought it improbable that there had been, before the conquest, a parish of St. Mary of the Wood, as had been said. The original Norman building, parts of which remained in the present church, was erected in 1187, as the monkish records showed for the people of Battle, whose attendance at the Church of St. Martin in the Abbey had caused to the monks "certain inquietude which they were unable to suffer without breach of order." Disputes then arose, he showed, between the monastery and the servants of the Bishop of Chichester, ending in a compromise under which a dean was appointed. After the dissolution of the Abbey the Deans of Battle retained their jurisdiction, and there were records of several cases tried in the decanal court. The late Bishop of Chichester was the first to hold a confirmation in Battle Church without signing the book kept for the purpose, in which he declared that he claimed no jurisdiction by holding such confirmation, and although the privileges of the Deanery had for the most part been taken away or allowed to lapse the Dean of Battle still held a position which was quite peculiar, having as vicar the cure of souls. Mr. J. Lewis Andre read a paper on the architectural features of the buildings, and the party proceeded to the Deanery, where they were entertained.

ANTIQUE FURNITURE IN FRANCE.

THE United States Consul at Marseilles, in a recent report to his Government, calls attention to a law dealing with curio and antique furniture dealers which has lately been issued. This law may be of service to the many strangers who visit France with the expectation of buying articles of the above description, possessing artistic or historic value. The vital feature of the law is the obligation now resting upon all brokers, dealers in old furniture, linen, clothes, jewels, books, dishes, arms and other articles to keep an official register, signed by the commissary of police or the mayor, containing "day by day, without blanks or erasures, the name, surname, character and dwelling of those with whom the said broker has contracted ; also the nature, quality and price of all said merchandise and said register must be forthcoming on demand." Penalties are prescribed for violation of the foregoing provision, the object of which is to prevent fraud in the exchange of old and second-hand goods, especially such as are sought by collectors.

The Thompson-Yates laboratories, Liverpool, are now rapidly approaching completion, and at the beginning of the winter session the professors of physiology and pathology will be in possession of the most adequate accommodation, both for medical teaching and for scientific research. The laboratories will be formally opened by the president of the Royal Society, Lord Lister, on Saturday, October 8.

NOTES AND COMMENTS.

The town of Colmar is in Upper Alsace, about forty miles from Strasburg. The Dominican church, which was erected in 1278, has been long used as a corn hall. It was designed in rather attenuated Gothic, and in consequence has suffered much during its use for secular purposes. The high altar used to be adorned by sixteen pictures, which were painted by Martin Schongauer; they have been removed to the museum. The church is considered to be of extreme importance in the history of German architecture, but during a restoration of the last century some of its most interesting characteristics were destroyed. It was used as a barrack and a fruit market before it was handed over to the corn dealers. It is now restored again, but in a style that is more in keeping with its original appearance, and it is believed to be one of the best examples of Alsatian Gothic architecture which has survived. The works seem to have been completed without any friction between the parties engaged. The restoration of the Minster of Colmar was conducted under different circumstances, and is now the subject of lawsuits which are likely to cause dissatisfaction to others besides the litigants.

If Irish antiquities are not made known to all who can read English, it will not be the fault of the Royal Society of Antiquaries of Ireland. A series of handbooks is in course of publication which are unmatched for cheapness and excellence. Although abundantly illustrated, the price is only sixpence each. The latest is mainly devoted to the coast of Clare, Kerry, Cork and Waterford. It is a remarkable region for archæologists, for in it are found prehistoric fortresses and those primitive oratories and monasteries which are unique. The oratory of Gallerus is a bee-hive structure, and although formed of dry stone masonry "is practically waterproof, the stones being laid so as to slope outwards." The ancient city of Fahan contains stone huts extending for nearly three miles. Their names cannot be called prosy, for among those given by Sir Thomas N. Deane are "the city of the course field," "the cell of the old inhabitant," "the cell of the big family," "the city of the glen of the slope," "the city on the big point," "the city of the western coast," "the fortifications of the rock," "the lair of the hare," and "the structure overlooking the other forts." There is a fine round tower on Scattery Island called after the Cata, a terrible monster whose portrait is represented on the gable of Kilrush Chapel, and another is at Cloyne. As a contrast to the old structures, there is the noble castle of Lismore, belonging to the Duke of Devonshire, which stands in a picturesque position beside the Blackwater River, and in a district which is the most prosperous in Ireland, owing to the generous administration of the landlord.

Of late years cases which related to the easement of support have not been frequently tried in the Law Courts. For that reason, as well as for others, much interest must be attached to the judgment of Mr. Justice North in Jordeson *v.* the Sutton, Southcoates and Dry Pool Gas Company. The plaintiff owns cottages in Hull, and on the adjoining land the gas company having entered into a contract with Messrs. Holmes & King, excavated a large tank which was to form the lower part of a telescopic gasholder, which was to be over 100 feet in height. The excavation was close to the cottages, and when carried down to a depth of about 37 feet the ground as well as the cottages subsided. It was alleged that the contractors had not adopted the best course for damming back the water and silt. The gas company relied on their statutory powers to supply gas, and claimed to be entitled to interfere to some extent with the plaintiff's rights. When the case was first heard in February the judge decided that the erection of the gasholder would interfere with the light to the cottages, but he considered that the work had been skilfully carried out. Judgment on points of law was postponed. A week ago his lordship held that there had been considerable damage to plaintiff's property by withdrawing the support, and that there was no legal justification for what was done by the defendants. Mr. Justice North, in considering the case of the contractors, set aside the contention that they owed no duty to the plaintiff. They were the persons who by their workmen made the excavation upon the gas company's land, the result of which was wrongfully to remove part of the plaintiff's soil, and thereby to cause the land above it to slip and subside, and so damage the buildings thereon. Nor did it matter how much care they took in what they did, if that care did not suffice to prevent the injury. If no amount of care could have prevented it, the act ought not to have been done at all. The plaintiff was entitled to damages for the injury which had been done, and his lordship assessed the amount at 340*l.* This did not include any damage for interference with light, nor any sum in respect of damages which might arise hereafter in consequence of any future subsidence which would give a new and separate cause of action. The injunction would issue against the company, and the damages would be awarded against all the defendants. There would be judgment against the company for the plaintiff's costs of the action, and against the other defendants for so much of the plaintiff's costs as related to interference with support and its consequences. The gas company will no doubt repay all costs and damages in which the contractors are mulcted, but cases might arise in which it would be held by co-defendants that contractors were bound to be responsible for all damages arising out of lawsuits. It will therefore be well for them to insist on the introduction of a specific clause absolving them from all liability for law costs or damages arising out of interference with the easement of support.

The Pavillon Flore cannot be converted into a temporary dwelling for the royal visitors who are expected to visit Paris to see the wonders of the exhibition of 1900. There will be apparently no special building in which the hospitality of the Republic will be displayed towards kings and queens. But as the idea of a palace of the kind is novel it was fitting for adoption in the Ecole des Beaux-Arts. The Prix de Rome, it was announced, would be given for the best design for a palace to be erected on the banks of the Seine at Passy, where sovereigns and other representatives of foreign States would be welcomed. A competition of the kind was almost of historic interest. It was won by M. Chifflot, who studied under MM. Daumet, Girault and Esquié. He is in his thirtieth year. M. Arfidson, who came next, is two years younger, and was a pupil of MM. Ginain and Scellier. Last year he gained third place. This year that position was attained by M. Aubertin, born in 1872, and a pupil of M. Pascal. Among the unsuccessful competitors were MM. Garnier (a son of the late Charles Garnier), Bigot, Hulot and Guadet.

The beautiful bases for masts in the Piazza at Venice are admired not only by visitors, but by all who have seen engravings of them. The New York Municipal Society has decided to have a base produced in similar style for the open space in front of the City Hall, New York, or it may be placed on one of the steps. The height will be about 15 feet, and the cost 3,000 dols., exclusive of the cost of the model. A sum of 400 dols. is offered as the first prize in the competition for the base, 200 dols. as second prize, and 100 dols. as third prize. Designs are also sought for a drinking fountain to cost about 250 dols., and of which large numbers may be cast for use throughout New York. Prizes of 250 dols., 150 dols. and 100 dols. are offered. It is to be regretted that we have not municipal art societies in England who will be equally generous and anxious for the amenity of public places.

ILLUSTRATIONS.

CATHEDRAL SERIES—PETERBOROUGH: SANCTUARY AND HIGH ALTAR. SOUTH AISLE, LOOKING WEST.

PROPOSED OFFICES IN BISHOPSGATE STREET, E.C.

THIS design was prepared with a view to erect a portion of the front—viz. the two bays—from next Crosby Hall to the passage-way to Crosby Square, and the remaining bay, next the Bank of Scotland, to be a future addition.

89 AND 91 LAMBETH WALK, S.E.

ENGLISH HABITATIONS.

IT is not necessary minutely to describe the dwellings of the first inhabitants of our island. Thickets, dens and caves were their first retreats. Their next endeavour was to execute something more durable, consisting of stakes driven into the ground interwoven with wattles, built circularly with high tapering roofs, at the top of which was an aperture equally adapted for the admission of light and the emission of smoke. Large beams of wood, sometimes on stone foundations, began then to be used. There is no great fear of offending truth in conjecturing that the first erections beyond that style were built either by the Romans on their obtaining a settlement under the Emperor Claudius, or by those natives who had been at Rome as prisoners, or otherwise. The first colony planted by the Romans was at Camulodunum, which appears to have been a large and well-built town. The idea that London was built before this time is so faint that it is scarcely worth the inquiry; for, according to Strabo, what the Britons called a town was a tract of woody country surrounded by a mound and ditch for the security of themselves and cattle against the incursions of their enemies. Among the earliest regular erections in Britain were the chain of garrisons between the Friths of Clyde and Forth by Julius Agricola, and the wall of Antoninus, called also the Picts wall. Agricola is supposed also to have erected several temples, and as it is well known that he encouraged to the utmost the arts of peace, we may be assured he did not neglect private convenience. Architecture did not decline much after the departure of the Romans, who with unexampled ingenuity and address instructed their conquered subjects in all their arts, and thereby much benefited both parties. In the time of the Saxons, previous to the disastrous troubles of Hengist and Horsa, there were public and private edifices; but of what kind is not certain, neither would it be much to our purpose to inquire, for they were all destroyed by fire, rapine and plunder during that period. Drawing a few degrees nearer to something like authentic record, we find that about the year 480 Ambrosius, a British commander of Roman descent, who assumed the regal government of the kingdom of Kent, erected for himself and followers a "palace" at Canterbury.

During the Heptarchy, or as Sharon Turner more correctly terms it, the Octarchy, religious sequestration being much in vogue, churches and other ecclesiastical edifices began to multiply. The monks, the only architects of those times, erected those rude buildings now termed Saxon, which by their similarity in parts to the worst Roman, may warrant the conclusion that they designed them from the help of memory alone, and that the declension of pure architecture in Italy, and the still further depravity of style introduced by treacherous memories and a bad taste (which universally accompanies a want of knowledge in any art or science), finally produced those various styles of architecture observable throughout the whole of the more ancient English buildings.

The Britons under the Roman dominion had made such hasty strides towards art and manners that previous to the devastations committed by their furious Saxon invaders, they had erected nearly thirty considerable cities, besides a greater number of villages and country dwellings, most of which were destroyed and the natives thrown back to their former barbarism and manner of living. Nothing worth noticing except by the professed antiquary occurs till about the year 790, when Offa built and endowed the celebrated monastery of St. Albans in the town of that name, which was at that time a considerable city.

The new City of London in the reign of Alfred the Great, after the death of Burrhed the last king of Mercia, in whose territories it was situate, became of some importance, beginning to stretch itself along the banks of the Thames. This king's celebrated division of the country into counties, and incorporations of families for the distribution of justice and the prevention of crimes, caused villages, towns and cities to be crowded together. Courts of justice, religious consistories and meetings for the support of military discipline and civil justice added much to the splendour of the rising city which was repaired and beautified by Alfred himself. He also founded (or at least repaired) and made considerable additions to the university of Oxford. Cambridge began to assume a promising appearance; monasteries were daily increasing, both in number and splendour, among which that of Malmesbury in Wiltshire was one of the most flourishing, it being the custom of the times to bestow all the confiscated estates on the maintenance of such establishments. During the succeeding reigns from Alfred to Canute, a period of about 160 years, which in comparison with after ages may be termed enlightened, architecture flourished beyond any other before the Conqueror. Churches and cathedrals were erected, others restored and some rebuilt, and at Rome an English school was built by the last named king, who from these and other similar measures became very popular. In the succeeding reign of Edward the Confessor, excepting the first monastery at Westminster which was endowed by him, architecture was rather at a stand; the abbey at Waltham, founded by the unfortunate Harold, was a proof of his good wishes towards the embellishment of his country, but they were frustrated; and till after the death of that monarch, and the final settlement of William the Conqueror, scarcely a system of the architectural art appeared, excepting in those fortresses erected by him in London, Winchester, Hereford and other places most likely to suit his purposes, by their warlike appearance, to keep the natives in awe after disarming them and stripping their churches and monasteries to furnish a splendid court. He reduced almost all their edifices to a state requiring little less than total re-erection; till in his last illness he endeavoured to make some atonement for his devastations by large presents, gifts and endowments, which set the whole community of architects, builders, embroiderers, jewellers, &c., once more in action.

As for the short reign of William Rufus, there is more to be said than on a transient glance might be expected from so short a period, though from his character it does not appear that he was wanting in respect for the religion of his day, which was fond of exhibiting itself in foundations, erections and similar display of gaudy magnificence. The abbey of St. Albans, the Tower of London, Westminster Hall, London Bridge, and part of the Palace of Windsor are among the principal works of this king's reign, and may be produced among others as proofs of that assertion. The national architecture had assumed a fixed principle of design, and had settled into that style now called Norman.

The style of this period cannot be better illustrated than by the shrines which were carved with more labour than taste; pinnacles on pillars, canopies, fretwork, gilded and emblazoned decoration, crowded the interiors of those heavy Saxon buildings, and formed a curious contrast to the cumbrous circular pillars. England, like the rest of Europe, was now fast declining to a barbarous and gloomy period. Petty despotism, comfortless insecurity and gloomy suspicion erected the dark embattled castle, with its vast and gloomy apartments, its stagnant moat, guard turrets and drawbridges, while perhaps the greatest luxury was clean straw for the master's apartments. Vassalage and feudalism thinned the cities and destroyed the villages, and for ages architectural improvement was unknown. Cities began to assume a warlike appearance, and the abovementioned reason caused them all to be walled. The absence of their kings on religious warfare dimmed the splendour of their courts and paralysed the efforts of their artists. Magnificence was now only to be displayed in richness of apparel and the number and gaudy accoutrements of their followers. How then in such a time could the arts flourish? How could they advance in any degree towards their original purity, when they were more prized for the worth and cost of the materials they employed than as specimens of taste?

These enthusiastic warriors, once more quieted by a partial attainment of their object, turned their attention as formerly to ease and luxury; and as vehement spirits always rush into extremes, cloistering became once more in vogue, which, though not much changing the appearance of their dwellings, served at least to embellish and enlarge the monastic fabrics. The charter granted by Henry I. to the City of London in the year 1135, and his further confirmation of their privileges of courts of hustings, wardmotes, vestries and common halls increased the rage for building in the Metropolis, augmented the number of public edifices, and by promoting society and social intercourse banished suspicion, created mutual confidence, improved domestic comfort, and while the rest of the kingdom was still in alarms from the apprehensions of danger and the fear of offending the independent nobles, the Metropolis greatly improved in quiet and security.

Even the short and turbulent reign of Stephen assisted the cause of art in some degree; for the licentious and unbounded devastations and extortions of the nobles, the imitation of their stately superiors by the inferior gentry and the state of vassalage which it consequently introduced, sensibly swelled the list of independent castles and their appendages for the enslaved peasantry, becoming the original of a style now very prevalent, which has since obtained the name of the castellated style of architecture. Among the largest of these castles erected by these turbulent barons were one at Sherborne, one at Devizes, another at Malmesbury, erected by the Bishop of Salisbury in 1139, and one at Newark by the Bishop of Lincoln, which practice now became very prevalent among the dignified clergy, who followed the example of the secular nobility. Indeed, they now became so numerous and powerful that they almost threatened another division of the country. Humble private dwellings were destroyed, neglected or suffered to fall into ruins. Their greater neighbours shortly afterwards shared no better fate, for all the newly-erected castles, built during the reign of Stephen, were rased by his successor, the second Henry, in whose days architecture assumed somewhat of a less warlike style. Interior decorations and domestic comforts were more regarded, and by none more than by his luxurious primate Thomas à Becket, whose munificence is proverbial. But however grandeur, considered as consisting in costliness of ornament, might prevail,

certainly elegance and comfort would not be found by one of the present day in clean hay and straw or grass (according to the season) strewed about the apartments to prevent spoiling their sumptuous habiliments. Becket was a munificent patron of arts and genius ; in a defence against an accusation of having wasted the public money, he boasted of having repaired many castles, and particularly the Royal Palace of London, so that he certainly deserves a rank among a list of early English architects, for although his artist's name is now unknown, we ought at least to allow him the credit we do to some others of later date who have had their names appended to works more likely to be doubted than his. The style of our national architecture was now somewhat changed ; the homely erections of Saxon progenitors were exchanged for affectations of ornament, the ecclesiastical buildings stretched themselves into ramifications more complex than the course of the Nile.

It would be a curious, and by no means an absurd inquiry, to compare the resemblance between building, dress and manners. There is little doubt that the styles of the age here mentioned is strictly in point. In the times of Elizabeth and James the prim ruff and puritanical manners singularly accorded with the inelegance of their buildings—alike cumbrous and graceless ; and even now, to a mind attentive to such things, the analogy is no less perceptible.

The Crusades which followed in the reign of Richard Cœur de Lion were inimical to the arts, though it is not to be doubted that the king had a taste for cultivated pleasures, as he ranks among the troubadours or poets of the age, and also that poetry and painting (if we may call the introduction of armorial bearings by that name) were introduced with and by him into England. In the slothful inglorious reign of John nothing relative to our purpose is worth the trouble of recording except the celebrated excommunication by the Pope, which caused all the shrines, altars, chapels, sacellæ, sacristies, &c., to be despoiled of their ornaments, the statues of their saints to be thrown prostrate, and similar other spoliations, which provided the artists with more work when that restraint was taken off.

Henry III. was so straightened for money that it is no wonder we find few architectural records in his reign ; he squandered his property on favourites, and whatever they might have erected the art certainly did not make that progress that a reign of fifty-six years might have warranted ; yet he repaired, if he did not erect, Eltham Palace about the year 1270. Edward I. adds nothing to our collection ; his thirst for glory and his ardour in the crusades is sufficiently notorious to prevent much search. Neither does the second of that name add much more ; velvet beds, silk vestments, embroidered girdles, enamelled armour, jewels and plate were the favourite luxuries of his time. Arts and manufactures were low, the country from its foreign wars not very populous, consequently no advancement was made in Domestic architecture.

The reign of the third Edward is of much more consequence in our annals. The magnificent Palace of Windsor and many other buildings of a similar style were erected by him, which, considering the wars he was engaged in, reflects much credit on his memory. The style began to be more bold, simple and striking ; geometrical construction was well understood and the workmen were excellent ; every county was assessed for its quota of artificers in the same manner as for an army. It may be worth the mentioning that tolls for repairing roads were first imposed in this reign, and the first so repaired was from St. Giles's to Temple Bar. A master carpenter was paid 3*d.* per day, and a journeyman 2*d.* Edward IV. built Crosby House about the year 1468, as also the monastery of St. Helen, and repaired London Wall. The reigns of Henry V. and VI. were not in the least auspicious to the arts ; the glorious warfare of the one and the supine weakness of the other were alike prejudicial. The wars between the red and white roses encouraged none but the military fortified style, by some termed the Edwardian, which prevailed in all the erections civil and domestic that were raised under King Edward IV. In the Metropolis were now many rich merchants who lived in a style superior to the inhabitants of any other part of the kingdom, and in a few instances advances were made, but more on the side of gaudy magnificence than real improvement in the art. The taste for splendour, show and addiction to pleasure of this monarch produced much improvement in Domestic architecture ; but always frustrated in his schemes he acquired little more than the merit of introducing a style which was subsequently followed with more success than his turbulent times allowed. Hospitals that were ransacked in that reign were restored in this ; others were erected, but the style was still dark and gloomy, resembling castles and dungeons more than convenient dwellings, such as even before this period began to spread abroad from Italy, the centre of the fine arts, but it was left for after-times to receive their united blossoms.

London undoubtedly cultivated this national style more than any other part of the kingdom, and whatever was deficient in taste was amply compensated in expense by the wealthy citizens. Crosby House was a large and elegant structure, and the architects and workmen had acquired that facility of execution and improvement in style which are now the admiration of all true judges of geometrical construction. The shrine of William of Wickham, King's College chapel, Cambridge ; Ely House, Holborn, now no more ; the hall of Crosby House, the elegance and labour of carving of whose roof is scarcely surpassed by Westminster Hall or the mausoleum of Henry VII. are striking examples of this period.

Indifferent workmanship, profusion of ornament, petty divisions of compartments, overloaded with scrolls, flowers, &c., alike characterise the decline of the art in Rome and the commencement of it in England ; but the before-mentioned reasons prevented the introduction of Classical architecture into this country, though at the same time it flourished highly in Italy under Julius II.

This leads onward to the reign of Henry VIII., in which architecture, in point of expensiveness and the intention of its patrons, flourished abundantly. Wolsey the munificent, the splendid minister of a no less splendid monarch, built and endowed magnificently. His palace at Bridewell, his restoration and additions to the episcopal palace and the cathedral at York, the gateway to the Butchery at Ipswich (a proof, among others, that he did not forget his origin or his native town) ; the repairing and beautifying the pastoral residence and parish church of Lymington, where there still exist remains of his works ; his splendid palace at Charing Cross, and his far more magnificent structure at Hampton Court, were but among a few of those belonging to this ambitious and munificent prelate. As a proof of the splendid manner of Wolsey's habits, his palace at Charing, among others, may be adduced, where, on September 7, 1515, on the occasion of his being decorated with the purple, he entertained his sovereign and consort, the Queen of Scotland, the Queen-dowager of France, the Archbishop of Canterbury, the Bishops of Winchester, Rochester and other prelates, the judges and other personages of distinction in a manner equally splendid with that described by Shakespeare. His train consisted of 800 servants and retainers, many of them knights and gentlemen, and ranked nine or ten lords in his suite. Every Sunday he resorted in the most splendid and pompous manner from his palace at Charing to the Court at Greenwich, accompanied with crosses, silver pillars, his cardinal's hat and great seal of the kingdom, with all proper accompaniments. If his external splendour was thus great, what must have been his palaces and dwellings, which were the constant resort of the nobility and gentry, both foreign and domestic, where they were received and treated in a manner worthy of a sovereign prince? Yet, according to Hollinshead, Stowe, Rymer and other historians, the most useful part of Domestic architecture, the mansions of the nobility and gentry, the houses of the tradesmen and the huts of the peasants, were everything but commodious and comfortable. Among his other occupations and designs of splendour Wolsey did not neglect utility ; he founded public lectures at Oxford on theology, civil law, physic, philosophy, mathematics, Greek, Latin and rhetoric, of which at present, as he paid the professors himself and left no endowment, no remains exist. He obtained a bull from the Pope, appointing himself visitor of all the monasteries, which he used with propriety, and put them all in a perfect state of repair, embellishing and beautifying many. Among other useful acts of this useful man to his country's arts and learning, he procured the establishment of the College of Physicians.

The king was not backward in promoting works of splendour and magnificence. Scorning the narrow accommodations and inconvenient habitations of his predecessors, he erected several noble castles and palaces, among which were Whitehall and Nonsuch, now no more ; he converted St. James's from a nunnery to a palace, and appropriated another at Dartford to a similar purpose. In this reign it is supposed the Grecian, or rather the Romanised Grecian style of architecture, was introduced into Great Britain, but still in an imperfect and impure taste, mixed promiscuously with Saxon, Gothic, Saracenic or any other style they found to their hands.

In 1525 Wolsey laid the first stone of a magnificent structure at Oxford, which he intended to erect, endow and call by the commemorative name of Cardinal College, for which purpose he procured the dissolution of the priory of St. Frideswade, at Oxford, which being surrendered to the king, he immediately bestowed it on the cardinal, for the praiseworthy purpose of building on its site, and endowing with its revenues the intended college. He soon after obtained bulls from the Pope, which were indispensable, to confirm and support the king's munificent grant ; in addition to which he also procured the dissolution of several other lesser monasteries, situate in different parts of the kingdom, and applied their revenues and possessions for the building and maintenance of his new college. These proceedings met with great censure even from the king himself, with whom he was so great a favourite, who accused him in a letter of various faults, and said the college was a cloak for covering all his mischiefs. To restore this breach the cardinal made his royal master, whose avarice, extravagance and weak points he well knew, a present of his

magnificent palace at Hampton Court, and showed him his will, wherein he had made the king his sole heir; in return for which Henry gave him his palace at Richmond for a residence.

Among other of Wolsey's architectural works may be enumerated a mint at York and another at Durham, a palace at Southwell and a monastery for Carthusian friars at Sheen, an episcopal palace at Scrooby, near York, which finding after his degradation in too bad a state to reside in, he employed 300 artificers in its reparation. Pomfret Abbey, Doncaster, and Sheffield Park found also a benefactor in Wolsey. He also founded a grammar school at Ipswich, his native town, and paid great attention to the improvement of the education of youth. The furniture and decorations of his palace at York were of the most splendid description and of an immense value; the walls of the gallery were hung with cloth of gold, embellished with silver and tissue work; he had a prodigious quantity of velvets, satins and other splendid vestments, and an almost incredible quantity of gold and silver plate.

After the disgrace of Wolsey the king followed up his new college, new founded and re-endowed it, under the name it now bears, Christchurch College. Among other large edifices constructed in this king's reign, were parts of the castle at Windsor, the mansions of Cowdry, Herstmonceaux and Penshurst, in Sussex, Holland House, Kensington, Somerset House and the Savoy Palace, London.

The succeeding reigns of Edward VI., Elizabeth and James I. add but little to a sketch of Domestic architecture. In the former monarch's reign Christ's Hospital was endowed and built. The excellency and newness of the palaces required but little beyond reparations; and the grand scale of the foreign policy of Elizabeth led her to something more than merely decorating, altering or rebuilding her residences; yet many excellent private mansions were constructed during her reign.

If the reign of Elizabeth added little to the history of Domestic architecture, that of James I. added still less. Public buildings remained much as before, both in style and size; private edifices and humbler dwellings, however, improved in comforts and convenience, but not much in style. Clumsiness of proportion and inelegance of style distinguish alike both these periods.

In the succeeding reigns there is little to gratify the searcher after generalities till the reign of the accomplished and elegant-minded Charles I., who, by a course of study improved by travel, possessed a mind alike sensible to the more tasteful avocations of life, and the more refined pleasures of a highly cultivated state of society. This reign produced a great revolution in the style of architecture in general, but more particularly in Domestic architecture. Inigo Jones flourished at this time, and first introduced into this country a pure specimen of Classical architecture.

There can be little added to the above till the Fire of London. The City, with the aid of Sir Christopher Wren, assumed a new appearance; to repeat a list of his *chef-d'œuvres* would be to recount what is known to all. But we have not as much information to guide us in forming a notion of Wren's principles of domestic as we have of his ecclesiastical architecture. All we can say is that house-builders imagined they worked after his manner when they introduced Classic details. But no style has received any permanence among us. A history of English houses would be almost equivalent to a history of architecture, for wherever work was found which appeared likely to attract for a season it has been imitated. We can easily trace changes, but what they are to lead to in Domestic architecture "no man knoweth."

TESTS OF VENTILATION.

THE summer meeting of the American Society of Heating and Ventilating Engineers has been held in Atlantic City under the presidency of Mr. W. F. Wolfe. Among the papers read was one by Mr. J. C. Northcott on "Some Accepted Tests of Ventilation." He said:—Most of the methods and instruments by which we measure the results of ventilation have come into use within a generation. They are comparatively new and to some extent defective. At the beginning of my paper I wish to remind you that we are not to abandon methods of testing because they are defective until we have found other methods that are less defective, but I think it important to recognise their shortcomings.

To discover the degree of impurity of air in occupied rooms it is usual to determine the proportion of carbonic acid gas. The excess of this gas over that which is normal to outside air in a clean locality is taken as showing the degree of impurity. For two reasons this test is only approximate.

In the first place, carbonic acid gas is not the only nor the worst poison discharged into the air of an occupied room. An eminent authority states that "a man of average weight throws off through the skin during the twenty-four hours about 18 oz. of water, 300 grs. of solid matter, and 400 grs. of carbonic acid gas." This is nearly 3 lbs. of poisonous matter discharged into the surrounding air by every vigorous adult in each twenty-four hours. But less than one-third of this is carbonic acid gas. It is well known that the solid matter of excretion in an occupied room is a most deadly poison. We have no accurate means of testing its volume, except by laborious processes in the laboratory not available or practicable for general use. A well-regulated nose is the only instrument in general use which will detect the presence of this poison. We should always remember that the well-known odour of air vitiated by a crowd does not come from carbonic acid gas, but from the crowd poison, which is represented by organic and decaying matter exhaled from the bodies of occupants. We exhale filth through every pore of the skin, and this discharge is quite as offensive and as poisonous as any other discharge from the human body. You have often remarked the pallid face, the dulled and flattened eye of a prisoner in many of our gaols—and I might also say prisoners in some of our schools. This is not so much the result of the excess of carbonic acid gas as of that other form of crowd poison. You may take a crowded schoolroom, with an ample supply of pure air through an overhead register. Now lower a window from the top. The circulation of pure air will be ample through the room, but it will be almost entirely overhead. The children sitting just below this flowing current of pure air are discharging from the lungs carbonic acid gas, while both from lungs and skin they are discharging organic matter. Much of the carbonic acid gas is discharged upon the air at a temperature of about 92 degrees. The organic matter—most of it—is not so warm. It is also heavier. Impelled by the breath, the carbonic acid gas will at first ascend because warmer than the stratum of air into which it is breathed. Most of it will be caught in the outgoing currents above the heads of the children, and thus be carried away through the open window, while most of the other form of crowd poison—and the deadlier form—will, because cooler and heavier, remain in the lower and occupied stratum of air. Now, let the experimenter come into this room and test that stratum of air in which the children are sitting. He will find it comparatively free from excess of carbonic acid gas. If he is unwise, he will announce the conclusion that the air which the children are breathing is comparatively pure. But it will be a mistake. I have often heard it remarked that men who work with carbonic acid gas (as it is used in some of the arts) do not show the ill effects which we would suppose. The reason is that an excess of carbonic acid gas is not the most deadly poison of vitiated air. Yet I concede that the test for carbonic acid gas in vitiated air is, under carefully guarded circumstances, approximately correct, and, if rightly used, is of great value. This is true because an excess of carbonic acid gas is ordinarily a close companion of all other forms of crowd poison. Its presence indicates the presence of its ally.

The lime-water test aims to determine the presence of carbonic acid gas. It does not, except by inference, determine the presence of other forms of crowd poison. It is not necessary that I attempt to describe the lime-water test other than in a general way. It depends upon the fact that carbonic acid gas, passed into and through lime-water, will precipitate the lime in the water, making the water, which was at first absolutely clear, to be more or less clouded and dense with chalky matter. The amount of carbonic acid gas discharged through the water determines the degree of density.

With the Wolpert air-tester, for example, you are to determine the volume of carbonic acid gas that is passed through the water by the number of times you have discharged a bulb full of contaminated air through the lime-water before the water becomes so dense that a black spot at the bottom is obscured. Now it is evident that the experimenter may or may not exhaust the bulb or air-pump to the last degree at each filling. He may or may not inadvertently fill the bulb from that limited area of air immediately surrounding his own head, and into which he has just that instant discharged the contents of his own heated lungs.

Again, to determine when the black spot can no longer be seen through the lime-water is a question of vision. It might be obscured to me, while you, with better eyes, can still see it. Every one who has made use of this test knows how difficult it is to be quite sure when the vanishing point is reached.

The anemometer is the most useful instrument in determining the results of ventilation. It should be delicately adjusted and carefully kept so. We should remember that ventilation is, more than anything else, dilution, and so after all the best test of adequate ventilation is the anemometer test. And yet the anemometer, even if a good one, in the hands of an inexperienced or injudicious person is an unscrupulous liar. Let me illustrate. You may take a box or room through which you shall flow a given volume of air. We will suppose that the air is being discharged at the rate of 400 cubic feet per minute. Now, if the exhaust—at the floor, for example—be 144 inches long and 1 inch high, and if the air is flowing at a velocity of 400 feet per minute, you will

maintain the conditions of our problem. We will suppose that the air meter has a wheel 3 inches in diameter. You may set this anemometer in this shallow current and it will not serve to measure the outflowing air, simply because the current is not deep enough to attack the screw and impel the wheel. If now, without otherwise changing your box or room, you shall close up the long shallow opening and make another opening 12 inches high and 12 inches wide, the area at the discharge will still be maintained. The former velocity being also maintained, the discharge will again be 400 cubic feet per minute. Now put your anemometer in this current and (making the proper correction for friction) it will register with fidelity.

The case I have supposed is an extreme one, yet we many times approach such conditions or similar conditions in actual work.

So we come again to the fact that the results of even this best instrument we know, the air-meter, may be only approximate, and it is clear that in the hands of an inexperienced person it may be of little value.

I conclude as I began. We must continue to use tests which we recognise as in some measure defective. We continue to use them because they are the best known. We shall be careful, however, to make these tests with a full knowledge of their shortcomings, and a disposition to carefully watch for every affecting circumstance. In the meantime we will urge invention to find better instruments for our purpose.

Mr. W. McMannis said he depended upon the anemometer to determine the degree of ventilation obtained in the New York schools.

Mr. S. A. Jellett said that even at the best the results obtained from anemometers were only an approximation.

SECURITY AGAINST FIRE.

THE latest publication of the British Fire Prevention Committee is a paper entitled "Lessons from Fire and Panic," which was read by Mr. Thomas Blashill before the Surveyors' Institute.

The party wall as a separation between buildings is, I think, effectual if no illegal openings are made in it. Whether or not it need be carried up through the roof has been a question, but no satisfactory evidence seems to be forthcoming as to the stoppage of fire by party-walls that are not so carried up. When the London Building Bill of 1893 was before Parliament, the committee took a great interest in this question, and decided that the old height of 15 inches above the roof should be raised in the case of a warehouse to 3 feet.

As to openings in external walls where the streets or back areas are narrow, we want shutters that will delay the passage of fire from without, if only for half an hour, and will obstruct the passage of fire from within. It may be that fire-resisting blinds occupying little space will be found useful. The common lighting areas are formed by what are supposed to be external walls, and the provision of shutters or blinds to the openings in them is even more necessary. Every contrivance of this kind should be easily closed, and should be actually closed every night.

I am quite unable to understand the slow progress made in this country by the fire-resisting floor. In Paris fire-resisting floors were common five-and-thirty years ago. I was then carrying out such work here on a large scale, but the case was exceptional; the weight of the floors was great, the walls had to be thickened, and the cost was excessive. Cheap steel and light substitutes for concrete have changed all that.

In the Cripplegate fire, although many of the warehouses were modern, and some had already been burnt out once or oftener, there was not a single fire-resisting floor. There were wooden floors carried on iron girders, but we are familiar with the behaviour of wrought-iron girders under such conditions. They expand and contract so as to overthrow the walls, or they become soft so as to hang down like tapes. There are now available fire-resisting floors in great variety in which the iron is more or less protected from the fire. In using them care must, however, be taken that no leakage of gas can accumulate in any hollow spaces. I have seen a large and handsomely decorated house in which fire-resisting floors were used in conjunction with battened walls. Upon applying a light in the usual way to the suspected point of escape the mixture of gas and air accumulated in the hollows exploded, and the ceiling with the wall battening in two storeys was stripped away, littering the floors and mixing with the broken window glass. In that case there were also severe personal injuries.

In the great re-housing schemes of the London County Council I have made every floor fire-resisting by the use of steel joists wide-spaced, and filled in solid with coke breeze concrete upon which the floor-boards are nailed, the plastered ceiling being done under the concrete direct. The cost is no more than that of a good wooden floor, while the tota thickness is only 7 inches, which saves 2 or 3 inches in the height of each storey. They are not complained of by the tenants in respect of noise, but in a house where this would be of great consequence a cork covering to the boards under the carpet would be a sufficient remedy.

If it is necessary to adopt wooden construction for floors, the ordinary pugging should at least be used. Joists of double the usual thickness placed 2 feet apart and filled in solid with some form of concrete, would offer great resistance to fire. As to the material for pugging, coke breeze and cement concrete, mixed four parts to one, stands fire and water better than anything else. In Switzerland they use coarse plaster stuff, into which long wet shavings have been stirred as hair is stirred into plaster for ceilings; and this, though an imperfect substitute for concrete, will resist a fierce fire for a considerable time, but more experience is required in the use of light solid materials.

I think we have now arrived at a time when architects should at least try to secure an incombustible roof. This is stipulated in the building leases of some very important London estates, and I am told that it raises no difficulty. If the space in the roof is wanted, pugging or concrete is sometimes put between wooden rafters. If a steep roof is necessary, sheets of asbestos put on the roof boarding in place of felt will afford some protection. In a building professing to any degree of fire resistance, the roof should be protected by a ceiling of concrete put over the topmost storey. Ceiling on perforated or expanded metal will give some protection against a small fire.

As to partitions, lath and plaster should be quite abandoned, and brick-nogging also, for a half-brick wall in cement is as easily constructed. There are many kinds of thin partitions from which to choose. I commonly use coke breeze cement concrete 2 inches in thickness, which is light, tough and strong enough for storeys of the ordinary height. Old lath-and-plaster partitions may be filled in with this material or with brickwork by removing the plaster from one side only. If the structure is otherwise fire-resisting, any wooden panelled partitions may be considered as fixtures and disregarded, particularly if in hard wood.

I mention these and similar details, not as being unknown, but as being too often neglected, even where the cost would not be a serious item. If fire-resisting materials were in more regular demand workmen would become familiar with them and they would cost less. Exaggerated estimates of the cost of fire-resisting construction do much harm. Very important steps can certainly be taken in that direction with very little extra cost on ordinary construction.

The great danger of a staircase arises from the cupboard underneath its lower flight, which will probably be stored with combustible materials. If it is constructed of thin deal it will take fire easily. If more solid or made of hard wood it will resist a small fire for some time. If it is to be fire-resisting, concrete is better than stone. But if everything about a staircase is incombustible it may be rendered useless by accumulated smoke arising from such a cupboard as I have mentioned, or from an adjoining room.

There are certain precautions necessary in construction whether the materials are fire-resisting or not. I have already suggested the danger of hollow floors and hollow partitions, but all hollow spaces that can contain gas or transmit flame or inflammable vapour, or will even allow a supply of air to pass towards a fire, are highly dangerous. The lining of walls with matchboarding is the most ordinary case of this kind. By means of it fire communicates instantly all over a shop and up through the floor to the rooms above. The hollows formed in heavy plaster cornices and the hollow spaces behind skirtings transmit flame or inflammable air without any outward warning to adjoining or even distant rooms. One instance or two will illustrate this.

In a fire near Clapham Junction that originated among the Christmas decorations in a draper's window the smoke and flames passed in this way to the upper floor so quickly that two girls at work over the back part of the shop lost their lives, although there was an easy means of escape by getting out of the back window on to a flat. In a similar case several persons, probably seized with panic, jumped from first-floor windows into the street, instead of stepping out at the back. These are indications of the quick effect of fire in a badly-constructed building.

As to the passage of fire or inflammable vapour by hollow spaces, cases have happened where the origin of a considerable fire was inexplicable until it was traced back to some source at a considerable distance from the scene of the damage. In a "fireproof" building a workman hung his coat in a cupboard leaving his pipe in the pocket. The coat took fire and fell, setting light to the skirting, behind which a small hole had been left in the brick internal wall. The floor boards of the adjoining room had been laid on wooden strips that stood above the surface of the concrete. The fire passed along the hollow space, doing 3,000*l.* worth of damage in this "fire-

proof" building. Unless the elasticity of a floor is an object the board should be nailed down on to a surface of coke breeze concrete.

If no more serious measures than those I have described are taken in respect of a purely domestic building, they may give very material security as to its behaviour in case of fire. For many years past companies have been erecting artisans' dwellings in London, one of them having put up blocks containing nearly 6,000 tenements. In only one case has a fire in any artisans' block extended from one tenement to another. This is due to generally careful construction, though there has been no rigid adherence to fire-resisting principles.

In these descriptions of the parts of a fire-resisting building the work of the carpenter is practically excluded, and there are many buildings in which this principle should be carried out. There is, however, much convenience in the use of timber, and if posts and girders are made in large sizes, they are safer than if made in iron. Solid floors made of deal joists set close together withstand fire for a long time, but are ultimately destroyed by great heat.

Many attempts have been made to render fir timber fire-resisting or slow-burning by chemical treatment or by covering it with paint. Some of these applications are useful when applied to textile fabrics and to thin slips of wood, but I have been unable to meet with any process that renders the mass of a joist or beam fire-resisting throughout. This is a matter well worth further inquiry and experiment, for joinery at least might be protected in this way. As to the public experiments sometimes reported, those in which tar or mineral oils are liberally used are untrustworthy, for these are light-giving and smoke-producing liquids, and do not imitate the conditions of an ordinary fire.

Although we may succeed in rendering new buildings satisfactorily fire-resisting, a much more important question for the present generation is the improvement of the condition of old buildings. This is well worth the attention, of those who have the charge of building estates already covered, of ordinary town property, or of those old historic mansions filled with family treasures, one of which as I write has been added to the number of those wrecked by fire. In an ordinary building, purely domestic, if the joists are not strong enough to carry a filling in of concrete they will carry ordinary pugging, and if no more than a breadth of 3 or 4 feet all round a floor is well filled in on some fire-resisting system, every hollow behind adjacent cornices, skirtings and partitions being carefully stopped, a very considerable amount of resistance to fire will be afforded. If, besides, the points of contact between chimney stacks and floors and roofs be examined and timber cut away, the condition of an old house might be made approximately as good as that of a new building. In certain cases, where in London a domestic building is changed into a public building, and where a building partly domestic and partly used for trade is increased in area, something of this kind has now to be done.

Even more important than these details of construction is the question of arrangement of buildings with the view of preventing loss of life from fire. Warned by frequent disasters, the legislature has from time to time made provision for protecting persons from sudden fire and panic, and for insuring to the inmates of certain buildings reasonable means of escape.

Examination of this kind must be thorough, for it is difficult to exhaust the possibility of mischief caused by careless workmen in old or in modern times. I have found in an old house the brickwork of a chimney breast cut away to enlarge a cupboard, a thin board being substituted, which had evidently done duty for years in that position.

And with regard to any building the architect cannot be too cautious against assuming that reasonable care will be taken in managing it. Most houses are at times, often for a very long time, left in the hands of people without sense of responsibility. That is an additional reason for making every structural provision against the chance of a fire.

The London Building Act, 1894, provides by section 61 that every building over 30 feet in height used wholly or in part as a dwelling-house or factory, and having a parapet, shall have a dormer window or door opening on to the roof, or a trap-door with a fixed or hinged step-ladder leading to the roof, or with other proper means of escape. If there happens to be no parapet there is no such provision. I venture to think that it would only be ordinary prudence to make this provision in any house or factory where there is reasonable doubt as to the means of escape by the ordinary route. Section 62 partially meets this view by requiring that any storey in the roof, the floor of which is over 60 feet above the street, shall be constructed of fire-resisting materials, and section 63 provides that every building over 60 feet high shall have on the storeys, where the floors are over 60 feet above the street, "such means of escape in the case of fire for the persons dwelling or employed therein as can be reasonably required in the circumstances of each case." No such storeys can be occupied until the London County Council certifies that this has been done. This is new legislation, and it has now become a very important part of the duty of the Council to say what can be reasonably required in such cases.

The height of 60 feet is fixed because that is the greatest height to which a movable fire-escape will reach, and without some special provision the only means of escape from these high storeys would be by descending, if that were possible, to the lower storeys, and increasing the number of persons there in peril. Schemes to be applied to lofty hotels and houses more or less crowded at night have come before me in great variety, many of these very inadequate. It seems clear that the law, which leaves the occupiers of floors up to 60 feet in height to take their chance, intends that those on higher floors shall escape. They may have a gallery or an iron ladder or staircase for access to the roof of an adjoining building, or a series of ladders may be contrived that will conduct them clear of the windows of the burning building down to the ground. But 60 feet is a great height from which to expect women, children and sick persons, scantily dressed, suddenly alarmed in the night, and for the first time in their lives, to descend by an external ladder, in any weather and probably in the dark. They must be of tolerably good slope, have flat treads and hand-rails, and there must be suitable protection where necessary against falling into areas or through skylights. The escape door must have such fastenings only as can be easily opened from within. It must be easily found by night, and the bottom of the escape must be in some open space quite clear of danger. But whether the escape delivers to the ground or on to some willing neighbour's roof, there is risk that it will be made use of by burglars and by inmates of both premises for improper purposes. If a separate staircase leading down to a separate door of exit is provided in the building, it will very likely be allowed to go out of use, and will be turned into a store place for lumber. On the other hand, if the construction of dwelling-rooms above the 60 feet limit is of very great consequence, the owner may reasonably be required to make and keep up such arrangements, however costly, as will be really efficient.

By the 74th section of the London Building Act, when a building over 1,000 feet in area is used in part for purpose of trade and manufacture, and in part as a dwelling-house, the two parts must be separated by walls and floors of fire-resisting materials, and all means of approach to the dwelling-house portion must be constructed throughout of fire-resisting material. But the walls of staircases and passages may have openings fitted with fire-resisting doors to communicate between the two portions, for which purpose hard wood 2 inches thick is reckoned fire-resisting. For staircases hard wood 2 inches thick is also permitted, and good concrete when filled in between the joists of floors is fire-resisting.

It will be observed that the term "fire-resisting" is used and not "fireproof." The construction must not add fuel to the fire, but resist it for at least a considerable time, during which the inmates of a building may escape and fire appliances be brought to bear. If the contents of the room or even of the building cannot be saved, so much the worse for the owner or the insurance company; but the fire should rarely extend to the adjoining apartment on either side or to a storey above or below, and the smoke should be kept from staircases and passages. This means giving to adjoining sections of a house as nearly as practicable the same protection against each other as a good party wall affords to the inhabitants of an adjoining house.

THE MICROSCOPE AND ROCK STUDIES.

FROM time to time within the last few years many applications have been made by teachers, students and other visitors to the Museum of Practical Geology, London, for permission to examine thin sections of rocks under the microscope. As it would interfere with the work of the Geological Survey to allow strangers to study in the Petrographical Department, and it would obviously be unsafe to entrust them with the use of valuable instruments, a small strong microscope of special construction has recently been acquired and set apart for the use of visitors. Twelve typical rock sections have been mounted on a revolving stage, where they are fixed in position and protected by a thick glass plate so as to avoid any chance of injury by those who are not familiar with the manipulation of a microscope. The instrument is provided with a one-inch object-glass and with polarising apparatus. The sections selected by Mr. W. W. Watts comprise examples of pitchstone, rhyolite, granophyre, granite, trachyte, angite-andesite, hornblende-diorite, olivine-basalt, ophitic dolerite, phonolite and leucite-rock. Coloured sketches of these sections as viewed under the one-inch objective have been carefully prepared by Mr. Gilbert Williams, and are accompanied by short descriptions written by Mr. Watts. As it would be hardly safe to place the microscrope in a public museum for indiscriminate use, it is at present kept in the library, where it may be used by visitors on application.

THE FUTURE OF LORD LEIGHTON'S HOUSE.

THE interesting collection of sketches and studies which for the last two months has been undergoing an intermittent private view at the house of the late Lord Leighton raises in an acute form, says the *Times*, the question of the future of both the house and the sketches. There is a fitness about the present arrangement which is beyond dispute. The untiring industry of the artist, his exquisite sense of form, are illustrated even more forcibly by the introduction to his studio than by an exhibition of his finished works. Pencil drawings dating from Italian days—some wide-stretching landscape, a classic building, a quaint group—marvellous delineations of the endless complexity of a great tree, almost anatomical studies of every figure—almost every limb of every figure—which finds a place in one of his great pictures, all combine to prove the unerring accuracy of eye and hand, and the ceaseless pursuit of perfection which characterised the man, who would never sign a picture, lest it should be taken to indicate that he was satisfied with his work. Such a collection is not only of high interest to the layman, but of exceptional educational value to the student. It might, no doubt, properly find a place in one of the large national galleries or museums, there to be overlooked among more obvious achievements, perhaps to be hidden away in drawers and cupboards, and produced on rare occasions to the exceptionally curious. But at present it has its appropriate setting in the very workshop where much of it was created. And how characteristic a setting. In Germany a great man's Geburtshaus or Wohnhaus is held sacred, though not in itself of any beauty. Thomas Carlyle's house is interesting only for its associations. But Leighton's house is as much one of his works as the Daphnephoria or the Arts of Peace. It was built to his designs, it has a suite of ideal studios, it is protected by a sufficient and pleasant garden; its floors, its walls, its staircase are rich with the marbles, the paintings, the tiles, which satisfied the artist's taste; and as an adjunct to its living-rooms it possesses the well-known Arab Hall. This suggestion of the East was Lord Leighton's own creation. Having the good fortune to acquire an unusually large number of fine Persian tiles, he endeavoured to give them a congruous home. Marble columns designed by Boehm, a frieze in which Mr. Walter Crane's fancy finds play, Cairene woodwork and Syrian glass are brought together in a lofty vaulted chamber, the walls of which are lined with the precious pottery. The splash of a small fountain invites to day-dreams, while the eye runs riot over the blues and greens and lilacs of the tiles, the gold of frieze and capitals and the warm tints of the Damascus glass. Such a profusion of rich and varied colouring in internal decoration it would be difficult to match.

By what means, then, can house and sketches be preserved in their present happy union? It is well known that Lord Leighton left his house absolutely to his two sisters. These ladies, with a munificence which recalls their distinguished brother, have now, by way of gift, transferred the property to representatives of the committee which has, ever since Lord Leighton's death, kept alive the hopes of the eventual preservation of the house. They have done more. They have by liberal gifts aided in rescuing from dispersion the interesting collection which now finds a home in the house. A large circle of friends and admirers of the artist (headed by the Prince of Wales) have contributed to the same end by purchasing sketches from the Fine Art Society (to which they were entrusted for sale) and presenting them to the house. Thus at the present moment both house and sketches are in the hands of those whose one desire is to make them the permanent possession of the nation. But to achieve this object something more is needful. Lord Leighton's house was not his freehold. It is held from Lord Ilchester under leases carrying substantial ground rents. The lighting, the water supply of the house—to say nothing of possible contributions to rates and taxes—its repair and maintenance, and the provision of proper caretaking represent not a large but a very appreciable annual expenditure. A mere voluntary committee—still less two or three private persons—cannot be expected to hold for an indefinite period a property entailing liabilities. In the form of annual subscription, guarantee, or endowment some means must be found of meeting current outgoings; and somebody of a permanent character to hold and manage the house must be brought on the scene. There should be no great difficulty in complying with either condition. The Vestry and the Library Commissioners of Kensington have shown a keen interest in the preservation of the house. Under the Public Libraries Act the commissioners have power to provide not merely public libraries but "art galleries" and "schools for art," and in the administration of such places they have a free hand. Lord Leighton's house might be made a "school for art" in the widest sense. Not only should students of form and composition have full opportunity for the examination of his work and methods. The large studio forms an admirable room for lectures, for chamber music, for representations of the higher forms of drama. One can imagine that under skilful management such a place, starting with the invaluable endowment of association with a gifted and winning personality, might be made a living agency for the education of the eye and ear in the appreciation of beauty of form, of colour, of sound. And in so doing the house and its contents might to some extent provide for their own maintenance. Certain difficulties incident to a leasehold tenure have to be overcome, but Lord Ilchester, as ground landlord, has shown every inclination to facilitate the objects of the committee. It rests with Kensington first, and in the second place with the nation, to decide whether the brilliant President of the Academy shall be commemorated in the way which would have been most to his wish, by the consecration of his house and its drawings to the advancement of art, and the gladdening and refining of the national life.

THE OLD WINDOW TAX.

DIRECT taxes may be a necessity, but they were never popular in England. It is also found that they press unequally. But they have the advantage for collectors of being difficult to evade. Hence it was that from time to time houses or parts of houses, such as windows, chimneys, hearths, &c., were selected as subjects for taxation. Macaulay says that under Charles II. the tax on chimneys was, even among direct imposts, particularly odious, for it could be levied only by means of domiciliary visits; and of such visits the English have always been impatient to a degree which the people of other countries can but faintly conceive. The poorer householders were frequently unable to pay their hearth money to the day. When this happened their furniture was distrained without mercy, for the tax was farmed, and a farmer of taxes is, of all creditors, proverbially the most rapacious. The collectors were loudly accused of performing their unpopular duty with harshness and insolence. It was said that as soon as they appeared at the threshold of a cottage the children began to wail and the old women ran to hide their earthenware. Nay, the single bed of a poor family had sometimes been carried away and sold. The net annual receipt from this tax was 200,000*l*. The abuses of collection caused many changes, and a house tax which could be assessed without passing a threshold was levied. The necessities of the State afterwards imposed a tax on windows in addition to houses. Then the house tax was removed, partly because it was supposed to discourage the occupation of houses, but the window-tax duty was retained.

The duty on windows was not favourable to the provisions for admitting daylight into houses. It was found that in many cases window openings were blocked up in order to evade the payment of the duty. In new buildings, although the positions of the windows were arranged, glass was not introduced. The size of windows was also restricted. The Act 48 Geo. III. cap. 55 was passed in order to introduce some system into the arrangements. It enacted that:—

1. All skylights, and all windows in staircases, garrets, cellars, passages and all other parts of houses, to whatever use applied, were subject to the duties.

2. Every window in any kitchen, cellar, scullery, buttery, pantry, larder, washhouse, laundry, bakehouse, brewhouse or lodging room belonging to or occupied with any dwelling-house, whether the same was within or contiguous to or disjoined from the body of the dwelling-house, was also subject to the duties.

3. The duties were to be charged annually upon the occupier, his executors or administrators.

4. When any change in the occupation took place after the assessment, then the duties charged on the former occupier were to be paid by the present occupier, landlord or owner of the premises, without any new assessment, notwithstanding such change in occupation. But where a tenant left, and gave notice thereof to the assessor, the duty was discharged for the remainder of that year, provided it appeared to the commissioners that the premises continued wholly unoccupied.

5. Where a dwelling-house was let in different apartments, it was to be charged as if let to one person only, and the landlord or owner was deemed the occupier and charged. But in cases where the landlord did not reside within the limits of the collector, or the duties remained unpaid by the landlord for twenty days after they were due, they could then be levied on the occupiers, and the amount deducted out of the next rent.

6. Every house that was left to the care of any person was equally subject to the duties, which were to be paid by the owners or tenants.

7. Every window, including the frame, which by admeasurement of the whole space of the aperture on the outside of the wall exceeded in height 12 feet, or in breadth 4 feet 9 inches (not being less than 3 feet 6 inches high), was charged as two windows, except those that were made of greater dimensions prior to April 5, 1785; and also the windows in shops, work-

shops and warehouses, and the windows in public rooms of any house licensed to sell wine, ale or other liquors for the entertainment of company, and the windows of farmhouses especially exempted from the duty on houses.

8. Every window extending so as to give light into more rooms, landings or storeys than one was charged as so many separate windows, as there were rooms, landings, or storeys so enlightened.

9. When a partition or division between two or more windows fixed in one frame was of the width of 12 inches, the window on each side was charged as a distinct window.

The only exemptions were houses belonging to the king or any of the royal family, public offices, hospitals, charity schools and poor-houses, except such apartments as were occupied by the officers and servants, which were assessed as separate dwelling-houses; the windows in any room licensed for divine worship, and used for no other purpose; and the windows of dairy and cheese-rooms, made of splines or wooden laths or iron bars, and wholly without glass.

The amount of duty was 6*s.* 6*d.* for every house which had no more than six windows, and of a rental of less than 5*l.* a year; if worth 5*l.* the duty was 8*s.* For houses worth more than 5*l.* a year the duty was charged by the number of windows. The amount varied for every window. For a house with seven windows the duty was 1*l.*, but for nine windows it was 2*l.* 2*s.* A house with fourteen windows paid 6*l.* 3*s.* 6*d.* On one with twenty-eight the duty levied was 17*l.* 19*s.*, while one with fifty-six windows paid 37*l.* 6*s.* The occupant of a house which had twenty windows paid 11*l.* 4*s.* 6*d.*, while for thirty windows the sum was 19*l.* 12*s.* 6*d.*, for forty windows 28*l.* 17*s.* 6*d.*, and for 100 windows 58*l.* 17*s.* The highest number specified was 180 windows, the duty on which was 93*l.* 2*s.* 6*d.* If there were more the additional windows were charged 3*s.* each.

TESSERÆ.

Hieroglyphical Writing.

THERE are three species of Egyptian writing. The first is that of the temples and tombs, in which all the symbols used to appear in their complete forms, well defined and often carefully coloured so that the objects intended to be represented can be in general clearly recognised. This is the style to which the name hieroglyphics is primarily applied. It is employed in many of the funereal papyri or rituals, which were wont to be buried with the dead, the forms of the objects being drawn in outline, with slight modifications according to the taste of the scribe and for the sake of speed in writing. The next species is that termed hieratic, which is a modification of the preceding, and was used for literary compositions and the purposes of ordinary life. Funeral rituals were also not infrequently written in this character. The forms of many of the hieroglyphics are so much altered in this style that it would be impossible to recognise them except by a comparison of identical passages written in both characters, which the hieratic rituals fortunately enable us to effect. The hieratic may be broadly described as the cursive writing in general use in Egypt from the earliest period down to about 600 B.C., or nearly to the time of the Persian invasion. During this long period several varieties of it occur, but the writing is essentially the same. About 600 B.C. it began to be supplanted by the third species, called by the Greeks demotic, which is an abbreviated and less cumbrous form of the hieratic. The principle of all these three kinds of writing is the same. In general each word is spelt by phonetic signs, which stand either for letters or syllables. The word thus spelt is followed by one or more symbols, which are not sounded, but indicate the class of ideas to which the word belongs. Thus there are symbols to mark ideas of motion, violent action, repose, thought, wickedness, animals, vegetables, and a host of others. This ingenious combination of symbolical and phonetic writing has been the means of preserving the Egyptian language to us, for without the hints afforded by these significant characters the task of interpretation would be almost hopeless.

Sites of Greek Theatres.

A proof of the Greek love and admiration of beautiful scenery is often derived from the situation of their theatres, many of which, as those of Argos, Syracuse, Tauromenium and the Dionysiac Theatre at Athens, in their present ruinous condition, now that only the seats cut in the rock for the spectators remain, certainly do command the most lovely prospects. But those who use this argument appear to do what certainly the spectators could not have done—to overlook, namely, the stage wall, which, when standing, would most effectually have shut out all view of anything beyond the stage from all but the occupants of the very highest rows of seats. Indeed, if we may draw an inference as to the ordinary height of these appendages to the theatres from the enormous pile of masonry, 100 feet high, which composes the stage wall of the theatre at Orange, no single spectator in the theatre was in danger of having his attention diverted from what was passing on the stage before him by the attractions of the distant prospect. In any case the motive assigned could not in any degree have influenced their choice of a site for their theatres, and we are forced to fall back upon that which was, after all, probably their sole reason for the selection—the convenience offered by a sloping rock, which in a country like Greece must always have been sufficiently near at hand for the construction of the immense extent of semicircular benches which were required for the national exhibitions and assemblies which took place in these buildings.

Parmigiano's "St. Jerome."

An anecdote related by the Padre Affò is a modern counterpart to more than one classic story of the kind, resembling more particularly that of the painter Protogenes, who, we are told, pursued his occupation in tranquillity while Rhodes was stormed by Demetrius Poliorcetes. "Parmigiano was earnestly engaged in giving the last touches to the picture of *St. Jerome* for La Buffalina when, the walls of Rome having been scaled and the city itself taken by the invaders, the wild soldiery ran from house to house intent on spoil. The painter, absorbed in his occupation, paid no attention to the roar of the artillery, the tumult of the people or the shouts of the military, till some of the enemy, rushing into the very house and searching every corner, suddenly entered the room where the artist was at work. The amazement of the soldiers on seeing him thus quietly pursuing his labours was greater than his own on finding himself surrounded by lawless and hostile men. Fortunately the leader of the band, who had meanwhile taken possession of the house, happened to be an amateur of painting. He felt an interest for the artist, and contented himself by only requiring him to execute a good number of drawings." The painting of the *Vision of St. Jerome* was to be placed in the family chapel of Maria Buffalina, in the church of San Salvatore di Lauro, at Città di Castello. It remained there till 1780, when the church of San Salvatore was ruined by an earthquake, and the picture was purchased by an English collector and brought to this country. After passing through different hands, it was finally purchased by the Governors of the British Institution, at the sale of Mr. G. Watson Taylor's pictures in 1826, and by them presented to the National Gallery.

Ancient Vase Production.

If we consider the regular and organic development in the art of vase-painting, and the resemblance among the vases found in the most distant parts of the ancient world, we feel inclined to look to one particular place or country in which they originated, and in which the art was developed. If, in addition to this, we remember that the subjects represented on these vases, as far as they are intelligible to us, belong to the mythical history of Attica, and that the characters in the inscriptions underwent, in the period in which the vases were manufactured, the same changes as those which we find in Attic inscriptions, together with various other circumstances which are carefully weighed and examined in the work of Kramer, we can scarcely doubt that Athens was the place where they were manufactured, and from whence they were exported to various other parts of the ancient world. Some of the vases belonging to the first class, especially those with Doric characters in their inscriptions, may have been made at Corinth. The principal manufactory at Athens seems to have been in the Ceramicus, a suburb of Athens. The trade which Athens thus carried on in painted vases must have been very extensive. Other towns, too, as we know from Pliny, who speaks only of his own time, had their potteries, in which vessels of various kinds, and some of great beauty, were manufactured for the purposes of ordinary life, and an extensive trade in them was carried on.

Treasure Trove.

The Roman civil law gave treasure found in general to the finder; but if found accidentally in another man's land, half was given to the finder and half to the owner of the land. And so if it was found in the land of the emperor, it was to be equally divided between him and the finder. Grotius says that the title of the prince to treasure trove had in modern times been so generally established in Europe as to have become "jus commune et quasi gentium." The law of England adopts the definition of treasure trove from the civilians as "vetus depositio pecuniæ cujus dominus ignoratur;" and to entitle the Crown to the property it must appear to have been hidden or deposited by some one who at the time had the intention of reclaiming it. Whenever, therefore, the intention to abandon appears from the circumstances—as for instance, where the property has been found in the sea, or in a pond or river, or even openly placed upon the surface of the earth—it belongs to the finder. In England the concealment of treasure trove from the king was formerly a capital offence. By the law of England treasure trove is a branch of the revenue of the Crown. Where

coin, plate, or precious metals are found hidden in the earth or any private place, and the owner or person who deposited them is unknown, the property becomes vested in the king by virtue of his prerogative. But if the owner is known, or is ascertained after the treasure is found, the property belongs to him, and not to the Crown.

Perspective in Painting.

The business of perspective is to represent objects as they appear to the eye, or as they are delineated on a transparent plane placed between the spectator and the object. The rules of perspective, as well as other rules, may be injudiciously applied, and it must be acknowledged that a misapplication of them is but too frequently found even in the works of the most considerable artists. It is not uncommon to see a figure on the foreground represented near twice the size of another which is supposed to be removed but a few feet behind it; this, though true according to rule, will appear monstrous. This error proceeds from placing the point of distance too near the point of sight, by which means the diminution of objects is so sudden as to appear unnatural, unless you stand so near the picture as the point of distance requires, which would be too near for the eye to comprehend the whole picture; whereas, if the point of distance is removed so far as the spectator may be supposed to stand in order to see commodiously, and take within his view the whole, the figures behind would then suffer under no such violent diminution. Du Piles gives an instance which proves, as he imagines, the uncertainty of the art. He supposes it employed to delineate the Trajan Pillar, the figures on which being, as he says, larger at the top than the bottom, would counteract the effects of perspective. The folly of this needs no comment, and it is not true, the figures on that pillar being all of the same dimensions.

Memorial Columns.

The idea of employing a column for a public memorial was probably derived from Egyptian obelisks. It seems to have been first adopted by the Romans, but neither manifests much invention nor regard to propriety. An obelisk is evidently complete in itself; is not intended to bear any support or to be kept steady by it, but is calculated to stand by itself. A column, on the contrary, is only a member of a structure, detached from which and from its entablature it has no meaning nor any particular grace, being apt to look tottering and "top-heavy." It is chiefly as forming a lofty and conspicuous object that a single colossal column recommends itself as a triumphal monument, yet such general outline might be preserved without adhering to the precise shape and details derived from examples from any one of the Orders. In this respect Trajan's Pillar is not so great an architectural solecism as many of the numerous columns professing to be in imitation of, or "after" it, because, owing to its shaft being entirely embossed with sculptures, the ordinary column character is done away with, and a degree of variety and magnificence is produced which may be allowed to silence the objections of criticism. There certainly was something poetical in the idea of making the shaft which bore the emperor's statue record his conquests and military exploits; and the sculptures themselves are not only superior specimens of Roman art, but highly interesting and valuable as historical documents of costume. At the same time they serve to make evident how very ill the surface to which they are applied is calculated to display them; for, instead of being extended horizontally, this vast bas-relief is coiled spirally from the base to the summit, so that the figures on the upper part of the shaft can hardly be made out, nor can those on the lower one be viewed consecutively without going round and round the column. This historical poem, as it has been called, addresses itself therefore more to the imagination than to actual inspection.

Invention in Art

As regards the operations of the mind which are employed in the process of imagination, and of invention also, these are of a twofold nature, the first of them consisting in the combination of ideas one with another. Through the instrumentality of this combination, ideas of different kinds are joined together and blended into one, forming by this means an original compound idea or object wholly different from either of those out of which it was constituted, and appearing to the mind as though an entirely and absolutely new creation has been effected, in its nature and properties in all respects varying from any of those which separately contribute to its constitution. Thus, in an analogous manner, in chemical science water is compounded of certain gases or elements, each of which in its separate state has no apparent affinity or resemblance to the production which their union together serves to originate. It is obviously of the very highest importance that the combinations which the mind makes for this purpose, and by which all imaginative ideas are generated, should be carried out in a manner suitable to this end, and should, as far as requisite, be regulated by the principles laid down with respect to artistical design and composition in general. Thus the ideas which are so combined should be those only which would be naturally brought together and united in one object, and not such as we should never see in nature so conjoined. These ideas should also be such as will not only blend together, but such as will, as it were, melt down and amalgamate into one entire and single whole. Moreover, although the combinations which the imagination effects are all the result of art, yet nature should never be lost sight of in the mode of making them; and from her alone should all the materials for combination be drawn, which should, although combined, still appear as in their original state. The combinations should also be as natural as regards the mode of effecting this operation as are the elements of combination themselves. Indeed, all imaginative and inventive efforts, in order to be sterling and durable, must be founded in nature. This is the only metal which will pass current in all ages and in all climes; and in the highest flights of the imagination nature should be regarded as the ground on which we must eventually alight. This rule, moreover, holds good in invention as well as in imagination.

Foot Rules.

In the ruins of Herculaneum a square ivory measure with the four sides smooth was found. It might be called a half-foot rule. It contained five inches, five lines, and about half a line, by the French measure. Barthélemy saw a foot rule in brass, folding together by means of a spring, a little bent, of the same admeasurement as the last. They are lineated, like modern rules, in Gruter and Montfaucon, and are probably foot rules, *i.e.* pedalia. There were also foot measures in the shape of feet. In Cicero we have the decempes, or ten-foot rule. Martial describes the quincupeda or quincupedal, a five-foot rule, as made of the wood ilex, distinguished by marks (*puncta notis*), and ending in a sharp point. He adds that it was used, as now, by surveyors to detect contractors of building.

Roman Cottages.

The Roman cottages, as they appear in paintings at Pompeii, differ only from the modern in not having transom or garret windows, and the door at the gable end. There is no chimney. The roof is coved or arched. Ovid, in his "Baucis and Philemon," amply describes the cottage, and from him we find that it was roofed with thatch of reeds or straw. The door was so low that it could only be entered by stooping. Flitches of bacon were suspended from a black beam, and dry branches for firing hoarded in the roof. A beechen vessel for washing the feet, and a bedstead with willow feet, a three-footed table, one foot unequal, olives and cornels in pickle, endive, radish and cheese with roasted eggs, occur as the furniture and fare, the latter of which is served up in earthen vessels. The table was rubbed clean with green mint. The bowl was of pottery, and the cups of beech smeared within with wax.

GENERAL.

The Burgh Engineer of Dundee has prepared plans for an extension of the Esplanade which will cost about 36,000*l.*

Mr. T. Armstrong has been allowed to remain in the service of the Science and Art Department for another year as director of art at South Kensington.

A Special General Meeting and Council meeting of the Institute of Sanitary Engineers will be held at the offices, 63 and 64 Chancery Lane, on Monday next.

The Annual Meeting of the Cambrian Archæological Association commenced at Ludlow on Tuesday under the presidency of Lord Windsor.

The Devon and Exeter Architectural Society having considered the correspondence between the architects of Plymouth and the Corporation concerning the Tavistock Road Competition, passed a resolution approving of the action of the local architects, and expressing regret that the Corporation were unable to accede to their suggestions.

The Trustees of the National Gallery have purchased (subject to the permission of the Court of Chancery), under a special grant of money from the Treasury, two pictures by Rembrandt, the property of Lady de Saumarez, entitled "The Burgomaster" and "The Burgomaster's Wife," being portraits of an elderly man and an old lady not at present identified. These pictures will be hung in the principal Dutch Room. The "Virgin of the Rocks" has been transferred from the Florentine Room to the Milanese Room, where it is now hung between the two wings by Ambrogio de Predis, recently purchased.

The late Charles Garnier was buried in the Mont Parnasse Cemetery, Paris, on Sunday. The pall-bearers were M. Bourgeois, Minister of Public Instruction; M. Larroumet, M. Francisque Sarcey, and M. Gérome. M. Larroumet delivered an address over the grave.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xv.

COMPETITIONS OPEN.

GLASGOW.—Aug. 15.—Designs are invited for the exhibition buildings to be erected on sites in the Kelvingrove Park and Bunhouse Ground. A premium of 200*l.* will be awarded to the author of the design considered first in merit, second and third premiums of 150*l.* and 100*l.* respectively. Mr. H. A. Hedley, general manager and secretary, 141 Buchanan Street, Glasgow.

LIVERPOOL.—Oct. 3 (time extended).—Designs for new buildings for Royal Institution. 50 guineas, 20 guineas. Mr. Harold Waterhouse, hon. sec., 3 Cook Street, Liverpool.

SALFORD.—Aug. 16.—Designs for three chapels, offices lodge, entrance gates and boundary walls at proposed cemetery in Langley Road and Agecroft Road, Pendlebury. Premiums of 50*l.*, 30*l.* and 20*l.* respectively. Borough Engineer, Town Hall, Salford.

STOCKHOLM.—Aug. 31.—Designs for railway station, Particulars from the Offices of the Consulate, 27 Great Winchester Street, London.

CONTRACTS OPEN.

ABERDEEN.—Aug. 25.—For erection of byres, stables and men's room on the Farm of Auchmillan, Auchindoir. Mr. John Annand; Mr. John Craigen, solicitor, 193 Union Street, Aberdeen.

ABERFELDY.—For erection of an hotel at the station. Mr. D. Cameron, architect, Inverness.

BEXHILL.—Aug. 15.—For erection of boundary-walls, railing, kerbing, paving and channelling the footpaths and other works opposite the town hall. Mr. Geo. Ball, surveyor, Town Hall, Bexhill.

BIRMINGHAM.—Aug. 31.—For erection of a covered way at the workhouse infirmary. Mr. W. H. Ward, architect Paradise Street, Birmingham.

BLACKBURN.—Aug. 23.—For erection of probationer homes for pauper children and superintendent's house near the workhouse, also two homes in Cherry Street, and two homes in Poplar Street. Messrs. Stones & Gradwell, architects, &c., Richmond Terrace, Blackburn.

BLACKBURN.—Aug. 15.—For erection of a shop at the corner of King William and Lord Streets. Mr. William Stubbs, engineer, Blackburn.

BRENTWOOD.—For additions to warehouses, Warley Road, Mr. A. T. G. Woods, architect, Brentwood.

BRISTOL.—Aug. 15.—For erection of parish room, Emmanuel Church, Clifton. Mr. Henry Williams, architect, 24 Clare Street, Bristol.

BURLEY-IN-WHARFEDALE.—Sept. 1.—For erection of a county private retreat at Scaleber Park. Mr. J. Vickers Edwards, county surveyor, Wakefield.

CHELTENHAM.—Aug. 17.—For (Contract No. 1) certain works and alterations required at the workhouse in connection with a new classification scheme, (Contract No. 2) erection of two iron fire-escape staircases at the workhouse. Mr. G. W. Sadler, architect, at the Workhouse.

COCKERMOUTH.—Aug. 17.—For alterations, additions and reseating of the Primitive Methodist chapel, Wyndham Row. Messrs. W. G. Scott & Co., architects, Victoria Buildings, Workington.

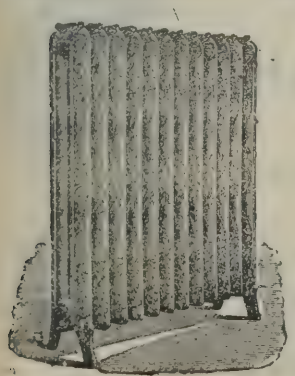
CONSETT.—Aug. 31.—For erection of the new institute buildings in Park Road, Consett. Messrs. Plummer & Burrell, architects, 13 Grey Street, Newcastle-upon-Tyne.

CORK.—Aug. 20.—For erection of a National school at Bunmona. Mr. Jeremiah O'Regan, Bunmona, Charleville

DARLINGTON.—Aug. 18.—For extending the greenhouse at the public park. The Borough Surveyor, Town Hall.

DARTMOUTH.—For rebuilding and part roofing end of coal store. Mr. J. Tall, manager, Dartmouth Gas Company.

DARWEN (LANCS.).—Aug. 25.—For erection of iron and steel buildings in connection with the new refuse destructor at Robin Bank Road. Mr. C. Costeker, town clerk.



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DUBLIN.—Aug. 16.—For erection of buildings and foundations in connection with the township electric-lighting works. Mr. Robert Hammond, 64 Victoria Street, London, S.W.

DURHAM.—Aug. 31.—For erection of institute buildings in Park Road, Consett. Messrs. Plummer & Burrell, architects, 13 Grey Street, Newcastle-upon-Tyne.

DURHAM.—Aug. 15.—For erection of 18 houses (brick) at Co-operative Villas, No Place, Beamish. Mr. T. Ernest Crossling, architect, Front Street, Stanley, R.S.O.

EASINGWOLD.—Aug. 19.—For erection of vagrant cells, &c., near the workhouse. Mr. F. J. H. Robinson, clerk, Easingwold.

EAST HAM.—For erection of the Passmore Edwards public library at Plashet. Mr. Silvanus Trevail, architect, Palace Chambers, 9 Bridge Street, Westminster, S.W.

ELDWICK.—For erection of a house and shop, with stable, &c. Messrs. John Judson & Moore, architects, Keighley.

ELGIN.—Aug. 15.—For erection of dwelling-house, shops and printing office in South Street. Mr. G. Sutherland, 51 High Street.

GLOUCESTER.—Aug. 15.—For erection of infectious diseases hospital and buildings in connection therewith at Over. Messrs. Evans & Son, 7 John Street, Adelphi.

GRANGEMOUTH.—Aug. 22.—For erection of a block of dwelling-houses in Forth Street. Mr. G. Deas Page, architect, Old Glebe Chambers, Falkirk.

GRANGE-OVER-SANDS.—For building new shop premises in Main Street, Grange-over-Sands. Mr. John Hutton, architect, Kendal.

GREAT BROUGHTON.—Aug. 15.—For erection of business premises and dwelling-house. Mr. J. S. Moffat, architect, Church Street, Whitehaven.

HORSFORTH.—For erection of seven through cottages. Mr. Mark Walker, Albert Mount, Broadgate Lane, Horsforth.

ILFORD.—Aug. 23.—For erection of an underground latrine in the Broadway. Mr. Herbert Shaw, surveyor, 7 Cranbrook Road.

IRELAND.—Aug. 25.—For erection of two blocks of houses at Laurlie, Princeton Road, Bangor. Messrs. Young & Mackenzie, Donegall Square East, Belfast.

IRELAND.—Aug. 18.—For alterations and repairs at Ergenagh Rectory, Omagh. Mr. A. M'C. Stewart, diocesan architect, Londonderry.

IRELAND.—Aug. 19.—For completion of labourers' cottages at Skenagun. Mr. J. Ralph Dagg, clerk, Baltinglass.

IRELAND.—Aug. 15.—For erection of creamery at Ramelton. Mr. M'Laughlin, Ramelton.

IRELAND.—Aug. 17.—For erection of fence to labourers' plot in townland of Ballynash Bishop, Rathkeale. Mr. T. B. Naughton, clerk.

KENDAL.—Aug. 19.—For additions and alterations to Harmony Hill, Milnthorpe. Mr. Stephen Shaw, architect, Kendal.

KIDDERMINSTER.—For additions to the Park Wharf Carpet Manufactory, Park Lane. Mr. J. M. Gething, architect, Oxford Chambers, Kidderminster.

LEEDS.—For erection of two semi-detached villas, Roundhay. Mr. Albert E. Kirk, architect, 13 Bond Street, Leeds.

LEOMINSTER.—Aug. 20.—For erection of a cottage hospital and nurses' home in South Street. Mr. J. B. Dowding, 5 Corn Square, Leominster.

LISBURN.—For erection of a manse at Crossan, about three miles from Lisburn. Messrs. A. Boyd & Co., Limited, Castle Buildings, Lisburn.

MANSFIELD.—Aug. 20.—For erection of schools in Rosemary Lane. Messrs. Vallance & Westwick, architects, White Hart Chambers, Mansfield.

MARYPORT.—Aug. 13.—For alterations and additions to farm buildings on the Ewanrigg estate. Messrs. Castiglione & Gibbings, surveyors, 31 Lowther Street, Carlisle.

MASHAM.—For erection of buildings and alterations of existing ones at Fearby Grange Farm. Mr. Robert Imeson, land agent, Sutton Grange, Masham.

MORLEY.—Aug. 26.—Contract No. 1: For construction of about 817 lineal yards brick culvert, 3 feet internal diameter; about 140 lineal yards of brick culvert, 4 feet internal diameter; with manholes, storm-water overflow, &c. Mr. W. E. Putman, borough engineer.

NEWPORT, MON.—Aug. 16.—For alterations and repairs, including erection of two new partitions and laying of a new floor at the Upper Cwmbran Board school. Messrs. Lansdowne & Griggs, architects, Newport, Mon.

OXFORD.—Aug. 22.—For erection of cottages and farm buildings in parishes of Littlemore and Sandford-on-Thames. Mr. W. H. White, city engineer, Town Hall, Oxford.

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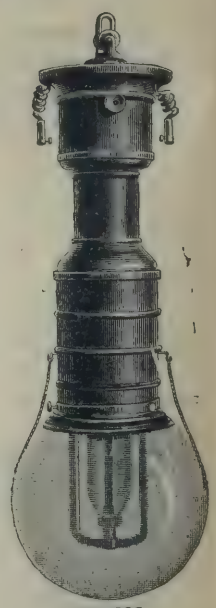
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ROMSEY.—Aug. 16.—For building a concrete retaining wall in the abbey. Mr. M. L. Harle, town clerk, Abbey Water, Romsey.

ROTHERHAM.—Aug. 17.—For erection of school with covered sheds and other outbuildings, &c., at Catcliffe. Mr. J. Platts, architect, Old Bank Buildings, High Street, Rotherham.

SCARBOROUGH.—For erection of four houses at Scalby. Messrs. Hall, Cooper & Davis, architects, Scarborough.

SELBY.—Aug. 15.—For repairs to Marsh and other bridges, also for supplying and fixing new clough doors, repairing brickwork, &c., at Carlton. Mr. Thomas Braithwaite, surveyor, 15 The Crescent, Selby.

SHEFFIELD.—Aug. 15.—For erection of fifteen cottages fronting Johnson Street and Wood Grove, Wincobank. Mr. G. A. Wilson, architect, Hartshead Chambers, Sheffield.

SHEFFIELD.—Aug. 15.—For alterations to 12 and 14 Upperthorpe. Mr. Edm. Winder, jun., architect, Corn Exchange Chambers, Sheffield.

SHEFFIELD.—Aug. 29.—For erection of additional buildings at the destructor, Lumley Street, Attercliffe. Mr. Charles F. Wike, C.E., city surveyor, Town Hall, Sheffield.

SHEFFIELD.—Aug. 15.—For erection of seven cottages at The Cross, Ecclesfield. Mr. G. A. Wilson, architect, Hartshead Chambers, Sheffield.

SHEFFIELD.—Aug. 15.—For extension of car-sheds, consisting of two-span steel roof, car-pits, stores, boundary wall, latrines, foreman's house, &c., at Tinsley. Mr. Charles F. Wike, C.E., city surveyor, Town Hall, Sheffield.

SHOREDITCH.—Aug. 15.—For erection of a new battery-room, boiler-house and extension of offices at the electric supply station, Coronet Street. Messrs. Kincaid, Waller & Manville, engineers, 29 Great George Street, Westminster.

ST. ANNES-ON-SEA.—Aug. 20.—For erection of a church. Messrs. Austin & Paley, architects, Castle Hill, Lancaster.

STOCKSFIELD.—For erection of a house and shop. Mr. T. Leslie Anderson, architect, Newcastle.

STOWMARKET.—Aug. 20.—For alterations and additions to a warehouse, the erection of a new showroom, &c., in Bury Street. Mr. Henry Geo. Bishop, architect, Cheapside, Stowmarket.

STRATFORD-UPON-AVON.—For erection of a laboratory at the school premises in Church Street, and alterations and additions at the schoolhouse in Chapel Lane. Mr. Thos. T. Allen, architect, 2 Broad Street, Stratford-upon-Avon.

SWINTON.—Aug. 16.—For erection of cells, &c., and alterations to police office. Mr. Henry Littler, architect, County Offices, Preston.

SUNDERLAND.—Aug. 25.—For erection of a technical college at Green Terrace. Messrs. Potts, Son & Hennings, Ely Place, Holborn, London.

SWANSEA.—Sept. 19.—For erection of Manselton school, Mr. C. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

THORNABY-ON-TEES.—Aug. 15.—For erection of offices and foreman's house. Mr. J. Mitchell Bottomley, architect, 26 Albert Road, Middlesbrough.

WALES.—Aug. 20.—For additions and alterations to the Llantwit Major Board school. Mr. E. Jenkin Williams, architect, 14 High Street, Cardiff.

WALES.—Aug. 20.—For erection of a school at Six Bells Village, near Aberbeeg, to accommodate 230 children. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport, Mon.

WALTHAMSTOW.—Aug. 23.—For erection of public baths. Messrs. Spalding & Cross, architects, 15 Queen Street, Cheapside.

WIGAN.—Aug. 15.—For erection of the new Wesleyan church, Hindley. Messrs. Wm. Waddington & Sons, architects, 17 St. Ann's Square, Manchester.

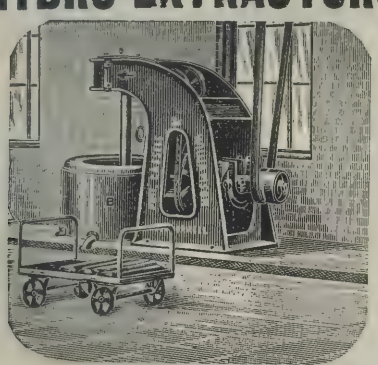
WINCHESTER.—Aug. 20.—For erection of buildings at Peter Symonds's school. Messrs. Cancellor & Hill, architects, 12 Jewry Street, Winchester.

WREXHAM.—Aug. 15.—For erection of four houses in Empress Road. Mr. J. Pender, 42 Ruabon Road, Wrexham.

WREXHAM.—Aug. 18.—For erection of a bridge over the river Gwenfro, at Stryt-y-bidden. Mr. John Strachan, Crispin Lodge, Wrexham.

A PUBLIC-HOUSE at Norwich, which was isolated by the recent great fire, and which had been shored up in consequence of its unsafe condition, collapsed, burying four persons in the ruins, a man and a woman who were in the house and two men who were removing *débris*.

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TENDERS.

ABERDEEN.

For mason, carpenter, slater and plasterer's work of parish church hall, Kintore.

Accepted tenders.

J. Smith, Kintore, mason	£76 18 0
J. Maitland, Kintore, carpenter	60 11 7
Milne, Inverurie, slater	24 14 0
Sievewright, Inverurie, plasterer	13 10 0

ALTON.

For construction of outfall sewer, engine-house and pump well, bacteria tanks, filtration area and manholes, &c. Mr. R. F. GRANTHAM, engineer, 23 Northumberland Avenue, W.C.

W. Lee & Sons	£9,614 0 0
S. Kavanagh	9,209 0 0
A. T. Cattley	8,500 0 0
B. Cooke & Co.	7,990 0 0
M. Till	7,567 0 0
J. JACKSON, Forest Gate (*accepted*)	7,392 0 0

ARNOLD.

For kerbing and asphalting the Notting Road between the Seely Convalescent Home and Fish Bridge, Daybrook. Mr. JOHN R. SWIFT, surveyor, Front Street, Arnold.

C. E. Cox & Son	£154 7 8
S. Thumbs	138 5 0
A. Wayte	123 10 0

The actual cost of the works executed is not to exceed £100.

ASHTON-UNDER-LYNE.

For sewering and draining Conduit Street. Mr. J. T. EARNSHAW, borough surveyor.

W. NEAL, Ashton-under-Lyne, per schedule (*accepted*).

BALLATER.

For repairs to parish church hall.

Accepted tenders.

J. & H. Littlejohn, mason	£79 6 0
W. Duguid & Son, carpenter	78 0 0
J. Grant, slater	27 10 0
W. Mitchell, plasterer	22 0 0
T. Mitchell, plumber	21 16 2
C. Abel, painter	15 10 0

BRECON.

For erection of a chapel at Cray, Breconshire. Mr. REES LLEWELLYN, surveyor, Birchgrove House, Llansamlet.

H. Jones	£920 8 0
W. JONES, Cray (*accepted*)	900 0 0
Thomas & Jones	897 0 0
J. Jones	892 15 0

BURY.

For erection of a manager's house at the sewage disposal works, at Livesey Fields. Mr. J. CARTWRIGHT, borough engineer.

Accepted tenders.

J. Comfort, Rochdale Road, brick and stone-work.
J. Inman, Fishpool, Bury, carpenter.
J. Kay & Sons, Knowsley Street, slater.
Jackson & Co., Elton Road, plumber and glazier.
J. Ramsden, Ruth Street, plasterer.

CANTERBURY.

For colouring and whitewashing at the workhouse infirmary.

W. Moyes	£16 4 0
A. Bligh	8 2 6
A. H. SNELL, Palace Street (*accepted*)	6 15 0

DARTMOUTH.

For ventilation works, general repairs, painting, &c., at the school premises, Newcomin Road. Mr. J. A. BRAND, architect, 3 Victoria Road, Dartmouth.

J. Chapman	£182 2 0
J. Back	162 16 0
H. Anderson	156 18 7
R. WATTS, Dartmouth (*accepted*)	156 17 2

ELGIN.

For laying of about 700 square yards of concrete pavement in High Street. Mr. ACTON A. TURRIFF, burgh surveyor.

G. Gray	£157 10 0
G. OGILVIE, Elgin (*accepted*)	154 11 8

ENFIELD.

For construction of road and sewers. Mr. MARK GILBERT, architect.

G. BELL, Tottenham and Manchester (*accepted*) £199 0 0

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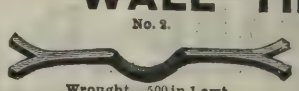
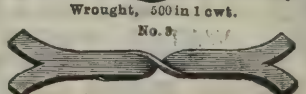
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Fry Bros.	£1,738 0 0
J. MOWLEM & Co., Grosvenor Wharf, Westminster, S.W. (*accepted*)	1,611 0 0

HAILSHAM.

For drainage in Station Road, Polegate. Mr. JOSEPH HUXLEY, surveyor, Winster House, Hailsham.

T. Rich	£125 8 6
B. T. STONESTREET, Bell Banks (*accepted*)	123 17 0

ILFORD.

For construction of settling tanks, buildings and artificial filter-beds, &c. Messrs. J. TAYLOR, SONS & SANTO CRIMP, engineers.

G. BELL, Tottenham and Manchester (*accepted*)	£6,099 0 0

IRELAND.

For erection of five labourers' cottages, Stranolar.

H. Diver	£700 0 0
D. M'Cafferty	675 0 0

Note.—The acceptance of the lowest tender has been adjourned, as it is considered too high.

KEIGHLEY.

For erection of fence walls at the small-pox hospital, Morton Banks. Messrs. JOHN JUDSON & MOORE, architects, Keighley.

MYERS & MACKWELL, Wallers Steeton, near Keighley (*accepted*).

LLANDAFF.

For erection of two villas. Mr. D. PUGHES-JONES, architect, Grongar House, Llandaff.

S. SHAIL, Cardiff (*accepted*)	£957 10 0

LONDON.

For erection of a new theatre in St. Martin's Court, Charing Cross Road, London, W.C., for Mr. Charles Wyndham Mr. G. R. SPRAGUE, architect, Fitzalan House, Arunde Street, Strand, W.C. Quantities by Mr. A. R. HENDERSON. surveyor, 47 Pall Mall, S.W.

	Bath Stone.	Extra for Stage Cellar.
Foster & Dicksee	£28,036 0 0	£1,268 0 0
C. Gray Hill	25,805 0 0	975 0 0
Wilkinson Bros.	24,830 0 0	1,290 0 0
Stimpson & Co.	24,800 0 0	1,285 0 0
Courtney & Fairbairn	24,800 0 0	1,280 0 0
Walter Wallis	24,391 0 0	1,273 0 0
Joseph Howe & Co.	24,280 0 0	1,060 0 0
W. H. Lorden & Sons	24,268 0 0	1,056 0 0
Kirk & Randall	23,731 0 0	1,208 0 0
H. & E. Lea	23,237 0 0	1,091 0 0
H. L. Holloway	23,120 0 0	1,170 0 0
H. Burman & Sons	23,032 0 0	1,134 0 0
Harris & Wardrop	22,675 0 0	1,157 0 0
Wm. Downs	22,650 0 0	1,186 0 0
Patman & Fotheringham	22,515 0 0	1,163 0 0
F. & H. F. Higgs	22,360 0 0	1,132 0 0
C. F. KEARLEY *	21,956 0 0	1,093 19 0

* Amended and reduced tender accepted at £20,400.

For erection of new premises, 2, 3, and 4 Bishopsgate Street Without, E.C., for Mr. D. C. Apperly. Mr. AUGUSTUS E. HUGHES, architect, 28 Mortimer Street, Regent Street, W. Quantities by Mr. A. R. HENDERSON, surveyor, 47 Pall Mall, S.W.

Lawrence & Sons	£11,795 0 0
Colls & Sons	11,444 0 0
Hall, Beddall & Co.	11,320 0 0
Falkner & Sons	11,297 0 0
Higgs & Hill	10,984 0 0
Williams & Son	10,975 0 0
Patrick & Son	10,825 0 0
Adamson & Sons	10,724 0 0
H. L. Holloway	10,690 0 0
Woodward & Co.	10,682 0 0
WM. DOWNS (*accepted*)	10,599 0 0

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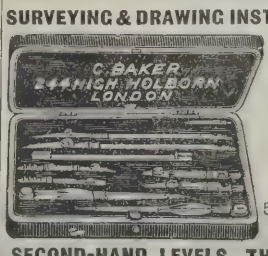
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Pedrette & Co.	£533 10 0
Wallis & Sons	346 0 0
G. Batchelor, Rochester (*accepted*)	218 0 0

MANCHESTER.

For painting the inside of the four hospital blocks at the workhouse, Crumpsall.

W. Bradshaw, Prestwich, Manchester (*accepted*)	£290 0 0

PLYMOUTH.

For erection of wooden stands for accumulators at the Prince Rock Works. Mr. John H. Rider, borough electrical engineer.

Riga.

S. Tucker	£147 14 6
W. L. Stevenson	68 11 6
Snowdon Bros.	59 10 0
J. Partridge	55 0 0

Pitch-pine.

S. Tucker	139 9 0
W. L. Stevenson	70 0 0
J. Partridge	65 0 0
Snowdon Bros. (*accepted*)	53 10 0

READING.

For erection of new premises, for Mr. A. H. Bull, Broad Street, Reading. Mr. F. Albury, architect, Friar Street, Reading. Quantities by Mr. A. R. Henderson, surveyor, 47 Pall Mall, S.W.

Higgs & Sons	£4,685 0 0
Bottrill & Son	4,491 0 0
Stokes	4,399 0 0
Kingerlee	4,370 0 0
Lewis Brothers	4,350 0 0
Margetts	4,279 0 0
Fitt*	4,274 0 0

*Amended and reduced estimate accepted at 3,747*l*.

RAWTENSTALL.

For painting at the waterworks office, and of tubes over the river Irwell. Mr. J. Cartwright, borough engineer.

T. R. Lord, Manchester Road, Haslingden (*accepted*).	

RICHMOND.

For extension of Lion Gate Gardens and constructing sewer and other works. Mr. R. F. Grantham, engineer, 23 Northumberland Avenue.

J. Jackson	£1,294 0 0
E. Rogers & Co.	1,287 0 0
J. A. Dunmore	1,277 0 0
Nowell & Co.	1,264 0 0
A. T. Catley	1,222 0 0
J. Neavé	1,144 0 0
E. Iles	1,099 0 0
S. Kavanagh	1,097 0 0
R. Ballard & Co., Child's Hill (*accepted*)	1,090 0 0

SCOTLAND.

For an extension to the school at Cardonald. Messrs. Kerr & Watson, architects, Johnstone.

Accepted tenders.

J. J. Wardrop, Lochwinnoch, builder	£1,138 0 0
A. Kirk, Whiteinch, joiner	691 0 0
C. Murdoch & Sons, Johnstone, plumber	189 0 0
G. Thomson & Son, Johnstone, plasterer	101 0 0
G. Thomson & Son, slater	76 0 0
T. Main, Glasgow, tilelayer	36 0 0

SOUTH SHIELDS.

For erection of boundary walling, with palisading and entrance gates, at North Marine Park. Mr. S. E. Burgess, borough engineer.

S. Sheriff	£613 11 6
Thornton & Co.	590 17 7
R. B. Farbridge, South Shields (*accepted*)	475 12 6
J. Foster	424 18 0

For painting work at the North and South Marine Parks. Mr. S. E. Burgess, borough engineer.

W. Laidler, South Shields (*accepted*)	£98 7 0

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SOUTH SHIELDS—*continued.*

For painting work at West Park. Mr. S. E. BURGESS, borough engineer.

C. Thompson	£65 0 0
T. Dalton, jun.	60 8 0
W. LAIDLER, South Shields (*accepted*)	40 7 10

For wood-paving works, St. Hilda's School Road. Mr. S. E. BURGESS, borough engineer.

M. D. Young	£160 0 0
G. E. Simpson	115 4 0
THORNTON & CO., South Shields (*accepted*)	86 0 0

TUTSHILL.

For erection of seven cottages at Tutshill, Gloucestershire. T. G. DIAMOND, Newport, Mon. (*accepted*).

WALLASEY.

For construction of brick and pipe sewers.

G. BELL, Tottenham and Manchester (*accepted*)	£9,906 0 0

WAUN-LLWYDD.

For erection of an hotel at Waun-llwydd, Victoria, Mon. Messrs. SWALWELL & CREIGHTON, architects, Steam Packet Chambers, Dock Street, Newport.

Rodgers & Williams	£6,525 0 0
J. Charles	6,430 0 0
Lawson & Co.	6,173 0 0
E. Jordon	5,880 0 0
J. G. Thomas	5,765 0 0
C. H. Reed	5,600 0 0
D. LEWIS, Llanhilleth (*accepted*)	5,500 0 0
F. C. Parfitt	5,500 0 0
D. Jones	5,400 0 0
A. E. Parfitt	5,300 0 0
J. Morgan	5,135 0 0

WEST HAM.

For erection of a new workhouse infirmary.

WM. SHURMER (*accepted*)	£158,994 0 0

WEDNESBURY.

For fencing the boundaries of public recreation grounds at King's Hill. Mr. E. MARTIN SCOTT, borough surveyor.

Contract No. 1 (*Palisade, Walling and Piers*).

G. Summerhill	£80 0 0
F. J. SMITH, Wednesbury (*accepted*)	78 0 0

Contract No. 2 (*Wrought-iron Ornamental Palisading, Gates, &c.*).

Wilkes, Limited	203 4 2
A. A. James	197 0 0
Bayliss, Jones & Bayliss	193 1 6
J. Elwell	187 0 0
JOHNSON BROS, Walsall (*accepted*)	168 15 0
Hill & Smith	168 6 8
Hayward & Sons	168 0 0

WHITBY.

For cementing portions of the outside walls of the guardians' offices in Church Street. Mr. EDWARD H. SMALES, architect, 5 Flowergate, Whitby.

J. Brough	£1,105 17 6
A. Palframan	1,082 15 0
J. Hutchinson	1,078 0 0
R. HARLAND, 3 Cleveland Terrace, Whitby (*accepted*)	1,066 0 0
C. Winterburn	960 0 0

WIMBLEDON PARK.

For erection of a detached house. Mr. H. PHELPS DREW, architect, 33 King Street, Covent Garden. Quantities by architect.

Dickens	£1,650 0 0
Edwards & Medway	1,350 0 0
Norton	1,250 0 0
Pater & Co.	1,200 0 0
BURGESS, Wimbledon (*accepted*)	1,180 0 0

THE foundation-stone has been laid of a church which is to be erected in Brunswick Square, Herne Bay, and is to be dedicated to St. John the Evangelist. The nave and aisles only are to be at present constructed, and are estimated to cost 5,630*l.*

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Also, Testimonials from Dr. Hassall, September 28, 1868; the late Dr. Letheby, February 15 1865, and December 1872.

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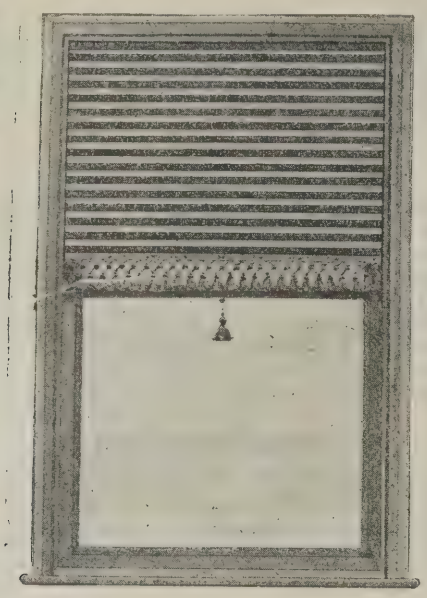
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TRADE NOTES.

Mr. H. E. Aspinall, of "Enamel" fame, is interesting himself just now in an invention which will probably become almost as popular as the one which has converted its proprietor's name into an active verb. The invention at present in question, however, is a Venetian blind, and it is being brought out by the Adam Blind Syndicate, of 56 Cannon Street. As shown in sketch the Adam Blind presents an attractive appear-



ance. It can be painted, stained in any colour or varnished so that the original grain of the wood can be displayed. It can be ornamented to suit individual taste or any requirement of the position in which it may be desired to place it. It can only be pulled up straight, and thus obviates a prolific source of unsightliness. Among the many advantages claimed for the new blind durability, economy and cleanliness are especially insisted on, and apparently with reason.

The new Board Schools, Frinton-on-Sea, are being warmed and ventilated by means of Shorland's patent Manchester stoves, patent exhaust roof ventilators and special inlet tubes.

A large clock has just been erected in St. Margaret's Church, Leicester, by Messrs. John Smith & Sons, Midland Clock Works, Derby. It shows the time on four dials and plays the Westminster chimes.

Another ingenious contrivance for the prevention of the accidents to which window-cleaners are liable where the dangerous old kind of sash still obtains, is being introduced by Mr. H. Gold, of Great Eastern Street. It seems to combine the qualities of simplicity, reliability and cheapness. It is quite portable; when not in use takes up practically no room; in use it can be instantaneously fixed to a window of almost any size and shape, when it affords a secure seat, and leaves both hands of the operator at liberty.

ELECTRIC NOTES.

The Department of Science and Art has received information, through the Foreign Office, of an Exhibition of Electric Appliances to be held in Como next year, in commemoration of the centenary of Volta's discovery of the electric pile.

The Police Commissioners of Stirling had before them on Monday a minute of the lighting committee, recommending that the negotiations in connection with the scheme for the electric lighting of the town by water power should cease. After discussion the minute was unanimously adopted, and it was remitted back to the committee to carry out their previous instructions in connection with Professor Kennedy's steam-power scheme.

VARIETIES.

A Roman Catholic church, erected by the lord of the manor, Mr. C. J. Weld Blundell, of Ince Blundell, and furnished by the members of the congregation, was opened at Birkdale, Southport, on Sunday last.

The St. Rollox goods station of the North British Railway Company at Glasgow has been destroyed by fire.

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A NEW bridge over the Derwent at Borrowash, which has been erected at a cost of 7,000*l.*, was opened on the 3rd inst.

THE erection of the tower which has just been added to St. Paul's Church, Peel, near Walkden, and which is a conspicuous landmark for many miles round, has cost 2,000*l.*

THE Sultan has invited the Prince and Princess of Bulgaria, with the Crown Prince Boris, to go to Constantinople, in order to attend the consecration of the new Bulgarian church of St. Stephen there on September 20.

THE dedication by the Bishop of St. Albans of the new castellated tower of St. Chad's Church, Chadwell Heath, erected, through the generosity of Colonel T. H. Sale, R.E., at a cost of 690*l.*, took place on Tuesday. By this new addition to the church the original plan has been completed.

THE malodorous and unsightly mud foreshore at Southend is likely to be shortly converted into a sand parade. It is proposed to fill in the space—which is at present useless for sea or land purposes—to above high-water mark, so as to be available at all times of the tide. There are, it is said, no engineering difficulties in the way, and the cost would be small.

CONSIDERABLE excitement prevailed in Newry on Monday morning owing to the collapse of a public-house occupied by Mr. Joseph Collins. A nephew of Mr. Collins was buried in the *débris*, and although extricated is in a very critical condition; while a man named Kearns, who hurried to the assistance of the inmates, was overwhelmed in a second fall of bricks, &c., and killed.

A NUMBER of workmen, while employed at Messrs. Greaves, Bull & Lakin's limeworks, Stockton, near Leamington, came upon a huge fossil, which upon examination proved to be a very fine specimen of an Ichthyosaurus Platydon. The greatest care is being taken to insure the excavation of this relic intact, and so far 19 feet of the fossil remains have been uncovered. The place has since the discovery been visited by a large number of Warwickshire naturalists, and the greatest interest is being shown in the proceedings.

THE well-known Pavilion Hotel, at Folkestone, has just been almost entirely rebuilt and remodelled, but its old lines have not been departed from. On entering by the Marine Terrace doorway a flight of steps from the entrance leads into the winter gardens, where concerts are held every afternoon and evening. Adjoining the lounge, which occupies the centre of the new building, is a bright and cheerful smoking-room, the windows on three sides commanding sea views. The billiard-room is light and cheerful. The public dining-room commands views of lawn and sea. The public drawing-room and ball-room adjoin. Colonel R. W. Edis is the architect. The opening of the new premises took place on Saturday afternoon.

FOR the convenience of passengers travelling to and from North Germany, Norway, Denmark and Sweden *via* Harwich and the Hook of Holland, arrangements have been made for a dining car to run between the Hook and the Rhine, thus enabling passengers to breakfast and dine *en route*. By this service passengers leaving London in the evening arrive at Hamburg the next afternoon, Berlin in the evening and Copenhagen the following morning.

THE parish church, Whitwick, Notts, was reopened for public worship, after having undergone thorough restoration, on Saturday afternoon. The church has had a new oak floor put down, a large portion of the seats have been renewed, and it has been repainted and coloured. The tower has been repaired, and a new heating apparatus provided. A handsome new double-action organ, by Taylor & Sons, of Leicester, has been erected, and this also on Saturday was dedicated. The work has occupied several months.

THE West Bromwich Corporation baths, which have been enlarged and improved, were reopened on Wednesday evening. The baths are capable of accommodating about 800 people. The first-class swimming-bath has been entirely remodelled, being 28 feet longer than the old one, and the second-class and private baths have also been considerably improved. The contract for the improvements was let to Messrs. R. & E. Woodward for 3,449*l.*, and was carried out under the superintendence of Mr. Greatorex, borough surveyor.

THE ancient chapel of Innerpeffray, near Crieff, has just undergone a thorough cleaning and repair at the expense of the heads of the three branches of the Drummond family interested in the building, viz. Earl of Ancaster, Drummond Castle, as representing the Drummonds of Perth; the Viscountess of Strathallan, Strathallan Castle, as representing the Drummonds of Strathallan; and Hon. Captain Drummond of Cromlix and Innerpeffray, as representing the Drummonds of Innerpeffray. For many years the chapel had been getting into a ruinous condition, but it has now been put into a thoroughly satisfactory state, all the ground inside being laid with gravel, and the graves of the illustrious dead being marked with green turf. The walls and roof have been cleaned, and the inside of the building now presents a very pic-

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turesque appearance. The chapel, which is very ancient, is mentioned as early as 1342, and for generations it was used as the burial place of the Drummonds. It contains a handsome monument of marble, erected to the memory of Baroness Perth, and there is also a monument to the memory of Lord Perth and one of his sons. The building also contains several memorials of the Drummond families. The chapel bears the consecration marks.

THE next meeting of the Cumberland and Westmoreland Antiquarian and Archæological Society will be held on Wednesday and Thursday, 24th and 25th of this month, with the headquarters at Carlisle. During the afternoon of the first day Warwick and Wetheral churches, Wetheral Priory, St Constantine's Cells and the Written Rock, near thereto, will be visited, and also the fine culverhouse or dovecote at Corby Castle. The dinner will be at the Central Hotel, and in the course of the evening the President will present the secretary with an antique silver salver value 80 guineas, which has been subscribed for in recognition of his services to the Society during a period of thirty-one years. On the second day the members will take train to Gilsland and drive thence to Borcovicus (Homesteads), at which place the Newcastle Society of Antiquaries are excavating in systematic manner on a large scale. The works are under the direction of a distinguished scholar, Mr. R. C. Bosanquet, of Rock, near Alnwick, who has large experience in excavating for the British School of Archæology at Athens, mainly in the Greek island of Melos. The Newcastle Society have invited the Cumberland and Westmoreland Society and the Durham and Northumberland to meet with them at Borcovicus on the 25th inst.

M. DUSSAUD is now said to have perfected his system of transmitting pictures by telegraphy. He described his process at a recent meeting of the Paris Academy of Sciences, and demonstrated its thorough practicability. M. Dussaud is the inventor of the microphone, and his picture transmitter consists of a camera with a revolving screen, behind which there are a number of prepared selenium layers. These offer varying degrees of resistance to electrical action, and by their agency it is possible to reproduce light and shade as in a photograph. By standing in front of the camera a picture of any person can be reproduced at a distance. In the course of his experiments, M. Dussaud sent transmitters to New York, London, and Berlin, to be tested in this manner, and in each case an excellent photograph of people in these far-off cities was reproduced in Paris. One of the great advantages of this new system is that existing telegraph wires and cables can be used.

THE new public school which has been erected as Anderston, N.B., was formally opened on Tuesday last. The building has frontages to Stobcross Street, Elliot Street and Port Street, and with its large playgrounds has opened up and greatly improved the district. The schoolrooms are on three floors, and on the basement there are drill and play halls. There is accommodation for 1,220 scholars, fully one-third of whom would be in the infant department, which occupies the whole of the ground floor. In the centre of the infant department is a large hall for kindergarten exercises, and a special feature of the school is the abundance of light throughout. Four doorways supply ample and safe egress. The rooms are heated by means of hot-water pipes, and the Board has returned to the earlier system of distributing the heat by placing the pipes round the rooms. In view of the great increase in the cost of building of late years and the limit of cost imposed by the Education Department, the Board has in this case confined themselves perforce to a very plain but most substantial building, eschewing all decorative features.

BUILDING AND BUILDERS.

ARRANGEMENTS have been made for the erection of a new church at Elland on a site given by Lord Savile.

The Roman Catholic church of St. Teresa, Birkdale, was opened on Sunday, the 7th inst.

FOUNDATION-STONES for a Free Methodist church, Kippax, to cost about 1,500*l*., were laid on the 3rd inst.

THE Ramsgate Corporation have decided to offer prizes for competitive plans for the proposed kursaal under the Western Promenade.

THE memorial-stones of a Wesleyan church and school at Rhodes, near Middleton, have been laid. The new building is estimated to cost about 2,650*l*.

A SITE containing over 1,600 square yards has been secured for the erection of a Wesleyan mission church and schools on Messrs. Mather's estate in Liverpool Road, Eccles.

THE foundation-stone of a new edifice which is to take the place of St. James's Church, Aston, a structure formed chiefly of corrugated iron, was laid on the 6th inst. The new church will cost over 4,000*l*.

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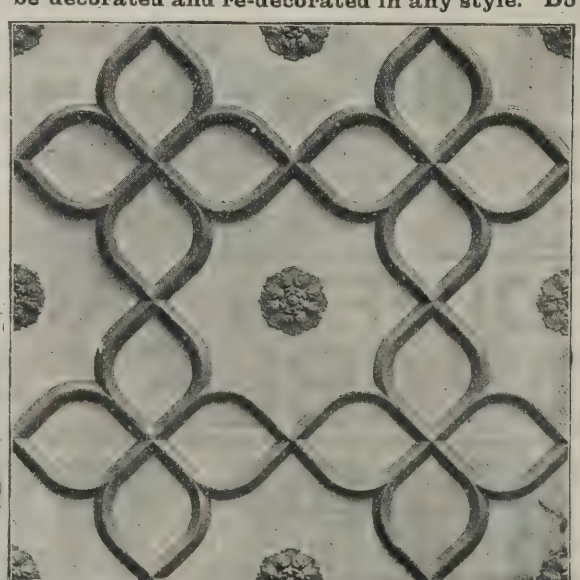
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ALL SAINTS CHURCH, Cheadle Hulme, is about to be enlarged by an extension of the nave westwards, and by the addition of a new south aisle with a porch. The font will be placed at the west end of the proposed new aisle. The accommodation will be increased by 177 sittings, and the expense will amount to 1,800*l.*

THE contract for the improvement of the Middlesbrough Docks has been let to Mr. John Scott for 382,000*l.* The works have been designed by Sir John Wolfe Barry. It is proposed to provide an entrance with 33 feet of water on the sills and 80 feet wide, and the water area of the dock will be considerably increased.

THE foundation-stone of a new parish church was laid in the parish of Gmynfe, East Carmarthenshire, last week. This parish was formed out of the large parish of Llangadock, and, the old church being in a condition past restoration, it was resolved to build a new one in close proximity to it at a cost of 1,600*l.*

A CHURCH is in course of erection at Abercynon, a rapidly developing mining town at the extreme corner of the parish of Llanwonno, in East Glamorgan, a parish which is said to contain 20,000 people. This district of Abercynon already contains 6,000 people, and the only room available for church services was a large room attached to an hotel, with seating accommodation for 250. The cost of the new church is 3,550*l.*

IN a limited competition for new girls' schools to be erected by the governors of the Wells Blue Schools, Somerset, the designs of Mr. H. Dare Bryan, architect, of Bristol, were selected. The scheme, which has been approved by the County Council Education Committee, includes a cookery school.

MESSRS. HARDIE & THOMSON, Glasgow, have prepared plans in the Italian style of architecture for the new buildings which are about to be erected for the Clydesdale Bank on the site of the old White Hart Hotel, corner of Cathcart Square, Greenock. The building is to be three storeys in height. The ground floor will be utilised as premises for the bank, the two top flats fitted up for offices, and the extreme east portion set apart for shops. The cost will be 10,000*l.*

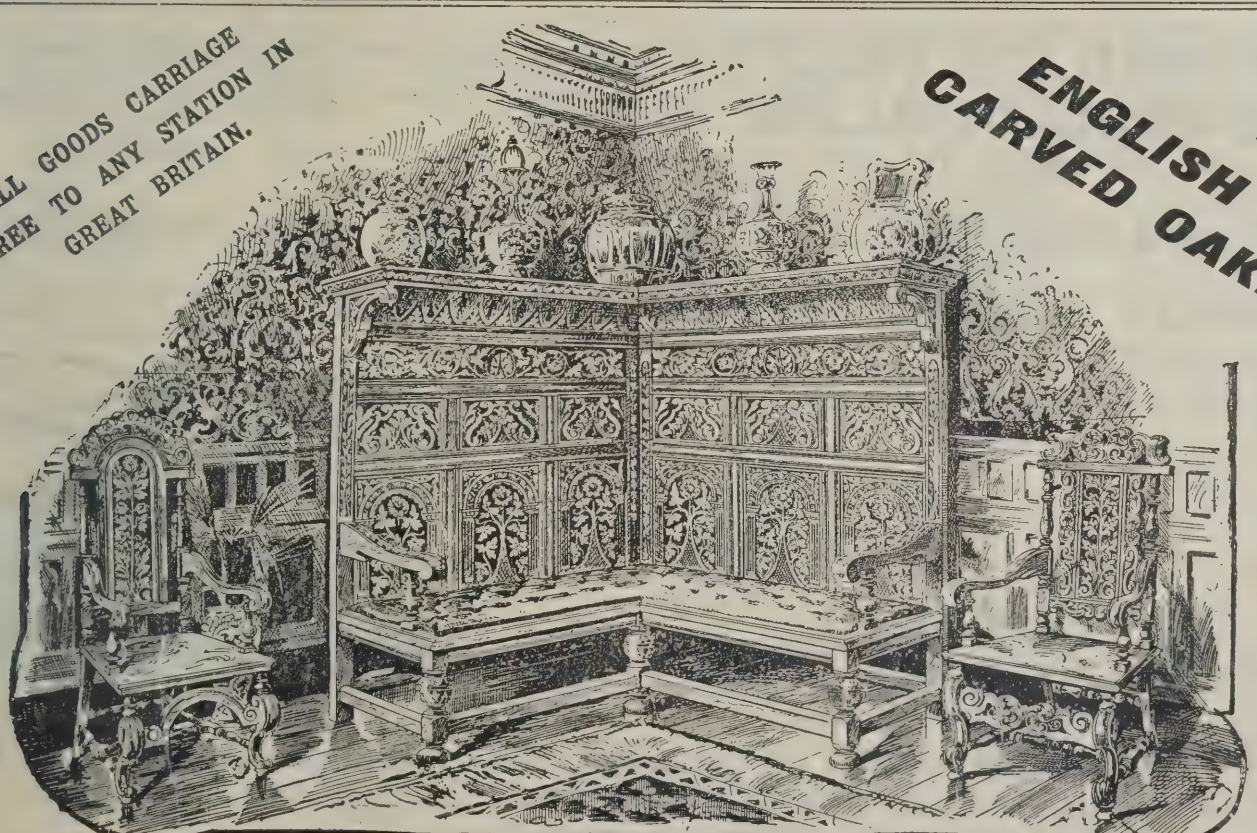
THE Midland Hotel, New Street, Birmingham, is to be practically rebuilt at a cost of 50,000*l.* or 60,000*l.* The present arrangement of the floors and of the internal communication, which has been found to be inconvenient, and which has militated against the success of the hotel, will be superseded, and the building will be made in all respects a first-class hotel on modern lines. It is intended to put in a new stone staircase and a modern lift, and to construct a large and handsome bar in Burlington Passage. When reconstructed the Midland will have about 250 bedrooms, an increase of 150 on the present accommodation, and several new features similar to those of the Grand Hotel, Colmore Row, will be added.

PLANS have been passed for the proposed new police buildings in Crieff. The present police accommodation was found some years ago to be quite inadequate, and the police committee of Perth County Council decided to erect new buildings. They secured a site in King Street, where two very old tenements will be demolished to make room for the new structure. One of these old houses is an historic building, and bears on its front a stone block with the inscription 1736, the letters "J. W.," as well as a carved representation of a horseshoe and implements of the blacksmith's craft, part of the house having at one time been used as a smithy; and it was here that Prince Charlie, it is affirmed, had his horse shod on his way north through Crieff about the year '45. The stone is to be preserved and placed in the front of the new buildings. The buildings are to be in the Scotch Baronial style of architecture, and will be two storeys in height, with attics. The main entrance will be from King Street, and ample cell and other accommodation is to be provided.

The new Highgate Archway, which is now being constructed at a cost which is estimated at about 25,000*l.*, will have a width of 40 feet between the parapets, to be divided into a roadway of 24 feet and two footways of 8 feet each. The space beneath will be quite clear, with a span of 120 feet. It will be a steel and cast-iron bridge, with concrete, brick and Portland stone abutments, and so far as possible the old structure is being built into the new. The parapets are to be composed of cast-iron standards, with ornamental iron railings surmounted by revolving *chevaux-de-frise*.

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Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations.

The sudden decease of Mr. Robert W. Collin, a well-known Warrington builder and contractor, took place on the 9th inst. The deceased, whose Warrington residence is in Marsden Street, has been for the last few weeks staying in the neighbourhood of Menai Bridge. At the time of his departure he complained of being unwell, but nothing serious was then anticipated. During his stay in Wales he had been far from well, but the end was sudden and unexpected. The primary cause of death, it is said, was hemorrhage on the brain. The deceased was sixty-two years of age.

As a result of negotiations the dispute in the plastering trades at Bolton is at an end. On June 18 the men struck work for an advance from 9*d.* to 10*d.* per hour, and a reduction of working hours from 52 to 49½. The question was then referred to the Lancashire and Cheshire Building Trades Federation. Conferences have been held, and the result of the last conference held on Monday is that amended rules have been signed, and the men return to work to-day. A concession is made in the hours in favour of the men, who are also granted the advance of 1*d.* per hour, making the rate 10*d.* The men, on the other hand, concede one apprentice to each four men, as against a maximum of two, whatever the number of men employed. The rules stand until the first Saturday in July next year.

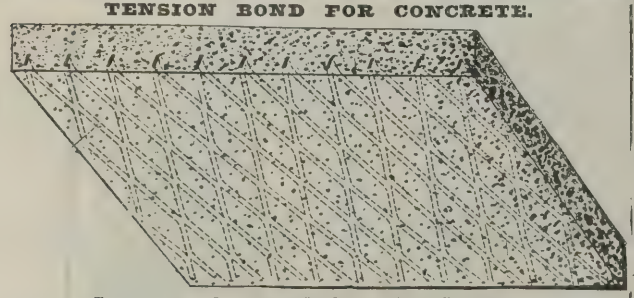
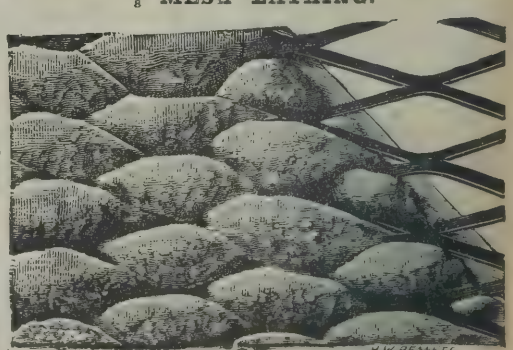
SCOTTISH PLUMBING CONGRESS.

The ninth annual Scottish Plumbing Congress in connection with the movement for the improved training and national registration of plumbers takes place in Glasgow next week. At a meeting of the Glasgow and West of Scotland District Council held on the 9th inst. the arrangements, which have been in progress for some time, were matured. There will be a large attendance of master and operative plumbers and of representatives of local authorities from all parts of Scotland, as well as of others interested in improved sanitation from the standpoint of the public health. Several members of Parliament, including Mr. J. G. A. Baird, M.P., and Mr. Cameron Corbett, M.P., are also expected to be present. The president of the Congress will be ex-Bailie Crawford of Glasgow, and the proceedings will commence with a reception on Thursday the 18th by the Lord Provost in the Corporation Galleries, where the sittings of the Congress are, by kind permission of the Corporation, to take place. The proceedings will embrace addresses by several gentlemen, including ex-Bailie Crawford, Bailie Dick and others. At 1.30 the Congress will be entertained to luncheon, and in the afternoon an exhibition of sanitary appliances and of ancient and modern plumbing work will be opened by Professor M'Kendrick in the Drill Hall of the 1st V.B.H.L.I., Garnet Hill. This exhibition will contain a very fine display of manufacturers' sanitary goods, and of samples of bad and defective plumbing work, and a large collection of specimens of plumbing work sent in by apprentices and journeymen for competition for the prizes offered by the Worshipful Company of Plumbers, London, Professor Glaister, Glasgow, and others. The exhibition will remain open free to the public until Saturday the 27th. On Friday the 19th, after the transaction of business and luncheon, the Congress will visit the Dalmarnock sewage works and the Haghill refuse destructor. On Saturday they will pay a visit to Ayr, where the members will be received in the Council Chambers at 11 A.M., and afterwards drive to Maybole and other places of interest, the local arrangements being in charge of Bailie Auld and Messrs. Alexander Lyon, Samuel Cowan and J. H. Drinnan.

EXPEDITIOUS BRIDGEWORK.

It does not often happen that a few hours witness the complete removal of an old railway bridge and the substitution for it of a brand new structure, over which heavy express trains can run with perfect safety. Yet this feat of engineering has just been accomplished, says the *Daily Telegraph*, with remarkable neatness and celerity at the Finsbury Park Station of the Great Northern Railway. The precise point is that at which the Stroud Green Road is crossed by three separate iron bridges, which are a continuation of those over the Seven Sisters Road, and support one end of the station itself. In the early part of the present year the directors of the line decided to replace the middle bridge of the three, and to alter the construction in such a way as to leave the roadway beneath clear. The old bridge was supported upon heavy brick piers at the edge of each footway, but the new one is a single-span girder erection, so strongly made of steel as to be capable of bearing with ease the enormously heavy locomotives and carriages which are nowadays in use. Yet the task was by no means easy. It had to be carried out without disturbing the traffic either on the railway above or the road below, and therefore the plan sometimes adopted of building the new

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bridge all ready to be slipped, as it were, into the place of the original crossing was utilised, and with great success. Messrs. Handyside, of Derby, were entrusted by the company with the contract, and they commenced the work in March.

First of all a very substantial kind of scaffolding was built underneath the bridges on either side of the road. This erection was composed of baulks of timber about a foot thick each way, and calculated to bear the great weight which was to come upon it eventually. Next a miniature railway was laid along each scaffold, which, of course, ran nearly at right angles to the bridges. Then the building of the new bridge was commenced. It was constructed of heavy steel girders and plates, all bolted and riveted together, and each end of it lay upon a series of small wheeled trucks which in their turn rested upon the scaffold railway. The bridge was fully equipped with permanent way ready to be joined up to the main line directly it should be in proper position. Although it does not take long to recount the process of preparation, the affair was really a difficult one. True, the span of the bridge was not long, but the contractors were a great deal hampered by the presence of the other two bridges on either side of them, and the very narrowness of the Stroud Green Road formed an obstacle to speedy construction. However, on Sunday afternoon last everything was ready for the main operation, that of taking away the old bridge and shifting the new one bodily into its place. This task was commenced at three o'clock in the afternoon. First of all, powerful steam cranes, specially erected for the purpose, hoisted out the condemned iron girders, which weighed some 10 tons each. A very short time elapsed before all these were taken away, and for a while there was a blank space. Next ropes were attached to the new bridge, and steam winches were set to work to haul the structure slowly along on the little carriages at either end, until, in less than half an hour, the break of continuity in the railway was repaired, and when the metals on the bridge were connected to those on the main line it was again possible for trains to run over, which as a matter of fact they actually began to do about eight o'clock in the evening. Naturally a great deal remains to be done before the business is entirely finished. The brick piers in the roadway have to be demolished, and the ends of the bridge built up so as to form a continuous part of the line, but a heavy express train was seen rushing across at considerable speed, and apparently the erection was as sound and staunch as though it had been there for years.

The replacing of the Stroud Green Road bridge is only the latest of a series of such engineering feats which have been carried out during the past few years. A bridge over the Uxbridge Road, on the North London Railway, was renewed in a similar manner in about two hours. But one of the best achievements of the kind was effected a couple of years or so ago, when a bridge on the Great Eastern Railway was cleared away and a new one substituted in a very few hours. In this case the difficulty of the job was enhanced by the fact that the line at the point in question crossed a river, and that it was on the skew or slant. Yet the whole thing was done without a hitch. The principal secret of success lies in the proper construction of the small railway which supports each end of the bridge, and upon which, when the time comes, the vast mass, weighing perhaps hundreds of tons, is to be transported to its resting-place. Modern steam-cranes, winches and hauling gear also give facilities which in the early days of railroads were quite unheard of.

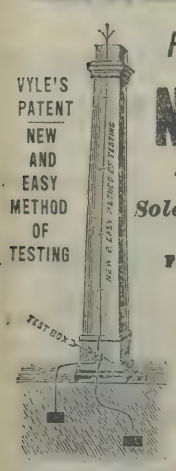
SLAG BRICKS.

THE American Consul at Barmen has given a version of a manufacturer's description of brick making from granulated blast furnace slag.

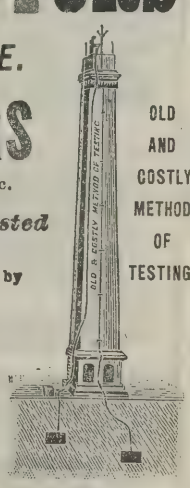
The direct production of building and paving stone from fluid slag is nothing new. Such slag bricks, however, did not prove a suitable material for dwelling-houses because they are, like glass, impermeable for air as well as steam. In human habitations the aqueous vapour exhaled by the occupants would condense on cold days on both windows and walls, thus rendering the rooms damp and unhealthy. On the other hand, brick manufactured from granulated blast furnace slag is permeable and hygroscopical—that is, both air and steam can penetrate them.

The first one to produce granulated slag, or slag gravel for brick-making by passing the fluid slag through water, was Eugene Langen, an employé of the Freidrichs Wilhelm mine, Siegberg, Westphalia. This process causes disintegration; silica is separated in a soluble condition, in which it easily hardens in the air and combines just as easily with caustic lime. The single grains of this slag gravel, when compressed tightly, are bound by the soluble silica; and when ground to a fine dust, so that the particles come into closer contact with

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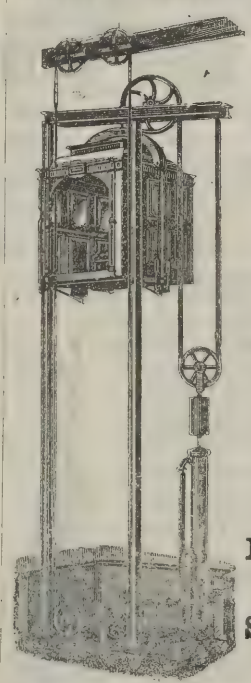
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each other, the binding by the silica therein is sufficient for the production of good building bricks. Bricks from ground slag, however, require a longer time for hardening than those manufactured from granulated slag. By mixing granulated slag with dust from slag which has crumbled in the air good bricks can be produced without any addition of lime, but the hardening process is rather slow. Hardening takes place quickest in from six to eight days with bricks to which about 10 per cent. of burned and slaked lime has been added.

Granulated slag, from its passage through water, contains from 19 to 33 per cent. of water, according to its porosity, a fact which has been considered in shipping. Its weight ranges between 1,100 and 1,500 lbs. per cubic metre (35·3 cubic feet); that of ground slag runs as high as 2,900 lbs. Ground slag can be added to the mixture of granulated and lime when especially dense and strong bricks are to be produced.

The bricks may be given any shape desired, and they will preserve this shape because they are not burned. They show sharp edges and smooth surfaces, and give the best satisfaction when as little mortar as possible is used. The natural colour of slag bricks is that of greyish-white sandstone. The weight ranges, according to dryness and slag used, between 6½ and 7 lbs., or about 6,000 bricks to a 20-ton car.

The strength of slag bricks fully equals that of ordinary burned bricks; 24 to 28 lbs. per square centimetre (1·55 square inch) is usually considered the highest admissible burden for ordinary bricks. Well-hardened slag bricks can withstand, theoretically, burdens up to 160 and 180 lbs. The resistance of slag bricks to high temperature is quite remarkable. Heated to a pale red, when the carbonate of lime begins to decompose its strength will not be injured. Even if a part of the lime should be decomposed at such a high temperature, and thus rendered caustic, carbonic acid is again absorbed at a lower temperature, and the brick again becomes as strong as it was before. For the construction of chimneys and stacks slag bricks are used with advantage, as the products ascending contain a large quantity of free carbonic acid, which is delivered to the bricks. For the same reasons it is well adapted for lining lime-kilns and walling in boilers.

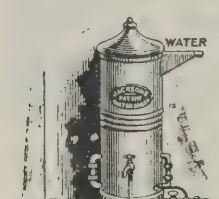
Slag bricks are five times as permeable as ordinary burned bricks. Pressure being equal, 10¾ square feet of lightly-burned bricks permit in one minute the passage of 23·3 litres of air; slag bricks permit the passage of from 101·2 to 113·4 litres. Their porosity also is greater than that of burned bricks; while they do not absorb water as quickly as burned bricks, they regain their permeability quicker than the latter. A burned brick filled up its pores with water in twelve hours, while a slag brick required 190 hours to get thoroughly soaked.

To test whether slag bricks have dried and hardened sufficiently to be safely used, a small piece of brick tied to a string is dipped into a cold concentrated solution of sulphate of soda and hung up at any place in a room. By the evaporation of the water in the solution and the crystallisation of the soda, which in its action resembles the formation of ice, bricks that will not resist frost are destroyed, each crystal needle carrying a little cap of the material from which the brick was produced. Not slag bricks alone, but any other can be tested in the above-mentioned manner as to their power of resistance to frost.

It is said that slag originating from puddling and Thomas pig-iron produces the best bricks, while Bessemer and foundry slag ranks second. The erection of a slag brick plant in connection with a blast furnace would cost about 5,000 dols. At several German works the cost of production of 1,000 bricks is only 10 marks (2·38 dols.). From 6,000 to 7,000 lbs. of granulated slag and 450 to 700 lbs. of burned lime are required for production of 1,000 bricks.

AMERICAN SLAG AND PORTLAND CEMENTS.

It is a somewhat surprising feature of the cement trade in the United States just at present that dealers in the puzzuolana or slag cements, instead of placing them on the market as such, like the merchants of Europe, are endeavouring to sell them as Portland cements. Portland cement is a term which has acquired a definite meaning, and a slag cement does not fall under it unless it is distorted. An attempt to sell slag cement as Portland is bound to result injuriously to the former material for two reasons. The first is that the average purchaser of a cement sold him as a Portland will be uneasy when he learns, as he certainly will, the material is really a slag cement; while the second is that the manufacturers of slag cement will find that the good qualities their article develops in service will not be attributed to their product solely, but rather to Portland cement in general; in other words, they are depriving themselves largely of the prestige won by their special grade of cement. As the distinction between the two materials is an important one, the *Engineering Record* prints an article on the subject by an experienced manufacturer of cement.



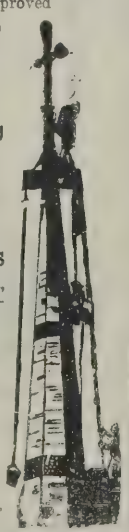
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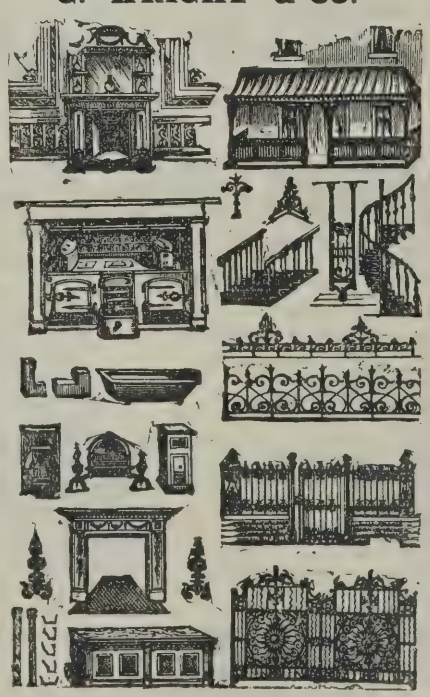


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The manufacture of slag cement is beginning in this country, and while the industry in Germany and in Europe generally has almost ceased to exist, the material is coming into use on work here. In a recent award of a large contract, the question came up as to whether, under a specification calling for Portland cement, a slag cement could be delivered. The cement in question is admittedly made of a mechanical combination of slag and slaked lime; therefore it is claimed not to be a Portland cement, answering the requirements of specifications and the well-known definition of Portland cement current in scientific literature and also among cement dealers and manufacturers. In connection with the protest filed against the use of slag cement under the name of Portland cement, it is proper to call attention to the several differences between slag and Portland cements, and the definitions of the authorities on the two materials.

In a work published by direction of General William P. Craighill, late Chief of Engineers, U.S.A., Washington, Government Printing Office, in 1896, giving the results of congresses held at Munich, Dresden, Berlin, and Vienna for the purpose of adopting uniform methods for testing construction materials, which conventions were attended by representatives of the leading Governments of Europe and America, on page 38, under the head of nomenclature, are found definitions of six hydraulic binding materials. In paragraph 3, Portland cements are defined to be "products obtained from the calcination up to the verge of vitrefaction of natural marl, or of artificial mixtures of substances containing clay and lime. They are reduced to powder, and contain at least one-seventh by weight of lime for one part of the material which gives to the lime its hydraulic property. To regulate certain properties of technical importance, there may be added foreign material up to 2 per cent. of the weight without this addition necessitating any change of name." Under paragraph 4, hydraulic admixtures are defined to be "natural or artificial materials which generally do not harden under water when alone, but only when mixed with caustic limes. Such are puzzuolana, Santorin earth, trass obtained from certain volcanic tufa, furnace slag, burnt clay;" and in paragraph 5, "Puzzuolana cements are products obtained by intimately mixing powdered hydrates of lime with hydraulic mixtures, ground to the fineness of dust."

Thus, on the authority of the highest body of scientists in the world in the line of testing construction materials, and approved by the Engineering Department of the United States Government, slag cement is not a Portland cement, but is puzzuolana cement, clearly and distinctly. This general broad distinction between slag cements and Portland cements is followed in all the specifications of the various Governments of Europe. In France, under the report of the Commission des Methodes d'Essai of the materials of construction in the Department of Public Works, Paris, published in 1894, the same distinction is drawn between slag cement and Portland cement, the two ingredients being treated in separate chapters of the book, the one under the head of "Cement" on page 248 *et seq.*, and the other under the head of "Puzzuolana" on page 332 *et seq.* On page 254 of this work it is stated:—"The specific gravity of different kinds of cement present sufficient differences to be clearly noted. One could not confound, for instance, a Portland cement of which the density should oscillate about 3·10 with a slag cement of which the specific gravity cannot exceed 2·85."

On page 332, after speaking of natural puzzuolana, it states that as to "artificial puzzuolanas outside of the materials which, like the slags, enter into the composition of products sold, and tested consequently under the denominations of cement, they present no serious interest to the constructor."

The leading authority on slag cement in the world, Professor Tetmajer, in his works published in Zürich in 1893, is clear in the distinctions he draws between it and Portland cement, for after defining Portland cement, as shown above in the Convention of the Congress of Tests, of which he is president, he states that "puzzuolana cements are products which are obtained by the intimate mixture of slaked lime in powder with hydraulic materials finely pulverised," and refers especially to the slag cement as a species of puzzuolana cement under which he definitely classes it. The same definition and distinction is made in the English works written by Redgrave, London, 1895, and in Redgrave's paper before the Institution of Civil Engineers, London, in 1890 and 1891, vol. cv. So, therefore, on the broad proposition it is clearly shown that in France, England and Germany, and in the United States by publication authorised by General Craighill, there is a distinct and absolute difference, well recognised, between slag cement and Portland cement. The weight of authority, therefore, being as to this material difference, it is interesting to take the definition of the various specifications of the world and see what a Portland cement is and how far a slag cement falls within its lines. By the specifications of the United States Navy Department, Bureau of Supplies and Accounts, approved July 6, 1896, specification for Portland cement, the specific

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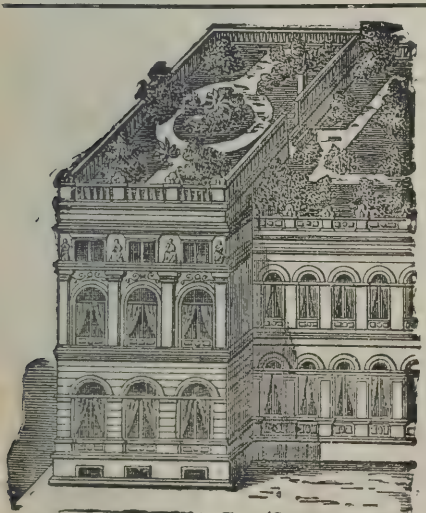
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gravity shall not be less than 3, and the material must have its final set at the end of eight hours. By all the authorities above referred to, as well as "Schoch on Mortar Materials," Berlin 1897—Candlot, Heath, Redgrave, Spalding, Tetmajer and other writers—slag cement has a specific gravity of from 2·7 to 2·8, and attains its final set in from 12 to 24 hours. Thus, under the specification of the United States, slag cement is not a Portland cement.

In the French specifications of the Ponts et Chaussées, Portland cement is defined to be "the product of the grinding of clinkered rock obtained by the burning to a point of softening of an intimate mixture of carbonate of lime and argillaceous matter, rigorously combined and chemically and physically homogeneous in all its parts."

By the standard tests accepted by the German Government in a decree of the Minister of Public Works dated July 28, 1887, Portland cement is a material resulting from the calcination, carried to the point of incipient fusion, of an intimate mixture of lime and argillaceous substances as its essential components; such calcination being followed by the grinding of the product to the fineness of flour.

In Switzerland, Portland cements are described to be the product obtained by the burning to the point of vitrification of hydraulic lime, stones, or of mixtures of argillaceous and calcareous materials, which are subsequently ground and reduced to fine powder. Portland cement in addition must contain a minimum of 1·7 parts lime to the unity of hydraulic materials.

In Austria, in the specifications of the Austrian Engineers and Architects' Association 1890, Portland cement is defined to be "compounds of natural marls or artificial mixtures of clay and lime-bearing materials which are burned to vitrification and are ground to great fineness, and in which the calcareous material shall at least be 1·7 to the unity of the argillaceous."

In Russia the Minister of Roads and Railways defines Portland cement to be "a product made out of natural marls or artificial mixtures of materials in which clay and carbonate of lime are contained, and which materials are subsequently turned to clinker, and are therefore ground to the fineness of flour."

In the English specification, quoted with approval on page 290 of Dr. Schoch's book, Portland cement is described to be "an intimate mixture of carbonate of lime and clay, which shall have been burned together without any foreign material, and it shall have been ground to great fineness."

In all these definitions of Portland cement it will be noticed that running through the whole line are certain definite requirements, and the best way to show the difference between Portland cement and slag cement is to place in parallel columns the principal elements of difference.

Under the facts above given and the material differences shown, it seems hardly necessary to add any further facts to prove that slag cement is not Portland cement, even though the label on the top of the barrel may say it is. The industry is a new one in this country, but is an old one in Germany, and from consular reports to the State Department, 1895, page 224, *et seq.*, it will be seen from the reports of the consuls at Frankfurt, Magdeburg and Düsseldorf, that the slag industry, which was successful there in 1890 and thereabouts, has steadily dwindled away, until to-day there is but a single works in existence in Germany, and Candlot, referring to this industry, states that no new works have been built in Switzerland, while in Belgium but one remains, and in France there are but three. It would, therefore, seem to remain for the slag cement manufacturers to explain why it is that if slag cement is as good as Portland, it is sold in this country, not as slag cement but as Portland cement, while all imported slag cement coming here is labelled puzzuolana cement.

DANVILLE ASBESTIC PLASTER.

THAT truly extraordinary mineral which bears the name asbestos has long been known as possessing the property of indestructibility by fire or any other human agency. For this reason it received its name, which, as scholars are aware, signifies "undestroyed," or indestructible. By that race of natural poets—the Greeks—it was also called "amianto," or unpolluted, for the reason that it is not possible to defile it in any way.

In the popular mind, as well as to some extent in the minds of architects and builders, its indestructibility or power of resisting fire is the chief, if not indeed the only, special characteristic of asbestos. This belief has been created, or at any rate largely fostered, by the fact that the fireproof qualities of asbestos have from time to time been displayed at public entertainments.

It cannot, however, be too widely known—especially among professional men—that although asbestos is absolutely fireproof, yet that important feature by no means exhausts its special

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merits. Before dealing with these other virtues it will, however, be convenient to say something of asbestic as the particular kind of the famous mineral with which we at present have to do.

Asbestos is found in several parts of the world, a good deal being brought from Italy, though there are asbestos mines in Spain. At the Danville mines in Quebec, Canada, however, there is found a kind of asbestos which differs in one very important respect from all other varieties. In the ordinary form in which asbestos is found the mineral or rocky mass in which the fibre is embedded is valueless, but in the Danville asbestos the mineral mass is in several ways quite as valuable as the famous fibre itself. To this surrounding mass the term "asbestic" has been given, and it is to its merits as a material for plaster that we now propose to direct attention.

That asbestic is a perfect non-conductor of heat of course goes without saying, and thus asbestic plaster will keep a room cool in hot weather and *vice versâ*. Then asbestic is a non-conductor of sound, and thus the plaster should be eminently suitable for churches, lecture-halls, and concert-rooms, and other places into which the entry of external and the escape of internal sound are alike undesirable.

Asbestic plaster is fibrous and very elastic. Once set, it will never crack or crumble, and nails enter as freely as into wet plaster, and without injury other than the hole, which can be readily made good. Nothing besides the asbestic itself being used in this plaster, it is not only vermin proof, but cannot generate organisms of any kind. Thus its value from a sanitary point of view is of the highest. Moreover, the plaster adheres with great tenacity, and is therefore peculiarly suitable for ceilings, especially by reason of its filtrative powers, which, in the event of an overflow from the room above would prevent any stain, while the ceiling would suffer no injury.

In manipulation, asbestic plaster effects a great saving of labour, as its application is much easier than that of any other plaster. It is also quite as suitable for metallic as for wood lathing, especially as it is a preventive of corrosion as well as of the action of heat.

Of the power of resisting the action of heat which is possessed by asbestic plaster, mention has already been made. Its power of resisting the much more destructive action of heat and water is equally noteworthy. As General Smith, the United States Government supervising architect for public construction, says in a recent and able report, "fireproofing to be worthy of the name must resist the combined action of heat and water and be a non-conductor of heat." Such a material, the General goes on to say, he found in asbestic plaster and in that alone. The same high authority goes on to point out the great value of asbestic plaster as a covering for steel beams and girders. These rapidly buckle under the action of heat, and when subjected to the action of cold water at once collapse and become worse than useless. As asbestic plaster may be heated to red heat without marring its durability, steel or iron protected therewith would afford a resistance to fire attainable by no other known means. Thus we have no hesitation in commending Danville asbestic plaster to the notice of our readers, and in advising them to secure fuller details than those for which we have been able to spare space, which they may easily do by communicating with the Asbestos and Asbestic Company, Limited, at 27 Billiter Buildings, London, E.C.

MARYLEBONE COAL DEPOT.

The London Extension of the Great Central Railway has been in course of construction for nearly four years. The main line is now practically finished, and is being inspected in sections by the Board of Trade. It is now open for coal traffic.

The Marylebone coal depôt covers an area of about six acres, and has been laid out upon what is considered by coal merchants to be the most suitable plan for the economical carrying on of their business. The coal trains will be brought to Neasden, where the company has enormous storage sidings, and there they will be worked down to the depôt as they are required by what is technically known as "special pilot working." Along the south side of the yard are an inwards line of rails for the full waggons and an outwards line for the empty ones. Running at right angles are nine pairs of lines, nearly the width of the yard, with a broad road between each pair. On this road the delivery or street vehicles will come and take the coal straight out of the railway waggons. This arrangement enables a merchant to have one or more of these stands to himself, and also tends to secure the coal against breakage. The waggons are worked into and out of the cross lines from the delivery and receiving lines by means of turntables. These cross lines provide standing accommodation for upwards of 300 waggons, but the applications from merchants have so largely exceeded the space available that the company have already applied for Parliamentary powers to double the size of the depôt. The company is in direct communication with the Yorkshire, Derbyshire, Nottinghamshire and North Wales coalfields, whence an immense volume of coal is ready to be taken over the new line to London. Ample office accommodation for merchants and factors is provided in the yard, as well as extensive ranges of stables.

But the coal depôt is only a small portion of the London terminus, which covers some 60 or 70 acres. It is approached from the north by a double line, through a tunnel about a mile long. Then follows the "cut and cover" work, completed for six sets of rails, four of which end in "dead ends" at the southern portal of the tunnel, and will be used until a second tunnel becomes necessary for storage sidings. All the lines pass over the Regent's Canal, and there the first lot of goods lines leave the main line to the right, or west, and follow round the edge of the canal. The canal, which has been widened, here forms a long basin, about 100 feet wide, and is retained by a fine wall, along which the barges will lie. On this wharf there will be a shed covering four lines of rails, and six hydraulic cranes are in position, so that goods will be lifted out of the waggons into the barges, or *vice versâ*, and sent direct to the ship's side at the docks. A little further south the coal line into the coal depôt leaves the main line and makes a dip in order to get under Grove Road. Still a little further south the lines into the general goods yard branch off to the west. The main feature of the goods yard is the magnificent warehouse which will shortly be finished. It has five floors, each 255 feet by 350 feet, giving an aggregate storage area of 12½ acres. It is being fitted with all modern appliances for expeditiously handling goods. The building is fireproof, and the skeleton is composed entirely of steel girders and columns. After passing the goods yard the line splits up into the five lines of the terminal passenger station, which will have two arrival and two departure lines and one siding line against the east wall. The platforms are 1,000 feet long. At first the company will have no local traffic, but recent proceedings in the Parliamentary committee-rooms indicate that this will not be the case for long.

There is a broad road or promenade between the station building and the fine hotel designed by Colonel Edis. It is expected that the hotel will be opened next spring. It should also be mentioned that Colonel Edis designed the front elevation of the station building, though all the engineering work of the southern and London divisions has been designed by Sir Douglas and Mr. Francis Fox, whose resident engineer for the London division is Mr. Edmund Wragge. The contractors are Messrs. Firbank. In addition to the works and buildings so briefly indicated, there are gasworks, extensive electric-lighting works, a large hydraulic pumping station, carriage works, and stables for 700 horses, all of which are in a forward state.

THE INGLIS MEMORIAL HALL, EDZELL.

For the new hall at Edzell a clock and bells have been made and erected by Messrs. Gillett & Johnston, clockmakers and bellfounders, of Croydon. The clock is what is known as a Westminster quarter one, *i.e.* being constructed to chime the Westminster quarter hours, in addition to showing the time and striking the hours. The frame which contains the wheels is of cast-iron, cast in one piece for perfect rigidity, and the "main" or largest wheels measure 10 inches, 12 inches and 12 inches in diameter for the going, striking and quarter parts respectively. The clock is fitted with the "double three-legged gravity escapement," and a compensated pendulum constructed to withstand all variations of temperature. It beats once in every 1¼ seconds, and the cast-iron "bob" at foot weighs 90 lbs. The dials or faces are four in number and measure 4 feet 6 inches in diameter. They are of cast-iron, glazed with opal glass for illumination, and are fitted into cast-iron spandrels, built into the masonry, and, being tastefully decorated and gilt, present a very pleasing appearance. There is an apparatus attached to the clock for the purpose of turning the gas up and down automatically, according to the seasons of the year, and the works are also provided with a small dial to enable any one to take observations of the time from inside the tower, and for convenience in setting the outside hands when necessary. The bells are five in number, and are of the following weights and dimensions :—

No.	Size. Diameter at Mouth. Inches.	Weight. Cwts.	Qrs.	Lbs.	Note.
1.	26½	4	0	21	F sharp
2.	28	4	3	12	E
3.	30	5	2	7	D
4.	36	7	3	10	A
5.	39	10	0	19	G

The following inscription is cast upon the largest bell :—"This bell was cast on July 30, 1897, for the Inglis Memorial Hall, Edzell, erected and endowed by Lieutenant-Colonel Robert William Inglis, V.D, for the benefit of his native parish, and in loving memory of his father and mother." It may interest many to know that the weights necessary to drive the clock scale in the aggregate over 16 cwts.

WEST BANGOUR NEW LUNATIC ASYLUM.

A new lunatic asylum is to be erected at West Bangour from the designs of Mr. Hyppolyte J. Blanc, who, with a view to making his building as perfect as possible, made a tour of inspection of various asylums at home and on the Continent, the various good points of which he has as far as possible combined. The characteristic aimed at by the architect in the outward treatment of the designs is variety of expression, consistent with the internal requirements. In some instances a little more architectural style has been infused into the design, to relieve the eye as far as possible from any sense of uniformity or monotony. Having regard to the conditions of site, the position chosen on the plan for the main entrance is suggested as that affording the largest area of a uniform surface, and it is therefore most convenient for receiving and delivering all heavy goods for the colony.

The administrative block is placed in the middle of the medical and hospital blocks, conveniently near the localities to be served. The porter's house is placed at the back, with separate access and staircase, but with through communication to the main building. The plans of the kitchen block provide for the requirements, and show all the fittings and apparatus requisite for cooking for 1,000 patients and 200 officials. These are of the very latest construction, and have been found to work admirably in other modern asylums where they were seen. Bedroom accommodation for cook and assistants is also provided within the block. The stores block and the kitchen block are attached, and have through private communication. An abundance of lighting is afforded by means of continuous cupolas of clerestory side-sashes, with opening frames for ventilation, under simple and easy control. By this mode of construction the heating effect produced by ordinary roof-lying lights is destroyed. The church is designed to meet the requirements of Presbyterian or ritual service as may be desired.

The recreation hall is placed almost in the centre of the whole site. The floor area is unobstructed by pillars, and ample provision is made for stage and dressing-room requirements. At the main entrance are two cloak-rooms ; and for an increase of accommodation a gallery can readily be constructed over the recess between the two vestibules, to hold 130 persons. There are four doors of access, any two of which can be for males, and two for females, if desired. In treating the exterior of the hall, one of the vestibules has been designed to carry a lofty tower. In that tower it is proposed to place tanks of 30,000 gallons capacity, wherein water may be stored for the general service of the several blocks or for the washhouse, and also as a supply for fire-hydrants. Above these is a clock chamber, placed at such elevation as will conveniently be viewed from any part of the colony. The hall is prominent, and consistently with the idea of giving special consideration to prominent parts, it is more decoratively treated than are some other buildings. The bath-house is lighted from clerestory windows placed high. In other asylums it is recommended to have screens between each bath, and so the plan provides for screens of moderate height and projection. Each bath spills into a continuous gutter in the floor, and so all complication of plumber-work is overcome. The baths are proposed to be of fireclay, glazed white inside and outside, placed upon moulded blocks raised from the floor. The mortuary block is planned upon the lines of the best-equipped mortuary in this country. A special addition shown upon the plans is a duplicate mortuary for the sexes, a dissecting-room and a refrigerator. The situation of the mortuary has been specially considered. It is comparatively near the hospital, and from it bodies may be removed outside the precincts of the colony without observation by any inmates. The laundry block is quite close to the kitchen and store block. The fittings proposed are selected from the best of those found in use in good modern asylums. As in other blocks named, the natural lighting here is by continuous upright glazed cupolas, and the means for ventilation are of the simplest and most efficient construction, namely, opening frames by means of cords and pulleys. The boiler and engine-house block immediately adjoin the store block. The accommodation provided is considered ample for the colony. The steam heating for kitchen, &c., may be served by one or two boilers. One is required for the electric lighting, and one—a spare one—for emergencies. The boilers are of necessity placed at a lower level than the ground, and the coal store adjoining, capable of housing 400 tons, is also placed at the same level, because the coal would thereby be more easily delivered to the cellars. The dynamo-room is purposely delineated of ample space to admit of an increase in the number of dynamos, and also to afford space for storage batteries, which may be found useful. The equipment can quite readily be limited to the requirements of 720 persons in the meantime. The bakery is designed to meet the requirements of 1,200 people. It is planned upon the best modern models. The flour is delivered upon a gallery floor by an electric hoist, and descends through a shoot into the special dough-mixing machine placed to receive it. The ovens are a special patent. They are not fired in the usual manner from the front, but are heated from an area behind by coke, and may be used continuously for hours, being always maintained at a uniform high temperature. The workshop block is, for obvious reasons, attached to the engine-room block. It is virtually more than a block, forming in its complete condition three sides of a courtyard. The nurses' house, for obvious reasons, is placed at the extreme west end of the site, being at a convenient distance from the medical section. The strain of their special duties demands perfect quietness in their retreat. In the plan the effort has been to group the accommodation prescribed in the most economical and convenient manner, and yet to give a certain degree of individuality to the whole block. Special accommodation for a matron is also provided. The medical superintendent's house is placed where it can be readily accessible to visitors and inquirers, namely, within ready view and easy reach of the main entrance. The attendants' cottages are planned for varying accommodation of three and four apartments. Those of three apartments have no separate bathroom, while those of four apartments have. The series is designed with a view to picturesqueness, without unnecessary ornamentation, but with sufficient form to give them architectural interest. The infirmary and sick-room blocks complete the group fronting the high land on which the medical section is placed. The situation is selected for its comparative airiness, as well as the other advantages of convenience. The hospital block is arranged that one side or half is a counterpart of the other. The kitchen is arranged in the middle. A doctor's room is also provided. A feature of the plan is that at the end of the wards are two single rooms, one of which is for a moribund patient, who, after death, can be removed by the outside door without having to be conveyed through the ward. The arrangement has received careful consideration to secure separation of sexes and easy communication throughout upon an economical form of construction.

The asylum houses are arranged to supply the accommodation required, and variety is sought to be gained by varying the areas and consequent accommodation of dormitories in the several blocks. For the industrial or non-medical section ten separate schemes for villas are submitted—five for men and five for women. The aggregate number of 150 of each sex has been divided as follows :—One villa of 25, one of 26, one of 28, one of 32 and one of 40 patients.

Fire hydrants and hose chambers are provided for in every block at convenient places in the corridors or in the staircases. No special fireproof construction is contemplated. There is comparative immunity from fire risks by the isolation of the different blocks. The lighting is proposed to be by electricity, with various candle-power lamps to suit the respective situations, the supply main cables being underground and the house cables carried in steel tubes, all on the most approved system. The ventilation of the various dormitories and day-rooms is provided for by means of fresh-air inlets in the window recesses at the floor levels, under key control of the attendants. Radiators are proposed to be placed in the window recesses, so that in winter the incoming air would be warmed, while in summer the air would be admitted by the same openings in a natural state. For the release of vitiated air grated openings are proposed to be placed in the walls near the ceilings, and led in specially constructed glazed brick flues into an outlet shaft and ventilator in the roof. A fan in the ventilating shaft driven at any time when required by an electric motor is much more satisfactory. All windows are intended to open, but by means of a small brass bracket permanently screwed to the case the extent of the opening is limited to about 7 inches, which is quite serviceable for all requirements. The cost of the building to accommodate 1,000 patients is set down at 235,000*l.*

LONDON BOARD SCHOOLS.

In the annual report of the works committee of the London School Board is an abstract of the work done during the year ended March 25. From it the increased accommodation which has been sanctioned by the Board and the Education Department can be judged. The report, after stating what action has been taken with regard to the purchase of twelve sites for new schools and additional land for nineteen existing schools, with regard to which compulsory powers were obtained in 1896-97, sets forth a list of sites for twelve new schools and for enlarging schools or playgrounds or for general improvements. During the past year the Board agreed to purchase various interests in sites at a cost of 84,361*l.*, the surveyors' fees amounting to 583*l.*, and, including these amounts, the total cost of the sites purchased up to the end of the year under review was 3,300,165*l.*, the surveyors' fees, &c., being 446,931*l.* According to a table prepared by the finance department, the cost of the sites for 350 schools, the accounts of which had been completed on September 29 last, was 6*l.* 14*s.* 6*d.* per child, and the average cost per head for school buildings was 13*l.* 14*s.* 1*d.*, and for furniture and fittings 10*s.* 7*d.* Up to Lady Day, 1897, the total number of permanent schools which

had been erected and opened was 418, and during the year under review twelve new schools and eight enlargements were opened. The twelve new schools were opened—one in Chelsea, one in Finsbury, one in Greenwich, three in Hackney, one in East Lambeth, four in West Lambeth and one in Tower Hamlets. The total accommodation thus provided was for 12,948 children, and the cost of the sites, buildings and furniture was 352,484*l.* 16*s.* 7*d.*, or an average cost per head of 27*l.* 4*s.* 5*d.* The enlargements were carried out in Finsbury, Greenwich, West Lambeth, Southwark and Tower Hamlets, and provided additional accommodation for 2,910 children at a cost (exclusive of site) of 83,146*l.*, or an average cost per head of 28*l.* 11*s.* 5*d.* Loans were authorised by the Education Department in respect of the twelve new schools amounting to 364,668*l.*, and on account of the eight enlargements and sites amounting to 138,278*l.*

Additional school provision has been made to the following extent:—Tenders have been accepted during the year for erecting nine new schools to provide accommodation for 7,719, and for carrying out thirteen enlargements of schools to provide accommodation for 3,863 children. The new schools will be erected—two in Greenwich, one in Hackney, two in East Lambeth, two in West Lambeth and two in the Tower Hamlets—at a total cost of 173,305*l.*, or 22*l.* 9*s.* per head. The enlargements will be made—two in Finsbury, four in Greenwich, one in Hackney, one in West Lambeth, three in Southwark and two in the Tower Hamlets—at a total cost of 91,702*l.*, or 23*l.* 14*s.* 9*d.* per head. The tenders include the provision of halls which are not counted in the accommodation of the schools, the provision of centres, and in all cases a drawing classroom. In four cases a playground is being provided on the roof. Three of the schools are being erected under the special arrangements made with the view of reducing the cost. With regard to the enlargements, the variations in cost arise mainly from the fact that the opportunity is taken to improve the existing schools by providing halls, &c., so as to make them thoroughly efficient. Tenders have also been accepted for erecting or providing, among various other works, fourteen cookery centres, seventeen laundry centres, sixteen manual training centres, seven schools for special instruction, rooms for the teaching of the upper standards at nine schools, a blind centre, two housewifery centres, draining and other works at nineteen schools, an infirmary and isolation ward in connection with the *Shaftesbury* training ship, at a cost of 3,400*l.* Sanitary works have also to be carried out at twenty-one schools, and the total amount of the tenders accepted in respect of seventeen of these schools is 23,115*l.* The system of carrying out repairs to school buildings by workmen employed direct by the Board is being continued in nine of the eighteen districts of the clerks of works for repairs.

The following work was in hand at Lady Day last. Fifteen schools were in course of erection, providing accommodation for 13,789 children, and fourteen enlargements giving accommodation for 4,467; thirty-two additional sites for new schools had been or were being purchased, the schools to be erected on twenty-five of which would provide for 23,157 children; twelve sites for new schools had been scheduled, the schools to be erected on four of which would provide for 3,494 children; eighteen enlargements of schools had been sanctioned by the Education Department, providing for 5,840 children, and the Education Department had sanctioned the provision of sites in seven districts, which would be scheduled next session, the schools to be erected on four of which would provide for 2,820 children. The report adds that the playgrounds of 236 schools were opened on Saturdays for the use of children and forty-seven were also opened on Sundays.

DURHAM NEW SHIRE HALL.

THE new Shire Hall, Durham, which was opened on the 26th ult., has been erected from the designs of Messrs. Barnes & Coates, architects, of Sunderland and West Hartlepool. The foundation-stone of the building was laid by the Earl of Durham on April 25, 1896, so that rather more than two years have been occupied in its erection. The entrance is in the centre, with a fine balustrade extending on either side the full length of the building. The approach is up a fine flight of red Mansfield stone steps, about 30 feet wide, through an enriched archway. The gates are of wrought and hammered iron. The building is of red terra-cotta, with dressings of the same material, from Messrs. Monk & Newell, of Ruabon, and the roofing is of green slates. The site being in a hollow, a fine tower with clustered shaft supporting a copper dome has been designed, which adds to the dignity and prominence of the building. The entrance to the Weights and Measures Office is from the street level at the north-west corner. In the basement are the county clerk's strong-room and the county surveyor's plans and sample-rooms, the caretaker and the

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heating chamber, &c. The council chamber, committee and retiring-rooms and the county clerk's department are on the ground floor. The first floor contains the county surveyor's, medical officer's, accountant's and technical education secretary's department, while on the second floor are provided the photographing-rooms of the county surveyor, the laboratory of the medical officer and the education secretary's library. The county clerk's strong rooms are well lighted and ventilated, and easily accessible. The caretaker's rooms, although away from the business portion, are conveniently placed, the entrance being from the east side, and quite distinct. The council chamber block is placed on the opposite side of the hall to the county clerk's office, and is self-contained, while the entrance to the upper floor is quite independent of either, both of which are absolutely private. The council chamber, which is two storeys in height, is on the axial line of the building, and though effectively isolated, is of easy access from all parts. The committee, chairman's, and retiring-rooms are arranged on either side of the council chamber lobby, and are provided with an excellent lavatory block. The council chamber is in the form of a horseshoe on plan, and is admirably adapted for the purposes of debate, all unnecessary corners, &c., being dispensed with. The chairman's seat is placed on a daïs, with the vice-chairman's and county clerk's on either side. The daïs is constructed to prevent draughts and to also act as a sounding board. The officials are placed together in front of the chairman, and press boxes are arranged on either side in good positions. The council chamber is 45 feet in diameter, 30 feet in height, the top portion being circular. It will accommodate 100 members, in addition to the officials and reporters. The walls are enriched with marble columns and panels and carving, and the windows filled with stained-glass, representing the arms of the county and principal boroughs. The roof is coved and domed with pendentives and arches ornamented in relief. There is a public gallery situated above the council chamber entrance. This is reached by way of the first-floor corridor. Between the council chamber and the county clerk's department is the chairman's room. The waiting-rooms are next placed for the convenience of deputations. The whole of the corridors are well lighted from the area windows. Great attention has been paid to the position of the ante-room and main staircase. The former is a large hexagonal room 24 feet high, finely panelled with oak, and the windows glazed with coloured glass. There are three handsome committee-rooms and a retiring-room, the largest being 42 feet by 21 feet. The main staircase is on the front immediately adjacent to the hall. It is beautifully panelled throughout with faïence from the Burmantofts Faïence and Tile Company, Leeds, as are also the hall and the ground-floor corridors. The steps are of marble, and the balustrade is red terra-cotta. The drawing office in the surveyor's department is one well lighted from two sides. The walls of every strong room are carried up from the ground level. The floors over corridors are fireproof, and are laid with wood-block flooring. The lavatories and w.c. blocks are well arranged and ventilated, and disconnected from the corridors by a lobby. The buildings are heated throughout by low-pressure, and the council chamber is heated on the Plenum system. A large ventilating sunburner is placed in the council chamber. All the principal offices have open fires.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

16341. W. Tharme, for "Improvements in preparing or treating clay or the like for making bricks, tiles and other articles."

16416. H. Alexander, for "Improvements in brick-making and pressing machines."

16417. H. Burridge, for "Improvements in kilns or ovens for firing bricks and other ceramic goods."

16454. Henry Boddy, for "Improvements in or connected with slating roofs."

16527. C. Kite & C. F. Kite, for "An improved inlet ventilator."

22315. Black, for "Brick-making and other moulding machines."

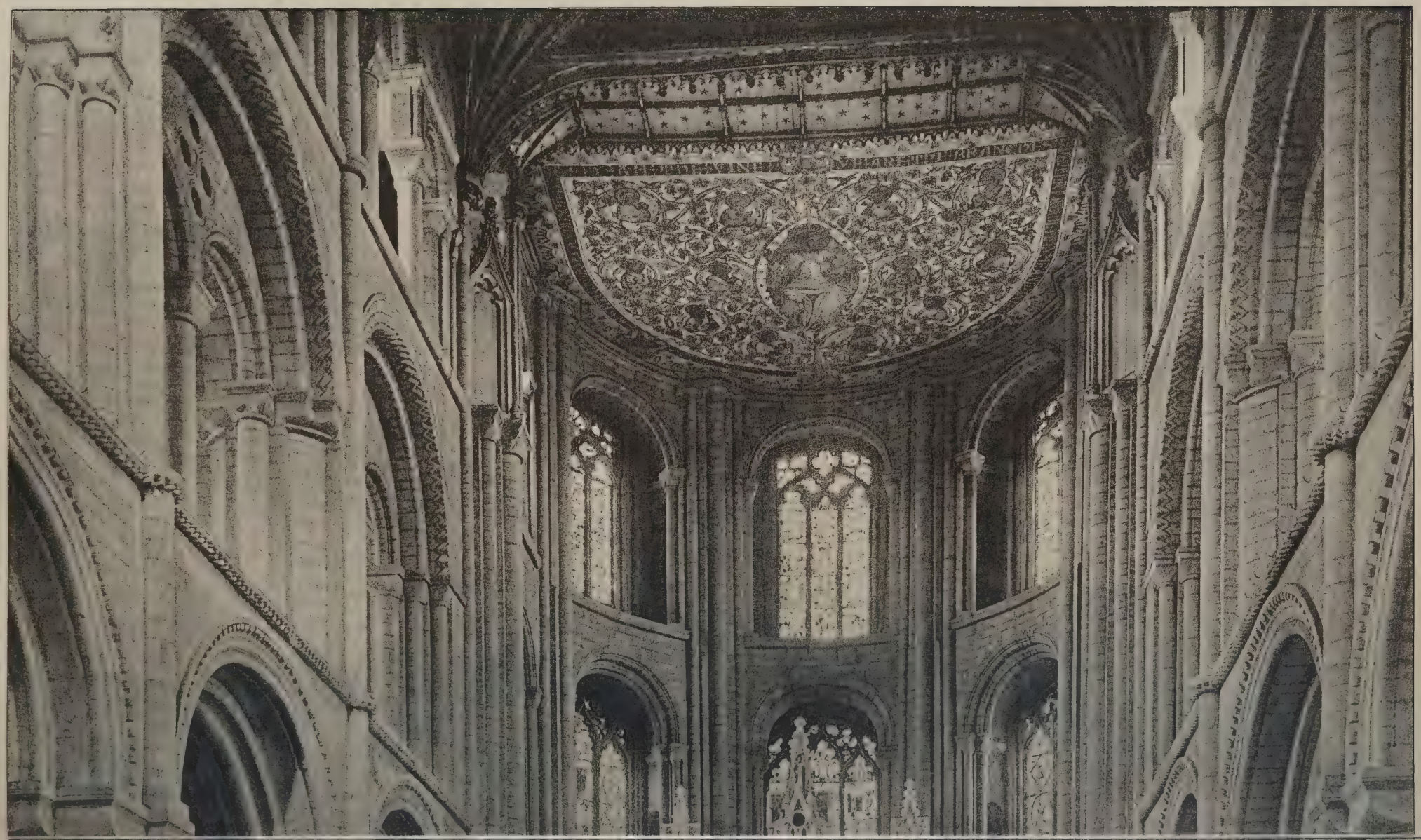
3464. Briggs, for "Ventilator."

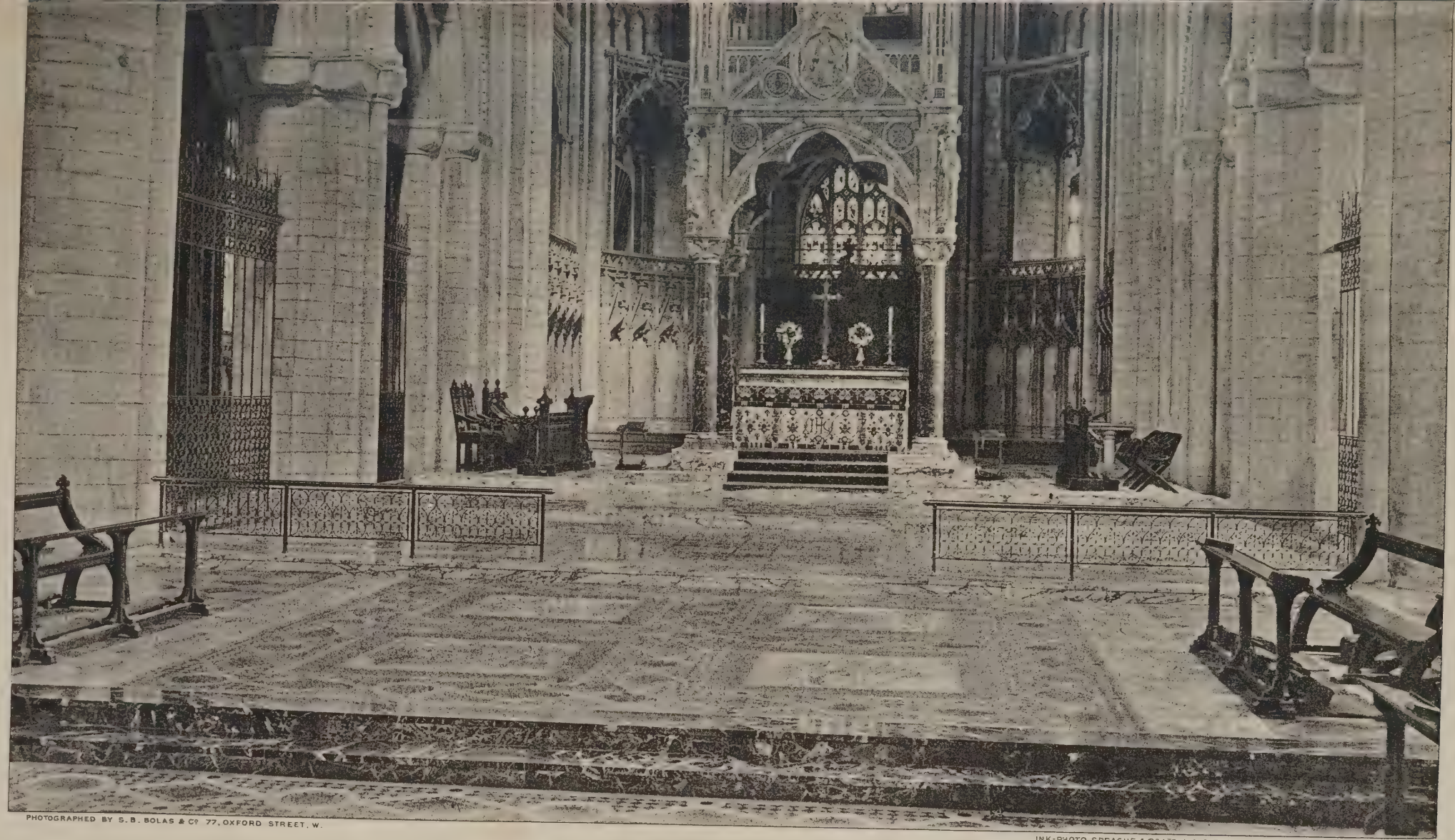
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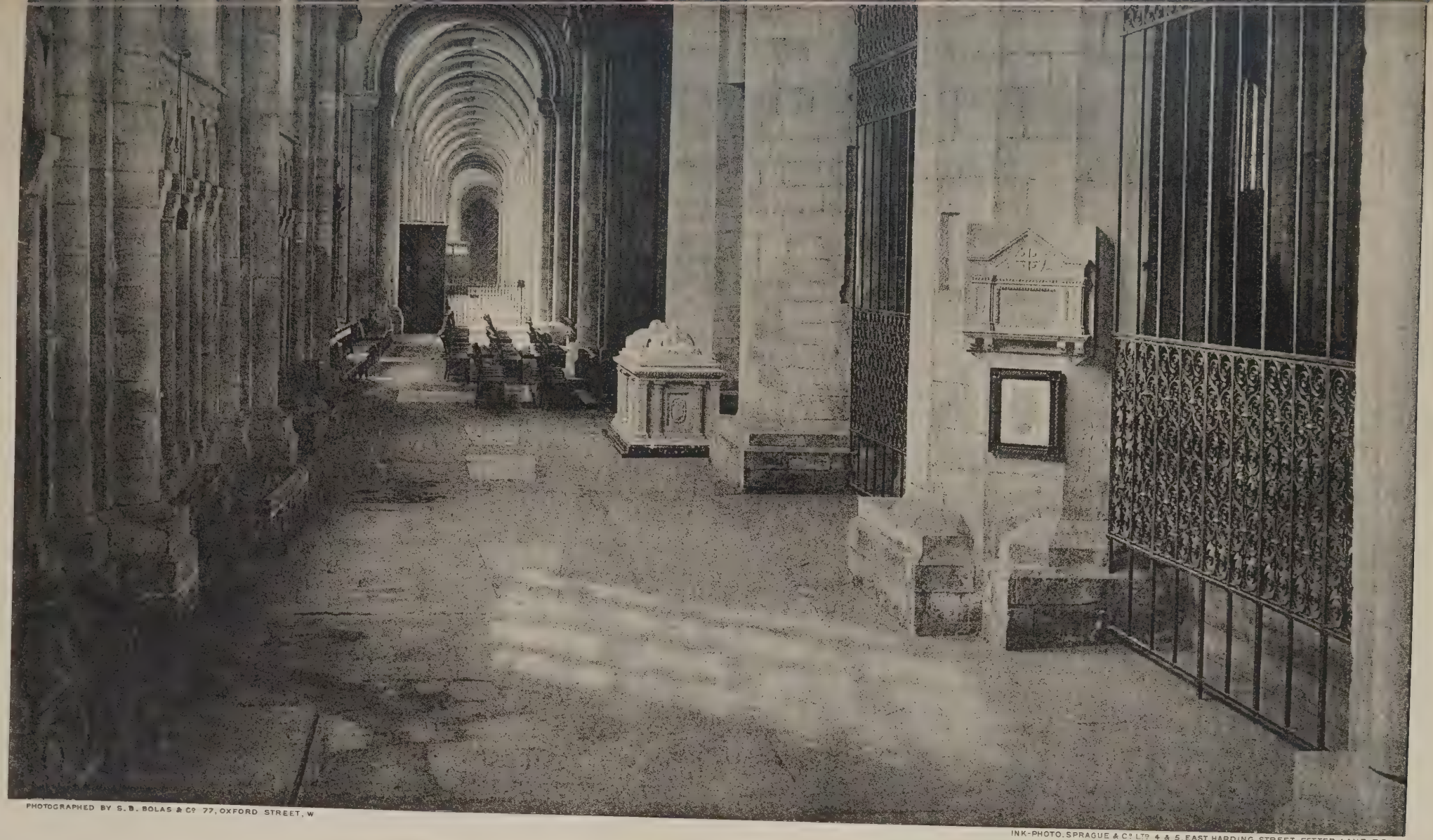
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CATHEDRAL SERIES, No. 156.—PETERBOROUGH: SANCTUARY AND HIGH ALTAR.

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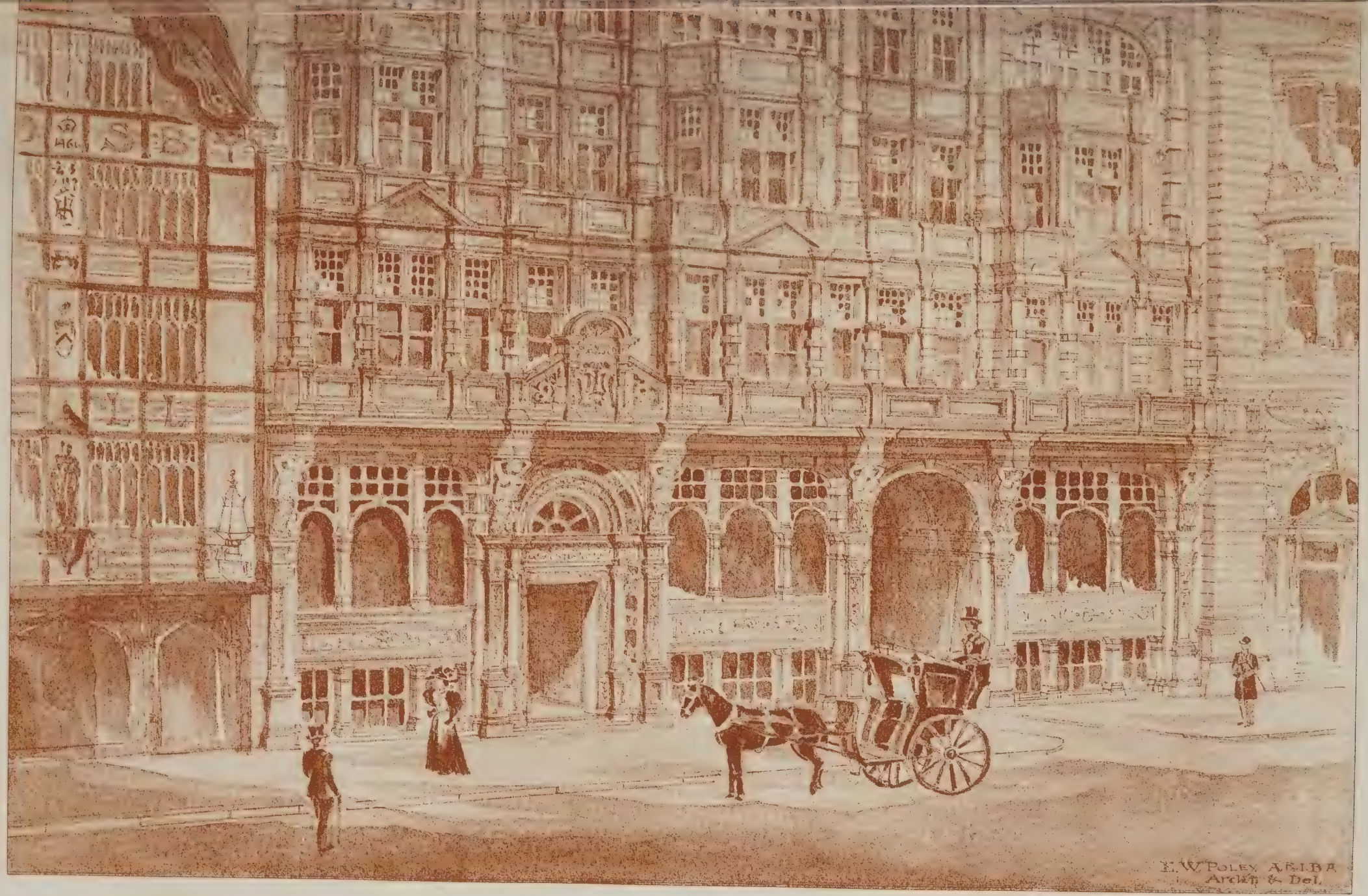


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CATHEDRAL SERIES, No. 157.—PETERBOROUGH: SOUTH AISLE, LOOKING WEST.

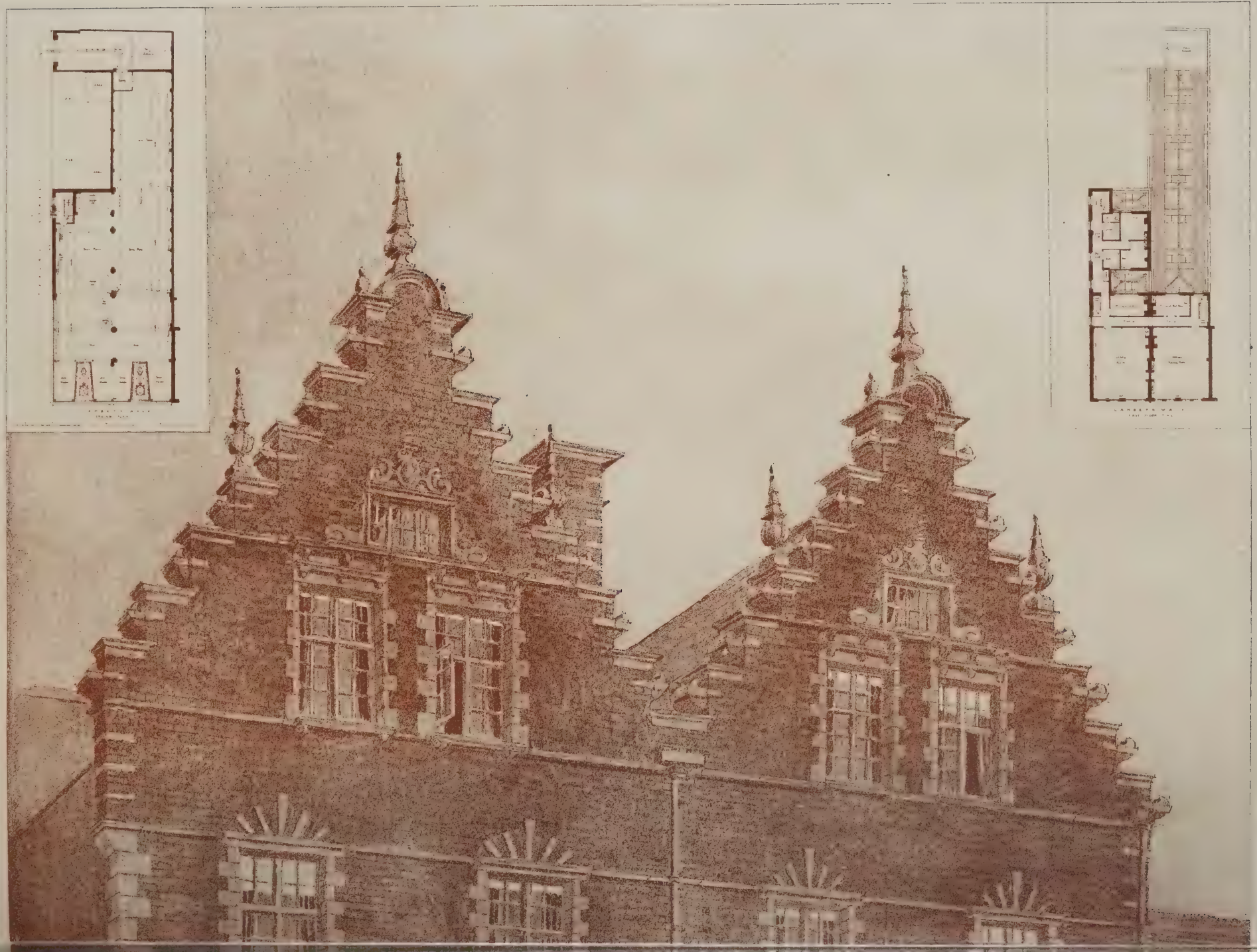


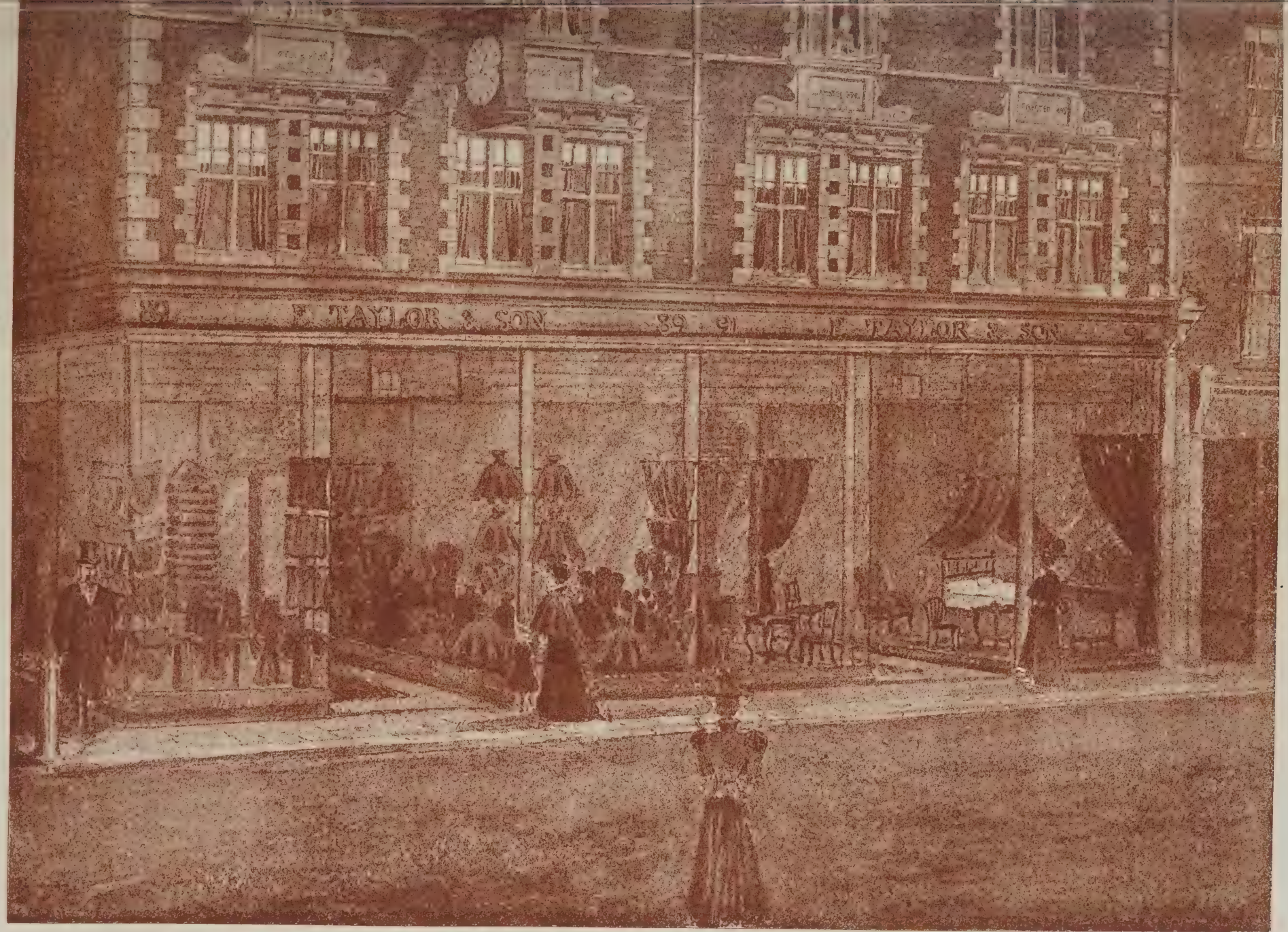


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89 AND 91 LAMBETH WALK, S.E.

A. H. BELCHER, A.R.I.B.A., Architect.

The Architect.

THE WEEK.

In his address at the grave of Charles Garnier M. Larroumet strove to do justice to the importance of the Opera House as an example of architecture. He said he did not believe that since the time when the Palace of Versailles was erected so fine a programme was proposed. In the building Charles Garnier created not only something corresponding with himself, but a symbol of the Second Empire and the civilisation of the nineteenth century, with its luxury, love of pleasure and affection for art. He desired that his theatre should be an example of polychrome and gilding, constructed of the richest materials, appearing immense from its proportions, and worthy to celebrate the *fêtes* that Paris was to give to all the world. In order to allow access to an interior where the most complete and the most sumptuous form of art, the lyrical drama, should display its forms, colours and masses, and pour out on all torrents of light and of tones, he created the staircase as an approach for the brilliant hierarchy of Paris as well as of all the world. It was one of those propylæa where humanity could take part in its own apotheosis, and exult in its victory over barbarism. M. Larroumet testified to the tenderness of Charles Garnier and to his gaiety and patience while suffering pain. The greatest writers and artists of the time were his friends, and many survived to deplore the loss of one of those good men who were rarely met with. M. Normand and M. Roussy, on behalf of the French architects, testified to the loss of their brother artist.

The holidays have scarcely commenced when "The Curriculum" of the Architectural Association appears. The next session begins with the annual general meeting on October 7, and the classes open three days afterwards. Members have now advantages which were denied to their predecessors. Systematic instruction is available on all the subjects with which it is necessary for a young architect to be acquainted. With a staff of teachers like Messrs. Adams, Buckman, Clarke, Collard, Farrow, Hart, Hulme, Leaning, Lewis, Pomeroy, Ransom, Satchell, Smith and Weedon, besides a body of visitors, the organisation for imparting knowledge relating to architecture as an art, science and profession is the most complete in the country. English self-reliance is shown throughout the arrangements, and we hope students will co-operate in making the classes a success. It may be added that the Discussion Section has an attractive syllabus, with such subjects as Church Restoration, Modern Architectural Tendencies, the Architect's Library, Santa Sophia, Buildings for Secondary Education, Furniture, Factory Design, Heraldry, Colour, Arbitration, the Contract System and Houses of the Speculative Type.

The following papers will be read at the ordinary general meetings of the Association:—"Excavations at Thebes," by Mr. J. E. Newberry; "Arts and Crafts," by Mr. H. Wilson; "Oriel and Bay Windows," by Mr. Paul Waterhouse, M.A.; "House-planning from the Æsthetic Point of View," by Mr. H. H. Statham; "The Position of Architecture among the Arts," by Mr. Edwin T. Hall; "Ancient and Modern Buildings in Palestine," by Mr. Beresford Pite; "Stained Glass," by Mr. Christopher Whall; "Colour Decoration," by Mr. Cole A. Adams; "Public Baths," by Mr. A. Saxon Snell; "Reflections on the English Renaissance," by Mr. Reginald T. Blomfield; "Modelling as applied to Architecture," by Mr. F. W. Pomeroy; "Specifications," by Mr. F. W. Macey; "Soil and Aspect in Relation to the Dwelling-house," by Dr. G. V. Poore.

A great many of the Paris theatres are now closed, but the Commission having charge of them is busily engaged in devising precautions against fires. Lighting arrangements, communications between different parts of the house, and the exits and entrances are all scrutinised. There is already a code of regulations, but every year some changes are introduced. This year, for example, there are additional restrictions placed on ladies' hats. They have not become more dangerous, but if the general convenience is aided few masculine theatre-goers will complain if the law has been stretched a little beyond the original intention.

On September 21 an Anglican cross 20 feet high will be unveiled at Whitby. It is a memorial of Cædmon, the earliest known Anglo-Saxon poet. We say known, for from what the venerable Bede says, Cædmon became a poet through the suffering he underwent at his inferiority to other peasants. "He was so much less instructed," says Bede, "than most of his equals that he had not even learned any poetry, so that he was frequently obliged to retire in order to hide his shame when the harp was moved towards him in the hall, where at supper it was customary for each person to sing in turn." On one of those occasions he fell asleep, and he dreamt that a stranger came to him and ordered him to sing. "What must I sing," said the cowherd, and he was ordered to sing "The Creation." His first attempt begins in this way, "Nu we sceolan herian heofonrices weard, metodes mihte," &c., which in modern English would run to this effect:—"Now we shall praise the guardian of heaven, the might of the creator and his counsel, the glory-father of men." It is very remarkable to find a predecessor of Milton in the seventh century. The nine lines which form the opening of the song of "Creation" are to be inscribed on the cross in English, Runic and Saxon characters. The memorial cross is to resemble those which were set up in Cædmon's time, and the shaft will be adorned with emblems and symbols. Through the exertions of Canon Rawnsley, of Keswick, there is at present a deficiency of only 70*l.*, and that sum will not long be wanting.

Lambeth Palace Library will be closed for the usual recess for six weeks, from August 27. There have been some interesting accessions lately on local and Kentish church history—among them we may name the history of Orpington by Rev. Chenevix Trench, a treatise on the stained-glass in Canterbury Cathedral, and another on the fine church of Minster in Sheppey. This ancient and historic structure is graphically described in Charles Dickens's "Old Curiosity Shop," and a memorial of the Queen's Jubilee, a stained-glass window representing Queen Sexburga, the foundress of this Abbey church, was unveiled in January last.

The British Consul reports that the famous theatre of La Scala, in Milan, has remained closed this season owing to the refusal of the City Council to continue the annual subsidy of about 8,000*l.* It has, however, been shown that so many important interests and industries are dependent on the maintenance of Milan's position as a great theatrical centre as to justify the granting of a subsidy. A movement is now on foot with the object of making certain reforms in the system of management, and it is very likely that the Council will reconsider its previous decision and will vote, if not the whole sum hitherto contributed, at least sufficient money to enable the theatre to be reopened next season.

At the coming meeting of the British Association Mr. E. W. Brabrook, F.S.A., will preside over the Anthropological section. Subjects relating to China and Eastern Asia generally will be considered. Papers relating to American peoples will be submitted, and the final report of the committee on the North-West tribes of Canada will be laid before the Association. Mr. C. H. Read, of the British Museum, will give an illustrated account of the treasures secured by the expedition to Benin. British archæology will be represented by reports on the lake village of Glastonbury and on the Roman city of Silchester. Professor Lloyd Morgan will read a paper on the prehistoric antiquities of the neighbourhood. An account of the first three Egyptian dynasties in the light of recent excavations, by Professor Flinders Petrie, will also be given. The proceedings of the section promise to be interesting.

HEINRICH HEINE ON FRENCH PAINTING.

By a Correspondent.

IN the week which follows the closing of Parliament, where laws are made, and of the Courts of Justice, where they are enforced, work in London becomes trying to the strongest. The town appears to be covered with a weight that is as oppressive as the fog which is to take its place in the course of a few months. All the powers which usually incite men to action become enfeebled. Who can be ambitious when a heat wave is making the blood stagnant, or can believe in the healing, the salutary influence of labour when one is pining for the luxury of lying supine for a few days or hours in some quiet spot where breezes are as beneficent as angels? That was Brunel's luxury, and as he reposed he watched the motion of a paper kite. At such a time it is a little consoling to think of those who, in "populous city pent," have had also to toil year after year without any hope of respite and nepenthe. Prominent among them must be named Heinrich Heine.

By birth Heine was a child of the Ghetto. Philistines considered he should have been thankful for the privilege of living in an *appartement* in a large and broad street, instead of amidst the sights and sounds and stenches to which his race were doomed throughout Europe. Then, too, as a soldier of liberty, as one of the forlorn hope who fought and were wounded in the struggle for reform, Heine's place was among crowds. In one of his fits of despair he imagined he could not hope to escape from the badges of infamy which were the heritage of his people, and that he was to wear one which would make him an outcast in Jewry. He became a pensioner of the French court, and that degradation made residence in Paris indispensable, for what advantage could be gained from a man living in the pine forests and who loved to watch sunrises and sunsets from the top of a mountain? Before he took to his mattress grave, with its years of continuous agony, Heine was unable to leave Paris. She might be to him a stony-hearted stepmother, but at least she afforded him protection and gave him bread. "I am exiled," he said, "in France, banished into strange speech," and the longer he lived in that condition the more his spirit was longing for the quiet German villages, a cottage with a thatched roof, homely fare and the eternal silence of the mountains.

If his desires were gratified and suitable residence were provided for him in the Herz district, and all apprehension about money removed, Heine would probably remain unsatisfied. It was his destiny apparently to be always seeking after something which, for him at least, was unattainable. The more he was disappointed, the more his expectations grew stronger. He could hardly hope that some of his wishes were ever to be gratified. When, for instance, he prayed for the straw-roofed cottage with flowers blooming around his windows and a beautiful tree in front of the door, he must surely have known it was never possible to see nature improved by the addition of six or seven of his adversaries hanging from the branches. It was the bitter contests in towns which made Heine decline to pardon enemies until they were duly executed before his eyes, in order to avoid mistakes in identification and the confounding of the innocent with the guilty. If his better nature which found delight in space uncultivated by man were properly developed, he would have rivalled Wordsworth.

Which of the two Heines attempted to describe the Salon after the stormy days of July 1831? That is the subject we propose to consider. He had made no special study of the fine arts, but as a German he had taken part in the contests over æsthetics and he could not therefore write at random, trusting to the impression which a picture made on him. Heine was brutally materialistic, but he was a Jew and could not suppose that man was no more than any of the beasts around him. Consequently he declared himself to be a supernaturalist in art. The artist cannot, he said, find all his types in nature; the most significant for him are those he discovers within himself. To show the error which was then in vogue, he referred to the theories of architecture which were based on the supposition of a resemblance between buildings, pine groves and grottos. Heine loved forests and rocks as much as any poet, and sometimes he imparted to them properties which were believed to belong to men alone. But he could not suppose the architectural types were found there; they were rather, he asserted, emanations of the mind and nothing less:—"Sie lagen nicht in der äussern Natur, sondern in der menschlichen Seele." Tones, words, colours and forms were, he considered, only symbols of ideas which arise in the mind of the artist, and the greatest artist was he who, with the fewest and simplest symbols, was able to express whatever was most significant.

In the words we have a faint suggestion of the longing after the ideal which was expressed in the old days by the desire to have the wings of a dove in order to flee from everyday life and be at rest. But another side of Jewish character was revealed when he spoke of the significance of the Dutch cabinet pictures as historic documents. When we have before us, he wrote, the pretty works (hübschen Gemälde) of Mieris, Netscher, Jan Steen, Van Dow, Van der Werff, &c., we have revealed the spirit of their time; we see, as it were, the seventeenth century before our window, we can watch the business going on and the costumes. The latter are unusually interesting, for they seem a combination of Dutch comfort with Spanish "grandezza" with the men, while with the women we have a sort of international caprice mingled with native phlegm. The good man of the house may appear smoking a clay pipe while clad in a cloak of Burgundy satin, and his wife seems to be the original of a figure in a Venetian atlas, with her Brussels lace, ostrich feathers, Russian furs and Turkish slippers. She holds an Andalusian mandolin or a foreign hound, and the Moorish page, the Turkish tapestry, the coloured parrots, the strange flowers, the great gold and silver vessels almost restless with their arabesque decoration, impart to the homely life of Holland some of the glamour of an Oriental fairy tale. Among the men and women who were the subjects of paintings in which care was lavished on details were, of course, many Hebrews, and for their sake Heine could not help loving the works. He also would have liked to be surrounded with luxuries of many colours and derived from many climes, but he was forced to be content with such vulgar surroundings as landladies allowed him.

Heine's morbid sensitiveness soon made him the most bitter of scoffers, for in no other way was he able to make people afraid of him, and careful to avoid the simplest chaffing. Sarcasm ran from his pen almost without intention. He was, therefore, a dangerous critic of pictures, books and men. But when he made his *début* in the Salon of 1831—it was then held in the Louvre—his first thoughts were full of pity. To him the majority of the thousand pictures appeared to resemble a crowd of poor folks awaiting a distribution of alms. They mutely appealed for homes to shelter them, moving his soul, as he said, like orphans who were helpless, or youth in rags. But he could not bestow even a glance of recognition on them. Heine's system was to select a few of the most prominent masters' works and give all the attention to them that was possible. For the vast mass of pictures he had no hope that any recommendation of his would bring purchasers from Germany. Painting was, like everything else, a token of a world that was out of joint. For centuries the Church was, he said, a mother to artists, but in 1831 it was as poor and helpless as the artists. Heine was also in a dubious relation to the Romanticism of the time. He was not always consistent in dealing with it, and in 1831 he thought he was justified in describing it as one of the causes which operated against the sale of pictures. Every artist was, he said, encouraged to follow his own inclinations, and to be different from everybody else, and from the indifference to rule many works were therefore despised. It is strange to find Heine an enemy to individuality, but his instincts as a representative of a family engaged in business were no doubt opposed to indifference to the needs of a market.

The painters whose works were singled out for consideration were Ary Scheffer, Horace Vernet, Eugene Delacroix, Decamps, Lessore, Schnetz, Paul Delaroche and Leopold Robert. Most of the works described by Heine were afterwards engraved on a large scale, and his judgments about form and composition can therefore be tested.

Scheffer often selected a scene from "Faust" for a subject. To the Salon of 1831 he contributed separate

figures of FAUST and MARGARET. It was said of the artist that he employed only snuff and the green soap common in Paris as materials in painting. HEINE did not accept the assertion as always descriptive, and he considered there were times when for men who were out of sorts green soap was a suitable colour. FAUST was a "Menschenruine," and to suggest what was in his brain and heart it would be useless to paint him as if formed of ivory. As for GRETCHEN, the artist had shown her as a painted soul, and when I looked at her, said HEINE, I could not help exclaiming "Liebes Kind!" the most endearing of German expressions. There was no MEPHISTOPHELES, but a substitute was found in SCHEFFER'S portrait of TALLEYRAND, for whose deceitful mask the green soap was almost too good—something more dangerous and characterless would have been more suitable. But SCHEFFER'S group of children appeared to HEINE as a party of gnomes.

HORACE VERNET about that time was turning his experience of Algiers to account in painting Biblical scenes. His works of that class merit respect, for they initiated the treatment which Mr. HOLMAN HUNT and other English artists have zealously followed. VERNET revealed the advantage of setting aside the conventionalities of the Italian masters. In the Salon of 1831 he displayed his *Judith and Holofernes*. HEINE was glad to see the Jewish woman was made so attractive; but then the sleeping warrior was also a "bon enfant," and appeared happy. As if in anticipation of his own long-drawn ending, the poet prayed that he might die as HOLOFERNES, happy in success, and suddenly, without torture and sickness, find dissolution at the hand of the being who was to him an angel of beauty. Who has not pity for CAMILLE DESMOULINS? The fate of the light-hearted journalist compelled ROBESPIERRE to weep bitter tears, and CARLYLE has shown almost as much sympathy with him as with JOHN STERLING. HEINE could be considered as a successor of him. He therefore bestowed much praise on the picture which VERNET exhibited in which poor CAMILLE was shown standing on one of the benches of the Palais-Royal, haranguing against the tyranny of the monarchy. But the critic was compelled to pass over the greater number of VERNET'S pictures. He paints everything, said HEINE, sacred pictures, battle scenes, still-life, animals, landscapes, portraits, whatever is of the moment; indeed, he is almost a pamphleteer. The conclusion was characteristic of HEINE'S way of summing up a diatribe in one word.

DELACROIX can never be a favourite with the multitude. He was too fond of merely indicating a thought, leaving the spectator to realise it in all its fulness. But for that reason his works have a fascination for men like HEINE who cannot be exhaustive of a subject. The picture of DELACROIX which conquered HEINE was the *28th July—Liberty Guiding the People*, and sometimes known as the *Barricade*. The event celebrated was too recent for the critics to consider it with unbiassed judgments. It was supposed to be evidence of the painter's renunciation of Bonapartism and of adhesion to the new dynasty. To HEINE it expressed the ambition of his life—his wish to see Liberty standing on the ruins of the various German thrones.

It is remarkable, however, that the painter who made HEINE forget he was a judge who was to decide the worth of pictures was not DELACROIX but DECAMPS. He declared he was powerless to assess the merit of works which seemed to echo the voice of his heart in tones of colour, or rather to play on his heart strings as if they were a lyre. The testimony is remarkable. We suppose DECAMPS'S love of Eastern scenes corresponded with HEINE'S, and as the poet was unable to travel beyond Europe the pictures served as a substitute. The painter at the time did not receive his meed of praise from the critics, and the injustice was another bond of union with DECAMPS.

LESSORE'S *Invalid Brother* moved HEINE, who was strong in family affection, and he commended it for not overstepping the modesty of nature and expressing much by a few strokes. SCHNETZ'S picture of *Italians at a Shrine* was praised for its technique, but it was considered to be too declamatory for acceptance as a masterpiece.

There was no artist exhibiting in 1831 who gained more success than LEOPOLD ROBERT, whose end a few years afterwards was so melancholy. In the Salon appeared his *Italian Reapers*, which now unhappily looks very faded on the walls of the Louvre, but in those days was a most brilliant picture. It represents a large harvest waggon drawn by buffaloes surrounded by peasants of the Campagna, some of whom dance and play, but all are about to become silent in order to listen to an improvisation of the poet of the party. HEINE did not hesitate to compare the work with RAPHAEL'S, especially on account of the architecturesque beauty displayed in the grouping. The difference between the two artists he considered to arise mainly from their relations to Catholicity. RAPHAEL, according to HEINE, was intoxicated with the spirit of that religion, while ROBERT, as became a Frenchman, could only look at it historically as an extinct power to which the cathedral of Notre Dame de Paris was owing.

That the Three Days and the tricolour were not able to force the French people to forget the past evidently puzzled HEINE. He was able to count at least thirty paintings in the Salon which were no more than illustrations of the romances of Sir WALTER SCOTT. The chief of the historical school at the time was PAUL DELAROCHE, who was described by HEINE as caring nothing about the past except, of course, as a treasury of subjects for representation. The first of the four pictures which the artist contributed was *Cinq Mars and De Thou as Prisoners following the Galley of Richelieu*. As HEINE remarked, two galleys in a procession form an inartistic conception, but the treatment offered amends. He admired the skill shown by DELAROCHE in making the Rhone glow with the rays of the setting sun, as a sort of prelude to the darkness which was soon to envelop the youths who conspired on behalf of the king against the more powerful cardinal. A companion scene was the *Death-bed of Mazarin*, with the groups of courtiers in gorgeous attire, who appeared to be gambling for the minister's life. It is amusing to find HEINE characteristically interrupting the current of his criticism to inform the reader of his personal interest in one of the games, for he notes how "on the right side three cavaliers and a lady are playing cards, apparently 'Landsknecht,' a very good game which I have played in Göttingen, and on one occasion won six thalers." DELAROCHE also derived from English history two subjects. One was *The Princes in the Tower*, in which the boy king and his brother were shown seated on a bed, while their spaniel barks near the door against the approaching murderers. Nothing could be simpler or more effective. HEINE was pained by the picture, for the eyes of the princes recalled to him a Polish friend and his sister. One was shot as a revolutionist; the lady was also dead, and the castle wherein he met them was in ruins. "We all vanish quickly out of the world," says HEINE, "and the stage on which we were seen also disappears, as if everything was no more than a dream." The last picture of DELAROCHE which he noted represented the meditation of CROMWELL over the coffin in which CHARLES I. was at rest. HEINE compares the English with the French king who was also executed, and he gives the preference to the former. LOUIS XVI. had ceased to be king before he was condemned, but CHARLES believed in the divine right to the last, and was a martyr. "Let us drop a tear," says HEINE, "over LUDWIG CAPET, but place a laurel on KARL STUART." Then he draws a contrast between CROMWELL and NAPOLEON, which ends in favour of the Englishman, who was considered by HEINE to be comparable to some great oak with branches extending over Britain, beneath which all could repose in peace. But the critic was brought back to the Englishmen of 1831, who were not admired by him, through the remark addressed to him by a British visitor, who was also contemplating DELAROCHE'S painting, "Do you not think, sir, that the guillotine is a great improvement?" And then his thoughts wandered over the history of modern Europe and its revolutions, which were less successful in most places than in Paris, and HEINE considered how art had also its revolutions which were not always victorious. The art of the time must, he thought, be overthrown. It was inspired by the Ancien Régime, and it would have to give way to another variety that would be created by men who were active politicians. ÆSCHYLUS fought against the Persians at Marathon who were to be described in his tragedy, and DANTE'S "Divine Comedy" is a protest against the tyranny which he had encountered in

the Florentine Council Chamber. Heine could console himself with the reflection that he had prepared himself to be one of the new creators.

The criticism on art of Heine is like all his other efforts. It is mainly inspired by egoism. That, however, is a quality which is generally successful in literature. A reader likes to meet with a writer who has confidence in sympathy, and is not afraid to expose his weakness as well as his strength. Associations were easily revived in Heine's thoughts by the sight of pictures, and his criticisms were, therefore, to some extent autobiographies. But he knew that the judging of pictures and statues was not his vocation. Heine could not be impartial when a picture recalled some of the few happy incidents in his life, or when he imagined the artist was like himself—a revolutionist. On that account, however, it is that what he wrote about exhibitions is deserving of more consideration than the articles have received. The pictures described may have faded or disappeared, but the thoughts of Heine can never cease to be interesting, wayward as they often are.

SOUTH KENSINGTON AGAIN.

THE select committee appointed to consider the subject of Museums of the Science and Art Department found it necessary to interrupt the course of their inquiry by preparing a report and supplement upon the dangerous condition of the South Kensington Museum. The report that was issued a few days back is therefore called the second, but in reality it is the first which treats of the inquiry with any completeness. We have already reprinted the most important parts of the evidence on which it is based, and have commented on what was said by the witnesses; but it is well to have authoritative conclusions from gentlemen who have considered museums from the statesman's standpoint, and are therefore more likely to be impartial than those who have suffered inconvenience from the peculiar administration which so long has been allowed to exist at South Kensington.

The Secretary of the Department, after the manner of civil servants when they apprehend the coming of changes, said there was no necessity for the reforms, and it was not desirable to introduce any modification in the organisation of the administration. We wonder he did not go further, and like the fool who appeared in the dock at one time make an application for the arrest of the judges who were to try him. He will, however, have the gratification of knowing that the foreign rivals of English production will agree with him. They want no modifications of the administration, for that highly paid body has served their interests, and they would prefer to see art and science as represented by the Department remain in its present ineffective condition. They would, however, agree that if a similar condition of affairs arose in any country on the Continent, disagreeable measures would be adopted in order to satisfy the natural desire for justice against those who have created abuses which are injurious to the State.

If tested by the standard of the ordinary Circumlocution Office the Department must be considered as wanting in the requisites for business purposes. In most Government offices very little knowledge is needed to carry on the daily duties. At South Kensington special attainments are or should be required in addition to what should be possessed by the assistants in public offices. Those attainments are rarely found. As Mr. Norman Macleod, who was once assistant secretary, confessed, "The high officers at South Kensington are not necessarily acquainted with science or art beyond having a general acquaintance with the subject." To what that general acquaintance can lead would be best described in a book on unintentional humour or in a history of human stupidity. But bounce is made to do duty for knowledge, and a South Kensington official becomes to his admirers an Admirable Crichton. It is very hard to discover what he can do which a man of business would approve. Accounts, for instance, cannot be properly kept at South Kensington. The report tells us it is quite impossible to separate the cost of the Museum from that of the Department. The magic sign "&c." is used abundantly, and it is always evidence of expenditure which cannot be ascertained. For example, a sum of 26,000*l.* is put down for "attendants, messengers, repairers, labellers, printers, store assistants, cleaners, &c.," but nothing is stated about the numbers employed, or the officials or work which "&c." can designate. In another place 5,600*l.* is entered for furniture, materials, &c., and Bethnal Green is charged elsewhere with 6,800*l.* for "furniture, materials, &c., and fitting up objects for exhibition." Yet with all this outlay show-cases have had to be lent from South Kensington to Bethnal Green. The laxity of the Department becomes more discreditable to the officials if the accounts are compared with those of the British Museum, which might be prepared in a City office. Then, again, in a period of five years ending December 31, 1897, a sum of 4,600*l.* was voted for "historical collection of oil and water-colours." But according to the accounts the sum expended was 8,256*l.* Where did the difference come from? The Admirable Crichtons did not, we suppose, contribute the money. But the "&c." covers a multitude of deficiencies on both the debit and credit sides of the South Kensington ledgers. The committee say:—"The explanation given is scarcely adequate, unless the word '&c.' appended to water-colours and other drawings be considered a sufficient explanation for an expenditure exceeding receipts by nearly 50 per cent."

In such investigations as that into Museums it is an advantage to consider the draft report, although it may not be adopted in its entirety. In the draft prepared by Lord Balcarres the Admirable Crichtons are described as "shuffling officials." His lordship's opinion of their value to the State is as follows:—

> It is obvious that the Museum has suffered from a lack of experts. The Secretary of the Department told the committee that unless the South Kensington staff be trebled or quadrupled, it is not possible to have specialists. With this opinion we entirely disagree. Sir Edward Maunde Thompson, the head official of the British Museum, pointed out that expertise is not necessarily gained by having a large staff, but that it can be, and at the British Museum is, gained by a careful selection of young men for the subordinate posts, and, having selected them, limiting their work to a single department of art or archæology. Thus in the coin and medal department, out of a total staff of five, two officials are experts of international repute, and the remainder are also considered experts. Similarly, in the large department of prints and drawings, the officials possess the highest expert knowledge. This is attributed by Sir Edward Maunde Thompson to the fact that young men are placed in a department and remain working there; they are not moved from one branch of work to another. At South Kensington this process of shuffling is frequent. An official cannot be "moved from the Art Library to the Art Museum"; but he can be (and frequently is) moved from the custody of art objects to the custody of art books. We are strongly of opinion that this shuffling of officials is detrimental to the public service. Thus one junior assistant has served in Circulation, Art Library and India Museum—and, of course, has become an "all round man." Another passed from the accounts division into the India Museum, whence he was transferred to the Art Library. It is almost impossible for the "all round man" to become an expert in archæology, bibliography, or art.

There cannot be a better test of the inefficiency of the officials, whether considered as shufflers, all round men or superior beings, than the catalogues. The majority of visitors naturally conclude they are the compositions of officials. It will scarcely be credited that, according to the committee's report, "the Museum does not appear to have any catalogue or guide of its own except a small fly-sheet issued last year, which is distributed gratis." The familiar sixpenny guide with the red cover "is private property, belonging to the heirs of an official actually employed in the Department." The handbooks and portfolios of views are private ventures. Yet somehow the unlucky taxpayer will find he has had to take a share in the ventures without having the least chance of profit. A catalogue of national portraits cost between 620*l.* and 880*l.* Considerable sums of public money have been expended on catalogues which are incomplete or not worth printing. The committee recommend that "the Department should have undivided control of these publications and that these commercial undertakings should be withdrawn." The catalogues reveal the illicit businesses that have grown around the Department and which it will be found most difficult to suppress.

Reform is also required in the labels. When we find a description of this kind attached to an object—"One of 94

pieces of Gothic architectural design, chiefly of oak, consisting of panels, friezes, pilasters, &c., English, Flemish, &c.; 15th and 16th centuries; average dimensions 20 inches by 12 "—we must believe the label-writer was resolved to avoid interfering with the "private venture" of the catalogue projector. There is so much of the same sort of respect for commercial speculations, the committee recommend "that until the objects in the Museum are accurately labelled, all energy should be concentrated on this work, the primary requirement."

But then arises the question, How many objects are not worth the trouble of labelling? According to the report, "a judicious elimination of the worthless things" is called for, but who is to decide about the extent of the operation? When one reads of 71*l.* 8*s.* being paid for a vase, while two identical vases which cost only 9*l.* 10*s.* for the pair were in the Museum, the infallibility of the experts is not undoubted. A Cingalese chair of the eighteenth century was acquired in the belief it once held the portly presence of Cardinal WOLSEY. An artist now on the staff of the Museum composed a cabinet out of "bits," and the authorities paid 816*l.* for it. An agate cup, worth 50*l.* as a modern "make-up," was acquired by the outlay of 535*l.* The Bethnal Green Museum has been utilised as a refuge for many of those curiosities of official connoisseurism, and we hope they have afforded lessons on dishonest dealings. We expected the committee to announce whatever was known about the origin of the costly shams which, after a course of testing, became public property. But in connection with South Kensington an exhibition of courageous plain speaking is dangerous, and the committee content themselves with saying:—"On the question of who were the persons responsible for recommending the purchase of objects proved or alleged to be spurious, we prefer to express no opinion, and we decline to enter into the discussion of circumstances which many years ago attended the purchase, or negotiations for purchase, of certain objects, concerning which much conflicting evidence was brought before us."

As a rule the officials appeared to be as contented with the system as the birds which are to be seen under the authority of a cat in a happy family exhibition. One could not allow himself to be hypnotised with fear, and Mr. WEALE's fate will convince the minor officials that silence is the best policy when departmental errors are in question. We must say the committee have shown as little courage in dealing with the case of the keeper of the Art Library as with that of the spurious objects. They say:—"Your committee desire to record their opinion that the termination of the engagement of Mr. WEALE, late keeper of the Art Library, immediately after the rising of the House in 1897, and subsequent to the giving of evidence by Mr. WEALE, in which errors and abuses of administration in the Museum were freely exposed, very much resembles a breach of privilege and an infringement of the immunity usually enjoyed by witnesses before committees of the House of Commons."

Who could have believed that the guarded words are all that could be discovered to brand the authors of an act that in another period would have called forth the power of the House of Commons? It was not in that hesitating style the original draft was expressed. There it was stated that Mr. WEALE is "the only living man out of the large staff of the Science and Art Department who has an international reputation;" that he reduced the Art Library from chaos to order; that his diligence and fidelity were officially recognised. But it was admitted that the evidence he gave before the committee "must have been distasteful to the authorities, because he ruthlessly exposed the folly and abuses of the present system; in fact, when asked a question he answered it fully and without reserve." Mr. WEALE had reached the limit of age prescribed for officials. But the Treasury wished his services should be retained as long as the inquiry into the Museums was going on. A week after Parliament had risen, and when no question could be asked in the House of Commons, the Department dismissed "a man of European distinction as if he were an ordinary wage-earner." The draft report says:—"Only one conclusion can be drawn from a perusal of the documents, an irresistible conclusion that the nature of Mr. WEALE's evidence was the sole cause of his dismissal. His evidence was most damning, but this was already provided for; and notwithstanding his invaluable services to the library, his 'diligence' and his 'fidelity,' Mr. WEALE was duly punished. We have no doubt that the Department claims 'technical' rectitude for its action. There is no doubt that the Department when inaccurate, and even when resorting to subterfuge, is invariably 'technically right.'" And it concludes with the following words, which express the opinion of many of those who as outsiders are acquainted with the defects of the institution:—"Is it not time that those in authority should try to cleanse the 'bad name' attaching to South Kensington? For years the Department has been the nest of these sordid personal controversies: it has been honeycombed with nepotism and there have been serious monetary defalcations. Even now there are financial questions which demand the immediate attention of the Treasury. Laughable errors will be gladly overlooked by the public if some assurance be given that a serious effort will be made to raise its tone and to purify its administration."

It does not help the cause of reform when passages like the foregoing are, as the Americans say, "whittled down" in order to make things as pleasant as possible all round. The best proof of their truth is that the recommendations of the committee are mainly confined to maladministration. As a rule Parliamentary committees suggest additional expenditure on the Department that comes under their attention. But the committee on Museums is an exception. It was necessary to recommend rebuilding the South Kensington Museum, but otherwise the demands on the Exchequer are comparatively trivial. It will need no additional outlay to make the primary function of the Director for Art the supervision of art schools and classes, or put upon the Director of the Art Museum the sole responsibility for all purchases. The abolition of the Art Referees is a saving, and it is absurd for a dozen gentlemen of high standing to be paid four guineas apiece for considering the suitability of some trifling object for the Museum. A separate staff for the Art Library would not necessarily increase the expense. The recommendation to avoid spending large sums in describing such prints as "Mr. WEST, wax-chandler and oilman of Soho," is also a move to economy, although it is not often such a bibliographical curiosity is attainable as the catalogue of "National Engraved Portraits," compiled by a cousin of the secretary at the modest rate of two guineas a day. In it PUGIN is described as "cruising about the Channel in quest of archæological and natural curiosities." Humour is a costly production, but from 600*l.* to 800*l.* is rather a high price to pay for official jokes of that kind. To exhibit somebody's soap and hair washes as "technological specimens" is almost as entertaining, although not involving outlay.

One item of expenditure that is suggested is the employment of a clerk of works at 3*l.* or 4*l.* a week, in order to relieve General FESTING of the heavy burden of looking after bricklayers when occasionally employed in repairs to furnaces and boilers. The Works Department is said to be organised on a faulty basis, but that is true of every one of the departments and of the Science and Art Department itself. The Bethnal Green Museum, which has cost 132,000*l.* to maintain, was described by one witness as only suitable for a playground and resting-place for children. When there was an exhibition of furniture held in it, the Department did not bring out the catalogue until two months after the closing. The only recommendation the committee can offer is to hand over the white elephant to the County Council. The committee desire to see the Geological Museum in Jermyn Street restricted to British geological specimens. The Edinburgh Museum is said to suffer from the centralising tendency of South Kensington, and it is recommended that a greater power of initiative should be allowed to the director, and as much is said about the direction in Dublin. In connection with the Dublin Museum, the necessity of an herbarium is recognised. It is proposed to expend the money saved by abandoning the Bethnal Green Museum on establishing a museum in Wales. Finally it is proposed, as a means to rehabilitate the prestige of South Kensington and overcome the prejudice in the public mind, to appoint a Board of Visitors who would advise the Lord President upon questions connected with the arrangement, management, cataloguing and classification of collections, and also

with regard to loans, purchases, elimination and exchange.

The appalling thought that comes from reading the report is that the revelations arise out of the management of the South Kensington Museum which, with its countless deficiencies, is, however, the least unsatisfactory product of the Departmental system. If a similar inquiry into the operations of the South Kensington officials in connection with the teaching of science and art and the other divisions which have been seized were ordered by the House of Commons, who would be able to imagine the exposure that must follow? Yet until the evils are laid bare it will be impossible to attain the reforms that are demanded or to "cleanse the bad name attaching to South Kensington."

THE WHITE HORSE OF BERKSHIRE.

ONCE more the people of the Vale have undertaken the periodic process of "The Scouring of the White Horse," which the late Judge Hughes made the subject of an interesting book. Archæologists differ about the origin and purpose of what is probably the largest representation of an animal in existence, and which, owing to the interest taken in it, is never likely to be obliterated. The following paper by the late Mr. W. J. Thoms will suggest the various theories which have been brought forward to explain the object of the work :—

The remarkable monument of antiquity which gives its name to the Vale of White Horse in Berkshire has not, I believe, attracted the particular attention of any antiquary since 1738, when the Rev. Francis Wise published his "Letter to Dr. Mead, concerning some Antiquities in Berkshire," &c.; or, perhaps I should rather say, since 1742, the date of his second work upon the subject, entitled "Further Observations upon the White Horse and other Antiquities in Berkshire," &c.

From the silence of Leland, and the slight mention which Camden (who only notices it incidentally) has made of the White Horse, many have been inclined to doubt whether the figure possesses any claim to great antiquity. These doubts are, however, totally groundless.

Wise has proved that the Vale of White Horse was known by that name in the forty-second of Edward III. (1368-69), by a reference to an entry upon the Close Rolls for that year, in which it is recorded that "Gerard de l'Isle tient en la Vale de White Horse 1 fee," and I am enabled to adduce evidence that the White Horse was in existence so early as the reign of Henry II. The proof is contained in two valuable cartularies of the abbey of Abingdon, now preserved in the British Museum. In one of these is the following entry relating to Sparsholt :—

"Prope Montem, ubi ad album equum scanditur, ab antiquo tempore Ecclesia ista manerium Offentun appellatum in dominio possidet, juxta quod Villa x. hidarum adjacet ex jure ecclesie quam Spereshol nominavit. Hunc miles, Anskillus nomine, de ecclesia tempore Rainaldi abbatis pro unius militis servitio tenebat. Verum hunc contigit et ipsius abbatis regisque junioris Willelmi inimicitias adeo incurrisse postea, ut in regia poneretur captione ibique moriretur."

This carries back the known and acknowledged existence of the White Horse to the reign of Richard I., for such is the date of the volume from which it is extracted; while by the other cartulary, which was written in the reign of Henry II., in 1171 or soon after, it is ascertained that the hill on which it is figured bore the name of White Horse Hill at a yet earlier period. The following is the passage in question :—

"Consuetudinis apud Anglos tunc erat, ut Monachi qui vellent pecuniarum patrimoniorumque forent susceptibiles, ipsisque fruentes quomodo placeret dispensarent. Unde et in Abbendonia duo, Leofricus et Godricus Cild appellati, quorum unus, Godricus, Spersholt juxta locum qui vulgo Mons Albi Equi nuncupatur, alter Leofricus Hwitceorce super flumen Tamisie maneria sita patrimoniali jure obtinebant. Quorum unum, id est Spersholt, usque hodie ecclesie feudo remansit, aliud vero Wigodus oppidanorum Walingafordensium dominus possedit, velle Monachorum predictorum hinc et inde de eisdem terris sic se referente. Hec accidisset de una secus quam de altera, si viro secundum morem gentis necdum austeriora edocto ferre remissius blandiretur; domno Adelelmo abbate dominatum loci hujus obtinente."

Aldelm was abbot of Abingdon from 1072 to 1084.

In the face of such historical testimony to the existence of this remarkable monument soon after the Norman Conquest, there can be little hesitation in pronouncing it the production of a far earlier period.

Mr. Wise is of opinion, and he maintains that opinion with considerable learning and ingenuity, that the White Horse is a monument of the West Saxons, made in memory of a great victory obtained by Alfred over the Danes in 871; while the object of the present communication is to show the probability that it is commemorative of the ancient religion of the country. Nor can this opinion be considered very unreasonable when it is remembered that the worship of the horse was common to the Celtic and Germanic, as well as the Sclavonic tribes.

The work may consequently be even of British origin; and when we consider the resemblance which the figure of the horse bears to that which is exhibited on some of the coins now admitted by our best numismatists to be the coinage of the ancient Britons, it will scarcely be matter of surprise should this remarkable monument find antiquaries disposed to contend for its Celtic origin. That it may be so, and as such commemorative of the mythic horse of the Britons, is certainly possible, but the far greater probability is that it refers to the "sacred horses," which form so important an object in the mythological system of our Saxon forefathers and other people of the Germanic race.

From these sacred horses it is probable that many of the ancient heroes derived their names, of which Hengist and Horsa furnish a striking example, those names being nearly synonymous, although the former, Hengist or Hengst, is in the German and some other of the Teutonic tongues more particularly applied to stallions.

The important position which the horses of the gods assume in the mythological poems of the north is a point, too, which on the present occasion cannot be passed over in silence. Sleipnir, the eight-footed horse of Odin, is of these the most important; and it is a very remarkable fact, in connection with the present inquiry, as showing for how long a time after the introduction of Christianity the memory of this mythic steed was preserved in the popular customs and observances of the people, that until a comparatively recent period, at least as lately as the sixteenth century, it was a custom in Mecklenburg, at the conclusion of harvest, to leave in the fields some small portion of the earth's produce as an offering to Woden and as fodder for his horse; the reapers shouting at the conclusion of their labours—

> Woden, bring your horse now fodder,
> Now thistle and thorn,
> Another year, better corn.

I think I have met with an allusion to a similar custom in this country, although I cannot now refer to it.

The truth of that striking and often quoted passage from the "De Moribus Germanorum" of Tacitus, which Mr. Wise has already adduced to show that the Germans consecrated woods and groves, and were accustomed to regard the warnings and auguries of horses, for which purpose white horses were kept in such hallowed groves, and never desecrated by being put to any kind of labour, receives abundant confirmation from later writers.

One of the most remarkable instances is quoted by Grimm in his "Deutsche Mythologie" from one of the Northern Saga, the Saga of Olaf Trygvesson. Grimm quotes from the rare edition of 1689-90, and notices with regret that the chapter from which his quotation is taken is omitted in some of the later editions of the work. The account is as follows :—

"Olaf having been informed that the inhabitants of Drontheim had relapsed into the worship of Freyr, he commanded them to destroy the statue of Freyr which was still remaining among them. This they refused to do. Whereupon Olaf summoned an assembly of them, and having determined that he himself would destroy the idol, sailed to that part of the coast where stood the temple of Freyr. When he landed he found the sacred horses of the god depasturing in its precincts. The king instantly mounted the stallion, and permitting his courtiers to take the mares, they thus rode to the temple. On arriving there Olaf overthrew the idols, and took away with him the statue of Freyr.

"When the people found how their gods had been put to shame, and how the image of Freyr had been removed, they well knew that it was the act of the king, and attended the meeting to which he had summoned them. The king, having placed Freyr's image in the midst of the assembled people, demanded of them, 'Know ye this man?' They answered, 'It is Freyr, our god.' 'How has he proved his power to you?' inquired Olaf. 'He has ofttimes spoken with us, prophesied unto us coming events, and bestowed upon us peace and plenty.' 'It was the devil who spake with you,' said the king, and, taking up an axe, he called out to the idol, 'Now help yourself, defend yourself if you can.' But Freyr remaining silent Olaf smote off both his hands, and then preached to the people and exhorted them to renounce their idolatry."

This story bears in many points so remarkable a resemblance to the narrative which Beda has left us of the profanation of the heathen temple at Godmundham, in Yorkshire, by Coiffi, the high priest, when Edwin and his chief friends and counsellors were converted to Christianity by the preaching of Paulinus, that it is scarcely too much to believe that we have recorded in these two instances the form of procedure adopted in all cases for the desecration of the temples of heathenism.

I quote Beda's narrative from the English version edited by

Dr. Giles, and can hardly help suspecting that the stallion on which Coiffi rode was one of the sacred horses attached to the temple, and not one of the king's, as Beda relates. Coiffi is described as having, after hearing Paulinus, advised the king "to set fire to the temples and altars, which we have consecrated without reaping any benefit from them." In short, the king publicly gave his license to Paulinus to preach the Gospel, and, renouncing idolatry, declared that he received the faith of Christ; and when he inquired of the high priest who should first profane the altars and temples of their idols, with the enclosures that were about them, he answered, "I; for who can more properly than myself destroy those things which I worshipped through ignorance, for an example to all others, through the wisdom which has been given me by the true God!" Then immediately, in contempt of his former superstitions, he desired the king to furnish him with arms and a stallion, and, mounting the same, he set out to destroy the idols, for it was not lawful before for the high priest either to carry arms or to ride on any but a mare. Having, therefore, girt a sword about him, with a spear in his hand, he mounted the king's stallion and proceeded to the idols. The multitude beholding it concluded he was distracted, but he lost no time, for as soon as he drew near the temple he profaned the same, casting into it the spear which he held, and rejoicing in the knowledge of the worship of the true God, he commanded his companions to detroy the temple, with all its enclosures, by fire.

But to proceed. It may be said, first, that admitting that the Saxons were accustomed to keep such sacred horses within the groves by which their temples were surrounded, what proof have we that any Saxon temple stood in the neighbourhood of the remarkable figure now under consideration? And, secondly, even though the existence of such temple be established, what connection can there have been between it and the figure in question?

To the first I answer, that the extensive downs on which this extraordinary monument is found were formerly remarkable for the groves of ash trees with which they were covered, and the memory of which is preserved in the name of the parish of Ashbury (which, as Wise has already proved, was formerly called Ashdown), and in those of other localities in the neighbourhood.

Wise, when speaking on this point, observes: "Near Letcombe is a shrubby place still called The Ashes, and Letcombe Ashes; where, as I have been informed by a curious and learned gentleman of this neighbourhood, grew, within the memory of several persons lately dead, abundance of tall and very fine ashes."

Now the ash, it must be remembered, was reckoned by the Saxons among the sacred trees, being regarded by them with a veneration almost, if not altogether, equal to that which they paid to the oak. Nor is this to be wondered at, when we bear in mind that in the Edda, the Voluspa and many other of those literary remains of the North to which we are indebted for all we know of the mythological system of our ancestors, the ash tree, Yggdrassil, is repeatedly spoken of as "the most sacred tree of the gods;" "the tree under which the gods sate in judgment;" as "the tree from which the first man was formed."

It is clear, then, that the ash was reverenced by our Saxon forefathers; and when Plot, in his history of Staffordshire, tells us "the common people believe that it is very dangerous to break a bough from the ash to this very day," he proves that this feeling of veneration was not then extinguished among us.

Taking, therefore, these various circumstances into consideration, I am inclined to believe that the White Horse of Berkshire is no monument commemorative of victory, but a memorial formed by the Saxons, at the time of their conversion to Christianity, of the sacred white horse, which in the days of Paganism had depastured in the sacred grove of ashes, and I am confirmed in this opinion by the recollection that this monument is not a solitary one, but that several others of similar character are still existing in the country.

Since writing the above, I have been favoured by Mr. Akerman with the subjoined letter, in which (confirming my anticipation) he expresses his belief that the White Horse is of Celtic origin.

"I am not disposed to subscribe to the popular tradition that these figures are of Saxon origin. We all know that the horse was a favourite Saxon and Anglo-Saxon badge, and, indeed, their national symbol; but it is equally certain that it was also a favourite one with the Celtic tribes. It is a constantly occurring type of the Gaulish and British coins, which, though modelled on those of civilised states, appear to be accommodated to the tastes and feelings of the people who adopted them. Although thus modelled and accommodated, the religious motive of the type appears to me to be no less obvious. It would, therefore, seem highly probable that while Caligula was contemplating the raising his horse to the consulship, the Britons, Gauls and Germans were paying divine honours to this noble animal.

"The Marquis de Lagoy, a very sound and able antiquary, has published a coin of the Belindi, a people of Aquitaine, mentioned by Pliny, on the reverse of which is a horse, not galloping, as usually represented on the Gaulish and British money, but standing within a distyle temple. The learned Marquis supposes that this figure represents the goddess Epona, mentioned by Apuleius, and, if the conjecture be no allowed, it cannot be doubted that the Gauls worshipped some divinity under that form, a fact of which the coin in question is the sole but authentic evidence."

SCIENCE AND ART EXHIBITIONS.

WE have received from the Department of Science and Art the following list of candidates to whom Royal exhibitions (art) and local scholarships (art) have been awarded for 1898:—To Royal exhibitions—William R. S. Stott, 19, art student, Aberdeen, Gray's; Charles G. Lowther, 18, art student, Hull; John M. Aiken, 18, art student, Aberdeen, Gray's; Septimus E. Scott, 19, art student, Royal College of Art; Herbert Slinger, 22, art student, Bradford, Technical College; Thomas Jones, 23, art student, Royal College of Art; Percival H. Portsmouth, 23, art student, Reading; Ada Erwood, 22, art pupil teacher, Brighton; Frank Nowill, 24, draughtsman, Sheffield, and John E. Sutcliffe, 22, art student, Royal College of Art. To local scholarships—George E. Kruger, 17, art student, Bath; William H. Helm, 19, art student, Royal College of Art; Janet M. G. Brennand, 21, art student, Bournemouth (West); Frank H. Round, 18, art student, Birmingham; Leonard T. Howells, 20, art student, Lydney; Arthur W. Pope, 20, art student, Nottingham; Edwin A. Morrow, 21, house decorator, Belfast; Harold Wilson, 19, art student, Birmingham; Isabella McGregor, 21, art student, Royal College of Art; James Durden, 20, art student, Royal College of Art; Alfred Bentley, 19, art student, Bristol, Merchant Venturers; Walter W. Rawson, 21, art student, Royal College of Art; Sylvan G. Boxsius, 19, art student, Royal College of Art; Edward Walker, 19, art student, Bradford, Technical College; Marguerite E. E. Igglesden, 21, art student, Torquay; Gertrude M. Siddall, 21, art pupil teacher, Chester; Gordon M. Forsyth, 18, glass stainer, Aberdeen, Gray's; James Sparks, 21, art student, Bristol, Queen's Road; Alexander McN. S. Richardson, 20, art pupil teacher, Dundee, Technical Institute; and Henry T. Pike, 21, art student, Southampton, Hartley Institution.

MALMESBURY ABBEY.

THE Bishop of Bristol has held a conference with the vicar and churchwardens of Malmesbury and the mayor of the borough on the subject of the abbey church. The unanimous opinion was that the ancient fabric must be taken in hand without delay. The work naturally divided itself into three heads—(1) To make quite sound the fabric of the six bays of the nave which form the parish church; (2) to make the interior more dignified as a place of worship; and (3) to protect the ruined parts as far as possible from further decay. There was an agreement of opinion at the conference against proposing to undertake two other works which have often been suggested, namely (4) To build out a chancel to the east, and (5) to rebuild the three western bays of the nave. The Bishop, who is a vice-president of the Society of Antiquaries, has undertaken to obtain a preliminary survey of the fabric from an antiquarian point of view, to be followed eventually by a complete report.

PLAYING-CARD DESIGNS.

THE Worshipful Company of Makers of Playing Cards offers the H. D. Phillips Prize of 5*l.* 5*s.* for the best special design for the backs of playing-cards, intended for presentation by the company to its guests at the banquet of the master and wardens in November next. Two other prizes of 3*l.* 3*s.* and 2*l.* 2*s.* respectively are offered by the company for the two next best of such designs. The designs must be of the size of an ordinary playing-card, and are to be in colour, and such as can be reproduced effectively in not more than six printings. The arms of the company are to form a portion of the design. Designs must be sent to W. Hayes, the clerk of the company, Guildhall, London, E.C., not later than September 27 next. The monogram or device of the artist is to be marked on the back of each design and on the outside of a sealed envelope to accompany it, within which envelope must be given the full name and address of the artist. The three designs selected are to be the absolute property of the company; the unselected ones will be returned to the senders. Novelty of design will be regarded as an important element in the competition

NOTES AND COMMENTS.

A competition for two appointments as inspecting architects of historic monuments will take place in Paris on March 1 next year. The jury will consist of several of the inspectors-general, viz. M.M. Lisch, Selmersheim, Bœswillwald, De Baudot, Vaudremer, Daumet, with M. André, the conservator of sculpture in the Louvre. All the competitors will have to present evidence of an analytic study of ancient buildings with plans of some modern works of theirs. The Minister of Fine Arts will select a certain number to undergo examination; each will have to present plans and studies of some building erected between the eleventh and sixteenth centuries, with a scheme of restoration, accompanied by a specification and an estimate. The building selected must be one which will display the aptitude of the competitor for dealing with all classes of construction. There will also be an oral examination, for a part of which the project submitted will form the basis. The candidate will, in addition, be questioned closely about his knowledge of the history of art, archæology, the use of materials, construction and accounts. What we have said will show the care which is taken to obtain the services of competent officers for restorations.

The museums of the University of Cambridge are not in a satisfactory condition. The collections illustrative of geology, botany and zoology have become too extensive for the accommodation provided. The recently erected buildings for the department of mechanism have proved insufficient for the growth of the school, and the need for another lecture-room and more laboratory space has become pressing. The buildings devoted to medicine and surgery are not only in a bad state of repair, but are also inadequate and inconvenient. The presents of specimens during the past year have been numerous, and so much interest is taken by graduates in the university, there is no doubt that many other valuable examples would be forthcoming if there was a certainty that space could be found for them.

According to Mr. Harold Frederic, the young Queen of the Netherlands at her approaching coronation and assumption of regal authority will be richer in jewels, plate, furniture and rare works of art than it was imagined she would be. Many years before she was born her father, Willem III., brought to Holland an operatic celebrity, with whom he had become fascinated in Paris, and installed her at the Château Loo with a genial effrontery of publicity at which the Dutch gorge rose. Both the court at The Hague and public opinion were so hostile that she had to be sent back to Paris. As the price of her retirement without fuss she extorted from him permission to loot all the royal palaces and public museums and collections, and carry off the things she fancied most to furnish the mansion he had taken for her near the Champs-Elysées. It was years before the full extent of her immense depredations was discovered by the Dutch officials. Characteristically they said nothing, but kept a steadfast eye on the lady. She died recently, and when her effects came up for sale at the Hôtel Drouot the Baron von Zuylen was on hand and quietly bought up all that the Dutch Government wished to reclaim. Among the carloads of treasures thus returning to Holland are a great many heirlooms of the Orange family, as well as objects of historical interest.

Architects who aspire to be connected with country workhouses will find a knowledge of agriculture and horticulture to be advantageous. Here, for example, is the programme which has been prepared by the Steyning Board of Guardians for dealing with the new workhouse grounds, and which the architect will have to realise to the best of his ability:—(1) That the garden should be cultivated for the sole use of the inmates, only selling the surplus; (2) that the ground be divided into three portions; (3) that twelve acres be appropriated for producing green vegetables and potatoes for the inmates; (4) that two acres be used as a kitchen garden for the master's and staff's use, and also for growing the small culinary vegetables for the house; (5) that the rest be laid down as a recreation-ground, viz. that part which was nearest to the new buildings about to be constructed; (6) that the whole be enclosed by a 9-inch brick wall with unclimbable coping, a space for entrance being left at the lower end; (7) that a 10-foot road be made from north to south, dividing the whole up to the recreation ground into two equal portions; (8) that the master be empowered to employ two or three men to get the rubbish chopped down before cultivating; (9) that the whole shall be ploughed by steam as soon as possible; (10) that the architect set out at once where the new road comes and mark off the twelve acres and the two acres of kitchen garden; (11) that a 1½-inch water main be connected to the workhouse supply pipe, continuing down the road to the pig pounds and tapped at intervals; (12) that a range of ten pig pounds be erected at the lower end of the ground in order that the large quantity of wash from the house may be utilised; (13) that as soon as the stables are erected a suitable horse be kept to go in the van and fill up its time in the garden; and (14) that the committee be given power to hire horses and implements for cultivating the ground, buying seeds and other necessary articles for the purpose, and that a requisition book be kept by the master for the above purpose. It is no wonder one of the Guardians considered the work was "a tall order," but the architect is not likely to object to the arrangements.

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: NAVE, LOOKING EAST. DOORWAY IN CLOISTERS. TOP OF CENTRAL GABLE, WEST FRONT.

WINTHORPE, EPSOM.

THIS house has been built for Mr. R. Gee in the Ashley Road, Epsom. It occupies a fine position overlooking "The Durdans," half-way up the road leading to the top of Epsom Downs. It is faced with good red-brick facings with Bath stone dressings and tiled with Broseley tiles.



Ground Floor Plan.

Scale of feet

The top floor contains a very fine billiard-room with an organ chamber at the turret end. The works have been carried out under the supervision and to plans prepared by Mr. Edward Carter, A.R.I.B.A., of 55 Clarence Street, Kingston-on-Thames. A wing has been recently added containing breakfast-room and conservatory, under the supervision of Messrs. Carter & Ashworth, of 55 Clarence Street, Kingston-on-Thames, and 8 Duke Street, Adelphi, W.C.

DESIGN FOR PROPOSED JUBILEE CLOCK TOWER, LEWISHAM.

APARTMENT HOUSE IN THE CHAMPS-ELYSEES, PARIS.

PALLADIO.

THE "Raphael of architects," Andrea Palladio, was born at Vicenza A.D. 1508, on November 30, St. Andrew's Day, whence the choice of his Christian name. His earliest application was to sculpture, but, having the good fortune to attract the notice of his illustrious townsman, Count John George Trissino, who discovered his natural propensity to mathematical science, he was by his new patron directed to the reading of Euclid, Vitruvius and Alberti, and afterwards taken by him thrice to Rome, where he diligently measured and designed the choicest remains of ancient architecture. He visited Rome a fourth time in consequence of a call to employment in the fabric of St. Peter; but finding on his arrival there the Pope dead, and all things in confusion, he made no other advantage of that journey than to review and remeasure those relics of Roman magnificence he had before examined and admired. He further corrected his measures and designs in a fifth journey to that capital in company of some Venetian gentlemen, his friends. About this time he printed a little book on those antiquities, usually joined to that entituled "Mirabilia Romæ." Thus diligently prepared he at his return entered vigorously on practice with the most advantageous offers of employment in his own country and out of it. At twenty-nine years of age he was entrusted with the conduct of the public palace at Udinè, called Il Castello, begun by John Fontana. Near the same time he planned and directed the execution of the porticos enclosing on three sides the great Hall of Justice at Vicenza, a work of which he speaks (B. III. c. xx. of his "Architecture") with more consciousness of his success than he has upon any other occasion discovered. He was invited by the Cardinal of Trent to build his palace in that city; by Emanuel Filibert, Duke of Savoy, on the same account; by the city of Bologna, for the front of the great church of St. Petronio, for which he made four different designs; by Brescia for the rebuilding the public palace there, nearly destroyed by fire. The Republic of Venice, his natural sovereign, both pensioned and employed him after the death of Sansovino on all occasions. In Vicenza and its neighbourhood he left ample proof of his superior taste and skill in a great variety of houses, villas, churches and other public buildings. The designs of most of these he has inserted in his well-known book of architecture. It is observable, however, that those who have taken his measures from the actual fabrics, and compared them with what are set down in the designs there given, have found many differences of proportion, but if these are not improvements as to effect, it has not been noticed that they are prejudicial to it.

Palladio is generally believed to have had a fifth book of his "Architecture" nearly ready for the press when he died, containing designs of ancient temples, arches, sepulchres, baths, &c., which, with his other unpublished plans and writings, he left to his particular friend, the Senator Giacomo Contarini (no mean judge of that art), upon whose demise they were all dispersed. Some were collected by the Earl of Burlington during his travels and printed with great magnificence at his own expense. It is highly probable that many of those scattered designs were executed in different places at different intervals after Palladio's death with no other indication of their author than what their manner must afford the discerning observer. It is not, therefore, always safe to deny him the credit of an invention, the style should warrant his, because the date of the execution is posterior to his decease.

He was particularly curious in whatever related to the art of war as practised by the ancients, and laboured much in the explanation of Polybius and Cæsar, by plans and discourses. His elucidations of the former author were dedicated to Francis, the reigning Grand Duke of Tuscany. Those of the latter are printed with Baldelli's Italian translation of the "Commentaries." It is certain that the profound erudition of his friend Trissino assisted him greatly in the study of the Roman art of war; and thence, by mistake, might arise the tradition of the same friend having been his master in architecture likewise. Palladio explained many difficulties in Vitruvius to D. Barbaro, and furnished him the drawings that accompany his Italian translation of that author with a commentary.

The last great effort of Palladio's genius was the design of the Olympic Theatre in Vicenza, begun May 23, 1580, by an Academy of that name instituted in 1555, of which he was a member and had been one of the first promoters. In this work he meant to realise his own idea of the ancient theatres, as derived from Vitruvius and the remaining Roman structures of that kind, but he lived not to conduct it further that a part of the foundations. His surviving son Silla was appointed to the superintendence upon his decease, and Scamozzi directed the standing scenes. The completed fabric was viewed by the best judges of the time with rapturous admiration, and has ever since been reputed by some enthusiasts to be a prodigy of the art in a country where its wonders are not rare even to the critical eye. Its form differs from that of the ancient models in being a half ellipse instead of a semicircle. This change was an accommodation to site, no little contributive to the merit of the whole invention.

Palladio is described as rather low of stature, of a pleasing countenance, cheerful and open in conversation, but ever observant of his superiors in rank or knowledge; fond of the society of men of letters, and well able to bear his part in discourse with them. In the exercise of his profession he is said to have been communicative and engaging to his workmen, without descending to a familiarity derogatory from the respect they owed him.

Beside his surviving son Silla, he had Leonidas, bred an architect likewise, and Horatio, who applied to law. Both these died young, within three months one of the other. Their untimely loss he laments in his dissertation on the Roman militia, prefixed to the above mentioned translation of Cæsar's "Commentaries." His own death happened on August 19, 1580, aged seventy-two, at Vicenza, where he was buried, with the usual honours of a superior artist, in the church of the Santa Corona, of the Dominicans.

Among the numerous Italian architects of the sixteenth century, fruitful in genius of every kind, pre-eminence is, by the joint suffrages of his countrymen and of foreigners, assigned to Palladio. A perfect acquaintance with the literature and sciences subservient to his art, a profound study of the ancient models, and a quick perception of whatever contributes to the greatness of effect that distinguishes them, conspired to advance his natural aptitude for his profession to excellence. Not content to measure and design the edifices of antiquity as a matter of form, he traced them to their foundations, examined their grosser materials, and the various modes of combining them as conducive to strength or reductive of expense. In the superintendence of his own works he was particularly attentive to the manual execution.

If we examine his peculiar style, his greater buildings have an air of grandeur that seems to be the result of volume, proportion and ornament, dictated by propriety. His villas speak themselves the retreats of nobility, veiled but not hid. If analogy between the human and material fabrics (much resorted to by writers on architecture) be allowable here, perhaps we may not unfitly say that the general effect of Palladio's edifices is similar to that of personal dignity well dressed. In a word, the perfection of his whole manner has occasioned him to be called the Raphael of architects.

Of the buildings ascribed to him not in his book are, in Venice, the church of St. Giorgio Maggiore, the refectory and other pieces of the monastery—front of that St. Francesco della Vigna, built by Sansovino—del Redemtore alla Zuecca de' Cappucini—delle Zitelle—di St. Lucia—some repairs of the Ducal Palace. At Vicenza Santa Maria Nuova—Palazzo Prefettizio, his name on the east front—façade of the Palazzo Tornieri—that of the Pal. del Conte L. Schio—a house of his design supposed for himself, but which it appears he could have occupied only as a renter—Arco delle Scale del Monte, from the manner thought to be a design of his—Doric Loggia and a door, in the garden of the Counts Valmarana—two rustic doors in the garden of Count Porto. In Padua, nel Borgo di Santa Croce, a house of singular contrivance, for the conveniences it includes in small area. In Bologna, northern front and Court of Pal. Ruini, since Ranucci. In Parma, part of the theatre, carried on by Bernini, Spada and Magnani.

DERBYSHIRE ARCHÆOLOGICAL AND NATURAL HISTORY SOCIETY.

A PARTY of about forty members of this Society paid a visit on the 10th inst. to Bolsover Castle and Hardwicke Hall. They left Derby at 11.10 A.M. in two first-class saloons provided by the Midland Railway Company, and on arriving at Chesterfield dined at the Old Angel Inn. At one o'clock brakes took them to Bolsover, where the Rev. C. Kerry, editor of the Society's magazine, briefly reviewed the history of the place. The drive was then resumed to Hardwick, and a very pleasant hour was spent at the hall, the Rev. C. Kerry giving a short history of the life of the Lady Arabella Stuart. Tea was partaken of at the Hardwick Inn, and the drive back to Chesterfield was much enjoyed. The weather before midday was wretched, but before the party left Chesterfield there was a break in the clouds and the afternoon turned out unexpectedly pleasant. The arrangements were admirably made by Mr. Arthur Cox, of Mill Hill, Derby, the hon. secretary of the Society, and amongst those who took part in the excursion were the Hon. F. Strutt, the Revs. C. H. Leacroft and R. G Burton, Councillor J. Walker, Mr. G. Sutherland, &c.

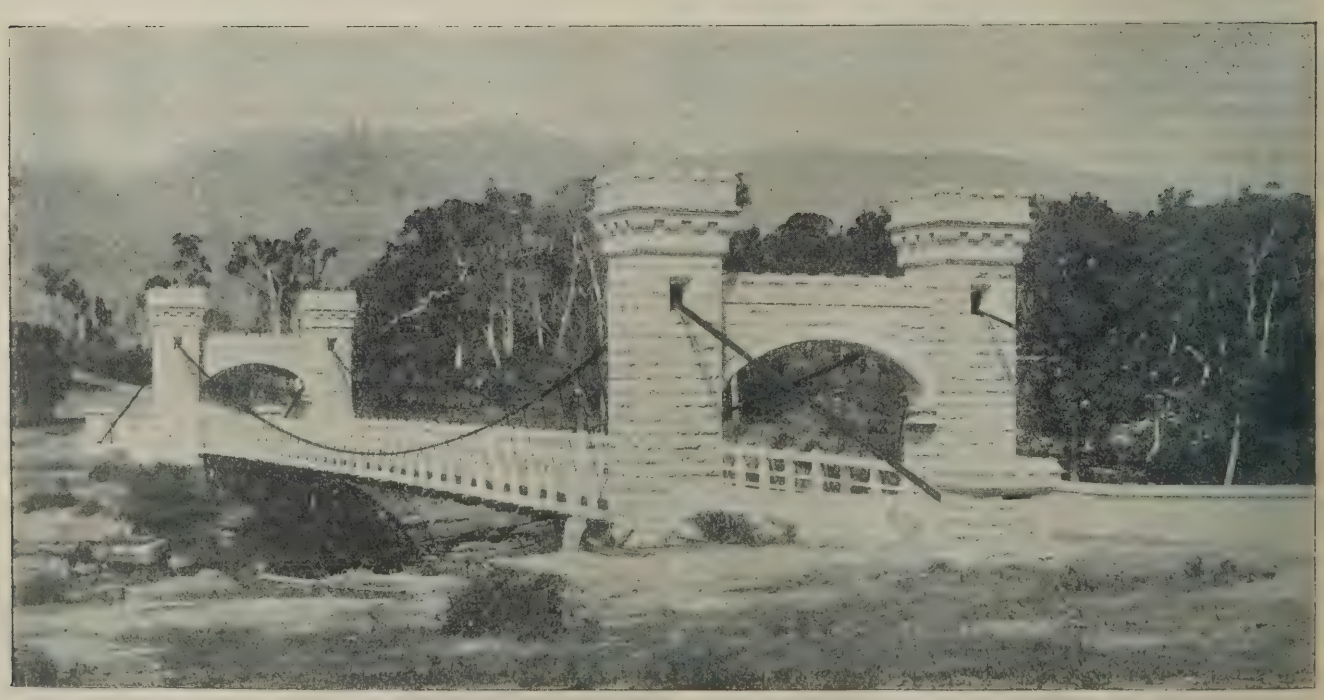
The Fiftieth Annual Meeting of the Somersetshire Archæological and Natural History Society will be held at Taunton on August 30 and three following days, under the presidency of Mr. E. J. Stanley, M.P. Exeter Cathedral will be visited on September 1.

PUBLIC WORKS IN NEW SOUTH WALES.

MOST of the bridges in New South Wales have been constructed by the Public Works Department of that colony, combining the essentials of utility, durability and economy in a most commendable manner, especially to those providing the loan moneys, with the assistance of which the completion of such structures is effected. The most recent of these works is a suspension bridge across Kangaroo Valley, about 107 miles south of Sydney, and forming portion of the mail route, by way of the Fitzroy Falls, between the great southern line and the coast. The road, which is much frequented by tourists, begins three miles after leaving the falls, a descent of about 2,000 feet at the Barrangarry Mountain, reaching Kangaroo Valley township, twenty-three miles below. Between the foot of Barrangarry Mountain and the valley township runs the Kangaroo Valley river, confined at the point where the road crosses it between precipitous banks 55 feet in height, and subject to floods which rise to the level of the banks.

As is generally the case with mountain rivers, a safe ford is difficult to find, save during continued dry weather, while in





flood time the river is absolutely impassable. In 1878 a wooden bridge, 250 feet in length, was thrown across the stream, but it was swept away during a heavy flood at the beginning of the present year, shortly after the new bridge, of which illustrations are given, was completed.

The suspension type was adopted with a view of placing the structure above the level of the highest possible floods; at the same time the abundance of fine sandstone in the neighbourhood enabled the masonry work to be executed in a highly finished style. The bridge has a single clear span of 252 feet, with a roadway 18 feet in width. The massive towers at each end are 55 feet in height, and with the arched openings in the roadway between them present a somewhat picturesque appearance.

The cables which, passing through openings in the upper portion of the towers, support the roadway are formed each of fourteen steel wire ropes. These ropes are each 4½ inches in circumference and capable of sustaining a breaking load of 86 tons. The total strain on each cable when the bridge is loaded is 280 tons, and to resist this strain the cables are carried down and secured in chambers cut to a depth of 24 feet in the solid rock. Stiffening trusses of iron bark timber on each side of the road supply the necessary rigidity to the structure, and on account of the long span and height above the water form a somewhat graceful outline. The bridge, by reason of the preponderance of masonry and steel in its construction, is practically permanent, though the timber roadway will at lengthened intervals need renewal—940 cubic yards of masonry and concrete.

The bridge was designed by Messrs. De Burgh & Allan, under the direction of Mr. Robert Hickson, M.Inst.C.E., Under-Secretary for Works and Commissioner for Roads, and was erected under the supervision of Mr. E. M. De Burgh, the Assistant Engineer for Bridges.

The contract was let to Messrs. Loveridge & Hudson, 63 tons of iron and steel and 4,800 tons of timber being used for the work, Mr. James Rorison acting as resident engineer for the Government.



LEON BATISTA ALBERTI ON FRESCO.

THE connecting link between ancient and revived art was Leon Batista Alberti. D'Agincourt does not hesitate to attribute the Renaissance of architecture, in a great measure, to his exertions and those of his countryman and contemporary Brunelleschi, the constructor of the Duomo of Florence. Alberti was eminent in all the arts, but attached himself principally to architecture, and applied himself with much assiduity to the study and explanation of the work of Vitruvius. His principal work, "De Re Ædificatoria," was completed and a manuscript copy presented to Pope Nicholas V. in 1452, and was printed at Florence at the early period of 1485. It contains, observes D'Agincourt, all that could be known at that time relative to the art, and, if we confess the truth, almost all that has since been written in the best works on the same subject.

Alberti treats concerning the coats of plaster which should be laid on walls, of the various kinds of intonachi and how the mortar with which they are made is to be prepared, of statues in basso-rilievo, and of the pictures with which the walls are adorned. According to him, in all plasterings three kinds, at least, of intonachi are required. The first is called rinzaffato, and its use is to adhere very closely to the wall, and to hold firmly the other two intonachi which are laid upon it. The use of the last intonaco is to receive the polish and the colours and lineaments which make the work pleasing. The use of the middle intonaco, which is now called arricciato, is to obviate any defects both in the first and in the last intonaco. The defects are as follows:—If the two last coats, namely, the arricciato and the intonaco, are caustic, and, so to speak, astringent, as rinzaffato ought to be, they will, on account of their crudity, show many cracks as they dry. And if the rinzaffato is mild, as the intonaco should be, it will not adhere sufficiently to the wall, but will fall off in pieces. The more coats of it are given, the better will the surface receive the polish, and be enabled to withstand the effects of the weather. I have seen some of the more ancient specimens which had nine coats, one upon the other. It is necessary for the first of these to be rough, containing pit sand and pounded brick, the pieces of which should not be too small, but as big as acorns, or in pieces the size of the finger, and sometimes the size of a palm. For the arricciato river sand is best, being less liable to crack; this arricciato should also be rough, because the coats which are to be laid on afterwards will not adhere to

smooth surfaces. The last coat must be very white, like marble; in fact, very white pounded stone should be used instead of sand, and it will be sufficient for this coat to be half a finger's breadth in thickness, because, if it is made too thick, it dries with difficulty. I have seen some persons who, in order to save expense, do not make this coat thicker than the sole of a shoe. The arricciato must be mixed according as it is nearer to the first or to the second coat. In the masses of stone in stone quarries there are found certain veins very much resembling transparent alabaster, which are neither marble nor gesso, but of a certain middle nature between the one and the other, and which are very apt to crumble. When these are pounded and used instead of sand, they sparkle like shining marble. In many places are seen sharp points projecting from the wall in order to hold the intonachi, and time has shown us that these are better made of bronze than of iron. I approve very much of those who, instead of nails, insert between the stones certain pieces of stone or flints so as to project; but for this purpose a wooden mallet must be used, and the fresher and rougher the wall is the better it will hold the rinzaffato, the arricciato and the intonaco; therefore if, while building, and while the work is being done, you apply the rinzaffato, although thinly, you will cause the arricciato and the intonaco to adhere to it very strongly, so as never to separate. You may carry on any of these processes during the prevalence of the south wind, but if you apply the intonaco while the north wind blows, or during severe cold or great heat, the intonaco will immediately become rough or uneven.

Finally, the last coats are of two sorts; they are either plastered and spread upon the wall, or they are composed of materials joined and fitted on to it. Gesso and lime are spread upon it, but gesso is not good except in very dry places, for the damp which passes down old walls is very injurious to every kind of coating. The coatings which are joined on to the walls are stones, glasses and such things. The coatings which are spread upon walls are these:—Pure white, with figures of stucco or paintings; but those which are joined on are wainscottings, panellings and inlaid works. We shall now speak of the first sort, for which the mortar must be prepared as follows:—

Slake the lime with clear water in a covered trough, and with so much water that there may be a great excess above the lime; then stir it well with a spade, kneading and working it thoroughly; and let it be thoroughly slaked and kneaded, which may be known by the spade not meeting with any lumps or clods. To this we must add that much water must not be added to the lime at once when slaking it; but it must be quenched a little at a time, pouring water on it at intervals until it is completely saturated; then put it in a place rather damp than otherwise, and in the shade, without mixing anything with it; for it should be preserved pure—covering it only with a little sand until, by length of time, it is become more liquid. And it has been found that, by this long maceration, the lime has acquired great virtue. I have actually seen some very ancient, and in considerable quantity, which had been abandoned—as we have good reason to suppose—for more than 500 years; and then being discovered, it was found to be moist and liquid, and, as it were, so ripe that in its consistence it far surpassed honey and marrow. And there certainly is nothing that can be found more convenient for any purpose whatever than this. If you use it thus, it requires double the quantity of sand. The lime is not considered to be mature in less than three months. That which is good must be very soft and viscid, because if the trowel put into it comes out dry, it proves that it has not had enough water to slake it completely. When you mix it with the sand, or with any powdered materials, work it again and again with great labour, and continue to work it until it almost froths. The ancients were accustomed to pound in a mortar the materials they required for the intonachi, and they tempered the mixture so that it might not adhere to the trowel when they were laying it on the wall. Upon the coat which has just been put on, and while it is still wet and soft, another coat must be laid, and care must be taken that all these coatings may dry together and at the same instant. They must be smoothed and made even with smoothing boards, floats and other similar things while they are yet soft. If the last coat of pure white be well rubbed, it will shine like a looking-glass; and if, when the same is nearly dry, you anoint it with wax and mastic, liquefied with a very little oil, and then heat the wall so anointed with a chafing dish of lighted charcoal, or with an iron, so that it may soak up the ointment, it will surpass marble in whiteness. I have found by experience that such intonachi never cracked, if in making them the moment the little cracks begin to appear they are rubbed down with bundles of twigs of the wild mallow or of wild broom. But if, on any occasion, you have to apply an intonaco in the dog days or in very hot places, pound and cut up very finely some old rope and mix it with the intonaco. Besides this, it will be very delicately polished if you throw on it a little white soap dissolved in tepid water. If it is too greasy it will become pale.

Small figures of stucco may be executed very expeditiously by casting from hollow moulds, and the hollow moulds may be obtained from rilievos by pouring liquid gesso over them. When they are dry, if they are anointed with the composition which I have mentioned, they will have a surface like marble. These figurines are of two sorts, some in entire relief, and some in bas-relief; those in high relief do very well on a flat wall, but on a vaulted roof bas-reliefs are better, because those which are in high relief, on account of their weight, being fixed obliquely, easily separate and fall down, and are likely to fall on the heads of those that are beneath. Care must be taken not to put hollow ornaments, or ornaments in high relief, where there is much dust, but let them be flat and in low relief in order to clean them easily. The painted intonachi are sometimes executed in fresco and sometimes in secco. For those which are done in fresco, all natural colours, which are obtained from the earth or from mines, or from similar places, are proper; but artificial colours, and particularly those which change when exposed to the fire, require very dry things, and dislike lime, moonshine and the south wind. It has been recently discovered that all colours can be mixed with linseed oil, and will last for ever provided that the wall upon which they are put be very dry and completely free from damp; although I find that the ancient painters were accustomed, in painting the sterns of their ships, to use liquid wax instead of glue. And, if I remember right, I have seen in the works of the ancients that factitious gems, fastened to the wall with wax, or perhaps with white stucco, become so hard in course of time that they separated neither with fire nor water. You would say that it was burnt glass; and I have seen some who, with the white flower of lime, have fastened colours, particularly vitrified colours, to the walls while still fresh.

AMERICAN LIBRARY BUILDINGS.*

NOTICEABLE is the increasing tendency on the part of library boards to recognise that the librarian himself is, or ought to be, the expert authority to be consulted within the field of technical library details. An ideal way of bringing the librarian into closest contact with every successive step in the planning and construction of the building is by making him either the secretary or a member of the committee, board or other sub-organisation of the governing body which has the immediate charge of erecting the building. Should this be done at the very outset, before even the building lot has been secured, the resulting benefit will be seen in the fact that each separate division of the general subject as it comes up will be considered, discussed and finally agreed upon in the light of the suggestions which the librarian is able to bring forward. This has been done in the case of the New York, Newark and Providence public library buildings.

Mention should be made of several architectural competitions which are of exceptional interest. The first of these is that of the New York Public Library. The preliminary arrangements were conducted by a committee of the board (with a special advisory committee of three, consisting of the executive officer of the library, Dr. Billings, Professor William R. Ware, of Columbia University, and Mr. Bernard R. Green, of the Library of Congress). It is not pleasant to be obliged to add that owing to a peculiarly unenlightened course of action which the New York City Controller has felt obliged to adopt this admirable building remains unbuilt, and not even begun. A letter from Dr. Billings, dated May 19, 1898, says:—"The matter is now before the Department of Public Parks and the Board of Estimate and Apportionment, and it is impossible to say when action will be taken. I think it probable that ultimately the necessary funds will be granted and the work go on to complete the contract made by the city, but this may not be done before next fall, or possibly not for a year."

One of the most elaborate schemes of architectural competition is that embodied in the pamphlet of thirty-nine pages, entitled "Programme for International Competition for the Phebe Hearst Architectural Plan of the University of California" (including a library building for 750,000 volumes), which is dated "Berkeley, Cal., December 3, 1897," and which was distributed to architects and others in both continents early in 1898. The estimated cost of [the building is not stated, but the fact that the sum of 50,000 dols. has been set apart simply for the purposes of this competition, including the payment of the awards, makes this a noteworthy architectural incident.

Among instances of buildings not yet begun, but now in the earliest stages of preparation, there may be named the New York State Library at Albany (now moving for a location distinct from the State Capitol), the Cleveland Public Library (now making comparison of plans), and the St. Louis Public Library (which on March 24 last purchased a lot 324 feet by 282 feet for its new building). To these should be added the New York Public Library and the Jersey City Public Library,

* From a paper by Mr. William E. Foster, librarian, Public Library, Providence, Rhode Island.

neither of which has yet advanced beyond the stage of securing plans.

Seven libraries, costing in each instance more than 100,000 dols., are now in process of construction, namely, the Lynn (Mass.) Public Library, the Fall River (Mass.) Public Library, the Providence (R.I.) Public Library, the Free Public Library, Newark, N.J.; the Wisconsin State Historical Society Library, Madison, Wis.; the Milwaukee Public Library and Museum, and the Omaha (Neb.) Public Library.

The record of noteworthy library buildings which have been opened to the public since January 1, 1895, is a striking one. It includes the Boston Public Library, January 31, 1895; the Carnegie Library, Pittsburg, November 5, 1895; the Pratt Institute Library, Brooklyn, May 26, 1896; the Peoria (Ill.) Public Library, February 11, 1897; the Hart Memorial Library, Troy, N.Y., May 12, 1897; the Kansas City Public Library, September 1, 1897; the Chicago Public Library, October 9, 1897; the Columbia University Library, October 12, 1897; the Library of Congress, November 1, 1897; and the Princeton University Library, November 7, 1897.

Several of the public libraries above named show a striking resemblance in general type of architecture. It is obviously only a superficial observation which would classify them as "reproducing" the architecture of the Boston Public Library Building. It would be more correct to say that both the Boston Public Library and the others named below show strongly the influence of the Sainte-Geneviève Library in Paris, as that, in turn, shows the influence of some of the Italian palaces of the Renaissance, such as the Pitti Palace at Florence or the Pompeii Palace at Verona.

This is a phenomenon which should possess not only interest but instructiveness for both the librarian and the architect who are studying the future of library architecture. Some of the subordinate bearings may be stated as follows:—

1. The architectural strong point of this type seems to consist in the symmetry and simplicity of its outlines; in the main two parallel lines extended horizontally only so far as symmetry demands. It does not include such a feature as a tower as one of its outgrowths, and it seems to embody the counsel of an eminent English architect, quoted in a recent paper, "If you have height, do all you can to emphasise it and make it tell," and similarly, if you have length, emphasise that. In this case it is length that is emphasised and made effective.

2. Provided the other dimensions are so pronounced as to preserve the symmetry above indicated, this is an architectural type that even lends itself well to buildings of so great a height as the Chicago Public Library. This is a building whose fenestration—practically only two horizontal lines of window spaces—gives the spectator at first no real conception of its true size, its height being 90 feet. Much the same may be said of the New York Public Library, though this is classified under another heading below.

3. It is also a treatment which lends itself equally well, so far as architectural considerations are concerned, to very different treatments of the ground spaces, including the quadrangle, as in the Boston Public Library; the interior courts in buildings treated like the Library of Congress; the stack in the interior of the building, as in the Chicago Public Library; the stack built parallel to the main building, or even absorbed in it, architecturally, as in the Fall River instance, and the stack built at right angles to the main building, as in the Kansas City, Newark and Providence instances. In the last-named instance—Providence—where the stack building is compelled, by the nature of the library lot, to be a prominent architectural feature, the treatment of this "refreshing" problem—to quote Mr. Russell Sturgis—has been conspicuously successful, from an architectural as well as a practical point of view.

4. It is a type of architecture which lends itself well to the demands of purely practical considerations, such as lighting, ventilation and arrangement.

While it is true, as stated above, that this is a type which possesses many obvious advantages for library purposes, it does not by any means follow that it should be regarded as the exclusively "library" architectural type. When such a feature as a dome is rendered necessary, it combines well with the other features of this type, but when prominently in sight, with the inevitable result of something distinctly different in effect. This may be seen in the Library of Congress, the Wisconsin State Historical Society Building, the Milwaukee Public Library and Museum, and other instances. The Columbia University Library Building, one of the most exquisitely beautiful buildings recently erected in America for any purpose, while it is of the Renaissance style of architecture, has nothing in common with the type above referred to, the dome in this instance being one which very distinctly emphasises height.

Finally, in touching on the details of library arrangement, it should be said that the library building of the future will of necessity cover more space than has been planned for in the past, quite independently of the question of the constantly increasing number of volumes. Rooms such as the children's reading-room, the art-room and the lecture-room are here to stay, and must be reckoned with in plans for any library of the larger size. But, more than that, provision must be made for a large use of the books on the premises in such rooms as study-rooms, reference-rooms, classrooms, &c.

It is evident from a study of these recent buildings that the stack is not yet eliminated as a feature in library arrangements and construction. Yet it is noteworthy that the movement in the direction of open shelves is very well entrenched, even in those libraries which have a stack. Thus, to take what is perhaps an average case, the Providence Public Library will have at least two-fifths of its volumes elsewhere than in the stack, these volumes being accessible on open shelves in such rooms as the reference-room, the art-room, the patent-room, the medical library, the educational library, &c. (and an even more striking result has been reached in the Newark building).

One other feature of library arrangement should here be mentioned, namely, the delivery-room. It seems like a truism to say that it should be in close contact with the stack, yet the experience of one of the largest libraries in the country shows that the statement is not wholly unnecessary. Acting on the principle that a straight line is the shortest distance between two points, we might naturally wish not only to place the delivery desk at the intersection of all the lines in a horizontal plane, as in the Library of Congress, but also at the centre, so far as the vertical lines are concerned. The library of Cornell University makes an interesting approach to this ideal. The delivery-desk is not only at the point of junction of two stacks running at right angles to each other, but it is midway of the distance from top to bottom of the seven storey stack, owing to the sharp descent of the hill on which it is built. The Providence Public Library cannot reproduce these conditions, owing to the much less decided slope of the hill, but it makes as close an approximation to it as it can. The delivery-room projects into the stack itself as a tenon extends into a mortise, so that there are stack floors above and below the delivery-desk as well as just beyond it.

A REGISTER OF OLD LONDON.

FROM time to time, says a correspondent of the *Times*, London learns through the Press of the impending destruction of some memorial of its past. Sometimes it is a spot sung of poets, such as the Tabard in Southwark; sometimes a relic of a bygone phase of life—an Inn of Chancery, an old pleasure garden; sometimes a specimen of the work of a great architect. Occasionally public feeling is aroused, strenuous efforts are made, and the threatened blow is averted or delayed. The contest over the Trinity Almshouses at Mile End and its successful issue are fresh in the public mind. Staple Inn, put up for sale as a building estate, was a few years since rescued by the generous intervention of the Prudential Insurance Company. Parliament refused to ruin the Charterhouse. But too often the news comes too late to admit of intervention, and in cases intervention is impossible. Lady Dacre's Hospital at Westminster, the quiet beauty of which is said to have inspired Fred Walker's "Haven of Rest," and the old Palace of Bromley-by-Bow, one of the few remaining Elizabethan houses of London, have both disappeared during the present decade. These fragments of antiquity were of a more or less public character; buildings in private hands are in still greater danger. The Old Bell in Holborn, with its pit and gallery, has been demolished within the last twelve months. Sir Joshua Reynolds's house in Leicester Fields is threatened. And Hampstead, the suburb which, rich in associations, in natural beauty and in quaint village-like nooks and corners, most resolutely resists absorption in the Metropolis, sees one of its characteristic features, Church Row, invaded by the modern pile of flats. Some of these changes cannot be prevented. But a little consideration and careful planning may sometimes save the charm of a building without interfering with its money-making capacities. Everything has its value in a complex community like London, and there is a certain market-price for quaintness and antiquity, perhaps for architectural beauty. Thus, even where purely private interests are concerned, something may now and again be done to avert needless destruction; where public bodies can be appealed to there is better hope. But at present there is a serious preliminary difficulty in the absence of definite and easily accessible information respecting Old London, and of any machinery for insuring timely warning of a threatened danger.

It is satisfactory to learn that an attempt has lately been made to meet this want. As might have been expected, the society which the late Mr. William Morris organised for the protection of ancient buildings is the home of the movement. Some three years ago a company in connection with this society was formed for the purpose of compiling a register of all objects of an historic or æsthetic nature within an area bounded on the south by the Thames and extending northwards and eastwards twenty miles from Aldgate. Buildings are

of course, the primary care of the committee, but it extends its survey to any interesting relic—an open space, a beautiful tree, "any interesting piece of handicraft, if it be but a sign-board or wrought-iron gate." The methods of the committee are exact and business-like. The position of the building or other object, its owner and occupiers and condition of repair, a careful description of its character and dates, notes as to its history and reference to any books which treat of it are all entered in a schedule. These particulars are illustrated by sketches, photographs and measured drawings, which are arranged in albums according to parishes. The fulness with which the committee performs its task may be estimated from the fact that, while some two hundred places have been the subject of examination and report, no fewer than a thousand drawings, photographs and sketches have been made. It is obvious that, if the work is completed on the same scale, it will eventually, as the committee state, form "a unique collection of what Greater London at the close of the present century still retained of historic interest or beauty." The fact that Lord Leighton was president of the committee, and that such names as Walter Crane, Mr. Philip Norman, Mr. Hamo Thornycroft, Mr. Humphry Ward and Sir Walter Besant appear on the list of its supporters, is a guarantee of the thoroughness of the work. Its chairman and organiser is Mr. C. R. Ashbee. It is the design of the committee—which possesses a long name but prefers to be called the "watch committee"—to publish not only the register in suitable parts, but separate monographs on places of especial interest. One of these has already seen the light. Its subject was the Trinity Hospital, Mile End. And here the practical as well as the literary value of the committee's work is well seen. For it was owing to information obtained by the watch committee in the course of its work that attention was drawn to the proposal of the Elder Brethren of the Trinity House to sell the hospital and remove its inmates—a proposal eventually negatived by the Charity Commissioners upon the opposition of many societies. Again, the State Room in the old palace of Bromley-by-Bow (the subject of another monograph) was at the instance of the committee moved to South Kensington, and an attempt to pull down Bow Church for the widening of the thoroughfare was foiled through an appeal to the London County Council.

But the most remarkable outcome of the committee's work has still to be mentioned. In December last it induced the London County Council to call together representatives of the several societies interested in Old London. At a conference between such representatives and a committee of the Council it was decided to be desirable that a "register or list be made of buildings of historic or architectural interest in London," and that a permanent committee, to consist of members of the Council and of outside bodies, be constituted for the purpose. The work of the watch committee was, moreover, adopted as the foundation for the official register, portions of which will in due course be published. Further, by an Act of this Session the Council has obtained power to preserve Old London, either by the purchase (by agreement) of buildings and places of historical or architectural interest, or by entering into arrangements for the maintenance and management of such buildings and places. As the Council is itself constantly engaged in carrying out or authorising schemes which involve serious changes, it is something to know that the importance of preserving, so far as possible, what is interesting or beautiful will not be lost sight of in such operations. But, apart from this, it is a notable step in advance to have secured the recognition by a powerful executive body of considerations which have often been contemned as merely sentimental. Throughout most of the countries of Europe there are authoritative registers of antiquities, and commissions charged with the duty of fostering respect for, and interest in, these legacies of time. The only similar attempt in this country is embodied in Sir John Lubbock's Act for the Protection of Ancient Monuments, but its scope is singularly narrow, embracing only monuments of the megalithic order. It is to be hoped that the many societies interested in such questions (with the powerful aid, now secured, of the London County Council) may be instrumental in extending the protection of organised public sentiment to a much larger class of interesting remains; and there cannot be a more fitting centre in which to begin such work than the ancient and historic capital of the empire.

THE MEXICAN COMPETITION.

A CORRESPONDENT of the American *Architect*, writing from Mexico, gives the following account of the recent competition :—

The competition for the Legislative Palace for the general government of the Republic of Mexico has been decided by the jury of award, and although the promised official report of the jury has not been published in the *Diario Official*, the general proceedings and results of the competition are now public property.

The limited portion of the Mexican people that keeps informed of important public matters has taken an unusual interest in this competition, and it has seemed to be the opinion, even among some educated engineers and architects, that the jury would be almost deluged with designs from many of the leading architects of the world. They must have been disagreeably surprised, if they really understand, that, with the exception of that of Piocentini and Nataletti, not a design was received from even an architect of note in his own country, and that, with possibly one exception, no Mexican architect of note participated in the competition, although this capital can count quite a number of scholarly architects of large experience in their style of building. The reason for the non-participation of leading architects was freely expressed by the writer to some of the profession as soon as the programme was published. That the result has more than confirmed his predictions cannot be doubted. To the architect who has followed the courses of competitions on this continent and in Europe these reasons were evident at a glance.

To the authorities, who were evidently honest in their intentions, notwithstanding persistent rumours to the contrary, the result must have been a surprise. In the hope that these lines may come to their notice and be of benefit to them and others, a brief statement of the causes of the failure is submitted. In the first place, an unusually complete set of general working drawings and specifications was demanded, and as a reward there was offered as a possible first prize one-half of 1 per cent. of proposed cost among a probable fifty to seventy-five competitors, a possible one-fifth of 1 per cent. for the next two prizes and a gold and silver medal respectively for the fourth and fifth prizes. The design classed first was to receive an additional one-half of 1 per cent. on making complete detailed plans and specifications for execution of the project.

It ought to be thoroughly impressed upon the authorities here that but few, if any, reputable architects can be induced to make even preliminary drawings at one-half of 1 per cent. unless they are reasonably assured of the commission at a reasonable rate, and that to furnish practically working drawings at this rate, and to gamble among fifty or seventy-five others, with their 5,000 dols. to 7,000 dols. invested in their drawings as a stake, was a preposterous proposition. With this view as to the first prize, what kind of a lottery would it be as to the second, third, fourth and fifth prizes, where the gambler stakes his 5,000 dols. to 7,000 dols. value of drawings against a chance of one in seventy-five to 2,000 pesos or a medal? Again, it may be possible that those who had been burned by contact with the fire of previous competitions noted that while three of the jury were directly selected by different departments of the Government, the four others were to be elected by the competitors from a list of ten experts proposed by the Ministry of Public Works, which practically, in spite of its seeming fairness, put the whole matter under the control of the Government, and unfortunately, when it came to the selection of the ten from whom to choose, none but Mexican engineers were in the list. Add to the above the fact that not the slightest information was given as to the nature of the soil at the site, although an accurate distribution of pressures on foundations was required, and there is presented a rather difficult and indefinite proposition to solve.

Designs were received up to April 1, 1898, and one was even received after that date, when, as it had been stated by the Press of the city, the jury had already reached a decision. These drawings were all accepted on equal terms with those received on or before November 30, 1897, the statement being made that they were deposited with some Mexican foreign representative before the date last named, though it does seem a little mysterious how it could require from two to four months for so many of them to reach this city. The awards made by the jury were as follows :—

No. 17. Motto "St. Georgius, Equitum Patronus," architect, Adam Boori, second prize.

No. 26. Motto "Minerva's Head," architect, J. P. Weber, Chicago, second prize.

No. 44. Motto "Roma, Mexico," architects, Pio Piocentini and Philippo Nataletti, second prize.

No. 52. Motto "Majestas," architect, Pietro Paolo Quaglia, Mexico, third prize.

No. 18. Motto "Golden Star," architect, Antonio Rivas Mercado, fourth prize—gold medal.

No. 45. Motto "Roma, Roma," architect, ———, fifth prize, silver medal.

None of the premiated designs showed indications of various loads on foundations, only one design, in an obscure corner, making a feeble attempt to comply with this requirement.

Aside from those premiated, there were not to exceed two or three designs worthy of even a passing glance. The authors of the remainder may be classed as young or struggling architects, civil engineers with no experience in design, con-

tractors and wall-paper artists. Many of the drawings were such crude pencil sketches that it was impossible to decipher the intentions of the authors. The designs were exhibited to the public in the colonnaded patio of the old Custom House, which was roofed with white cotton cloth, thus giving a strong well-diffused light from above only. The patio was divided by numerous low partitions against which the plans were arranged, and t would have been difficult to show them to better advantage. The rendering of the elevations and perspectives of the premiated designs was fairly good, those of Piocentini and Nataletti being especially noteworthy for the delicate treatment of pen-and-ink work in a warm brown colour. Owing to the restrictions of the site there seems to be but little originality and variety in the planning. No. 26 suggests the ever-recurring type of what might be called the standard American State house.

No. 18 had a very complete set of drawings, and seemed to be the great favourite among the younger engineers and architects of the city. Its lettering was a mixture of English, French and Spanish. The borders and lettering of sheets were in the Mexican national colours. From these and other indications it might have been the work of some syndicate of young architects.

No specifications or estimates were to be had by the public.

It is the opinion of many good judges that the cost of any of the premiated designs would have exceeded by 50 per cent. the limit of 1,500,000 pesos of the programme, and that some would cost double that sum.

The jury unanimously decided at first not to award the first prize to any of the competitors, as none of them had complied with the programme of the competition, and also voted, as before indicated, to divide the second prize of 6,000 pesos among the three named as entitled to that position. At a subsequent meeting the jury reconsidered this action, and voted to divide the 15,000 pesos, first prize, among the three named for second place.

This certainly shows a generous and just intention on the part of the Government, for by a strict interpretation of the programme not one competitor was entitled to a prize, and it further goes to strengthen the opinion, expressed elsewhere, that the promoters and jury were actuated by just motives and only erred from lack of experience in such matters.

On the whole, this is another case where the promoters, had they been compelled to read your exhaustive article on competitions before undertaking this affair, might have derived from it incalculable value to themselves and to those they endeavoured to serve.

There is at present no information obtainable as to when, if ever, and after which design the building is to be proceeded with. The limits of the site are being marked by a wall of adobes showing the elliptical shape, but this has been going on for five or six months and in this manana-land is no indication of definite progress.

YORK MINSTER.

THE Dean of York has just issued an appeal for funds for the preservation of York Minister. He expresses a hope that all who value and appreciate the building will not only watch with interest the work now in progress, but contribute to the funds required, the present sum at the disposal of the Dean and Chapter being quite inadequate to meet the severe strain upon them. The Dean states that the work on the south side of the nave has already been completed and the grand pinnacles have been accurately restored. The work at the east end will be completed in about twelve months, when there will be commenced a similar work at the west end. The report of the clerk of the works, which is appended to the appeal, gives particulars of the extent to which decay has damaged many parts of the building.

DURHAM AND NORTHUMBERLAND ARCHÆOLOGICAL SOCIETY.

THE fourth meeting for the year 1898 will be held on Friday, August 19, at Mount Grace Priory. Members will assemble at Northallerton Station at 10.43. They will drive to Mount Grace (8 miles) by way of Kirby Sigston, where the church with its Norman nave and ancient heraldic glass in east window will be examined. At Mount Grace the extensive ruins of the Carthusian Priory will be pointed out by the owner, Mr. William Brown, whose researches have been specially directed to the monastic establishments of this part of Yorkshire. The buildings consist of church, prison house, outer and inner courts with the cells and gardens, kitchen and gate-house. During the last two years important excavations have been made which have thrown great light on the arrangements of the building, during which the tomb of the founder, Thomas, Duke of Surrey, has been laid bare. There is also a large dwelling-house adjoining which is a good example of the seventeenth-century work. Members will return either by Osmotherley or Leake if time will allow, and will reach Northallerton in time for dinner at the Golden Lion.

TESSERÆ.

Symmetry in Objects.

THERE is a kind of beauty in invisible objects which is commonly, but perhaps falsely, supposed to speak to the eye; this is that kind of symmetry or uniformity which consists in an exact correspondence of form between the two halves of an object. To distinguish it from other kinds of uniformity we will call it "the uniformity of halves." We need hardly observe that it is the most universal quality in nature pervading all ranks of organic life, from the leaf and the flower up to man, and all separate and distinct creatures, even when inorganic, from a crystal to a world. Accordingly, man has in all ages and countries imitated this principle of nature to the very best of his power, in every work that was intended to appear one separate and complete whole; and though some late critics have told us that a building containing distinct apartments is to be regarded as a collection of several things and treated accordingly, the world will never believe a mere assertion against the plain example of nature, whose practice it is, in an animal having no uniformity of internal parts (a heart on this side, a liver on that, and a stomach placed unsymmetrically), nevertheless to contrive the external form with an exact correspondence of halves. Though we constantly speak of this quality as being pleasing to the eye, there seems to be a continual proof that it has nothing to do with the eye, for when is the image of a uniform object (formed on the retina) uniform? Never in the case of a solid body, because even when the eye is exactly in the central plane of the object, though the outline be uniform, the lights and shades (far more striking to the eye) destroy that uniformity. Thus even the elevation of a uniform building ceases to be a uniform object as soon as it is shadowed. But, besides this, a deviation of the eye from this central plane to any extent is universally thought to increase the beauty of the view, though it destroys the uniformity of the outline and renders it impossible that the ocular image can, under any effect of light and shade, ever be uniform. Thus it appears that the same uniformity which is a beauty in the object is a defect in its image of picture. It is necessary to the enjoyment of this excellence in a building that it be not seen but discovered by the mind.

The Temples of Siva.

The shape of the temples of Siva, the Destroyer, does not differ from those of the other Indian gods. The chief entrance into the great temple is by a high massive pyramid, the top of which has generally the form of a crescent; it invariably faces the east. Beyond the gate there is a large court, at the further extremity of which another gate leads through a pyramid of less height but of the same form. A small yard separates it from the temple of the idol. In the middle of it there is either a huge bull or a linga carved in stone, raised on a pedestal, or put under a canopy supported by four pillars. This is the first object of adoration to the visitors, who then pass through a low narrow door into the inside of the temple. This door is the only passage for light and air, there being no windows. A lamp, which burns night and day, gives a tolerable light. The interior of the building is generally divided into two parts, sometimes into three, the first of which is the most spacious and is destined to receive the people; the second, or the adytum, in which the idol resides, is much smaller and darker, and generally shut, the door being opened only by the officiating priest, who, with some of his attendants, has alone the right of entering this mysterious place for the purpose of washing the image and dressing and bringing offerings to it. This part is often built in the shape of a vault, but it is so low as to make a prolonged stay in it rather oppressive.

Bernini's Sculpture.

The faults and merits of Bernini as a sculptor will be best shown by a reference to and criticism of a few of his best known works. His group of Apollo and Daphne, in the Villa Borghese, is a production of great merit for its invention and power of telling its story. The god has just reached the object of his pursuit, and at the moment when he seizes her Daphne's prayer is heard, and the beautiful form is being metamorphosed into a tree. Instead of generalising this part of the history, Bernini appears to have delighted in the opportunity of showing his skill in execution. The hair and drapery of Apollo are floating in the air, while the change that is to preserve Daphne from violence is shown in detail in her tresses, the toes and fingers becoming elongated into roots and branches, the latter terminating in carefully-worked laurel leaves. St. Peter's at Rome contains various works of this artist. The most remark-

able of these are the splendid monuments of Urban VIII. and Alexander VII., which may be said to exhibit all his excellences and all his defects. The former stands opposite a celebrated work of Guglielmo della Porta, the monument of Pope Paul III., and is a melancholy proof of the consequences of losing sight of purer principles. Della Porta's was not a school of perfection, but the contrast between the grandeur of manner of his time and the handicraft display of Bernini's period is distressing. The composition of the second work alluded to, the monument of Alexander VII., is as strange as the execution is wonderful. The sitting figure of the Pope occupies the centre of a large and deep niche. The whole of the lower part or ground is filled up with curtain and cloud, in the corners of which are plunged four allegorical groups or figures. Of those at the back of the recess but little can be seen except the heads and shoulders. In the front corners are Truth and Charity, the latter a gigantic female, with fleshy infants pressed against her breast, to whose weight the marble appears to yield with all the elasticity of a soft pulpy substance. This work is a triumph of execution, but debased by the worst taste. A group of the Ecstasy of St. Teresa in the church Della Vittoria at Rome is another instance of the want of simplicity. In this it is difficult, amidst the flutter of the drapery and the ample convolution of clouds to discover either the figure of the saint or the subject of the composition. Of the single statues of Bernini, that of David preparing to throw the stone has merit for the earnestness and energy of the expression. The figure is a portrait of the artist, who was very young when he executed this work. His statue of St. Bibiana is also considered one of his best productions; but compared with the St. Cecilia of Stefano Maderno (and the comparison is strictly just, as both represent draped female figures of the same character, lying on the ground) it is an inferior work. The four doctors of the Church supporting the chair of St. Peter in the church of that apostle at Rome is a grand idea, but its effect in execution is injured by the want of simple unaffected expression and attitudes. These statues are colossal. They are cast in bronze, and some parts of the figures and draperies are richly gilt. This composition, taking it altogether, has a magnificent effect. Fontana calculated, from the archives kept in Rome, that this work must have cost 107,000 crowns. The sum expended on the whole edifice up to his time was 46,800,098 crowns, and Cicognara thinks he does not exaggerate when he calculates that a tenth of this was spent on works executed under the direction of Bernini. The fountain in the Piazza Navona at Rome is one of the strange and daring performances of this artist. Cicognara observes of Bernini that he was architect, mechanist, sculptor and founder. He was more than this. In proof of the versatility of his talents mention is made of a theatrical entertainment given by him in Rome, for which he built the theatre, painted the scenes, cast the statues, constructed the engines, wrote the comedy and composed the music.

Contrast in Painting.

The rule of contrasting figures or groups is not only universally known and adopted, but it is frequently carried to excess. The artist is advised not to destroy the grandeur and simplicity of his design by violent and affected contrasts. The artless uniformity of the compositions of the old Gothic painters is far preferable to this false refinement, this ostentatious display of academic art. A greater degree of contrast and variety may be allowed in the picturesque or ornamental style; but we must not forget that they are the natural enemies of simplicity, and consequently of the grand style, and destroy that solemn majesty, that soft repose which is produced in a great measure by regularity and uniformity. Those two qualities are separately exhibited by two great painters, Rubens and Titian. The picture of Rubens is in Antwerp; the subject (if that may be called a subject where no story is represented) is the Virgin and Infant Christ, placed high in the picture on a pedestal, with many saints about them and as many below them, with others on the steps to serve as a link to unite the upper and lower part of the picture. The composition of this picture is perfect in its kind; the artist has shown the greatest skill in disposing and contrasting more than twenty figures without confusion and without crowding, the whole appearing as much animated and in motion as it is possible where nothing is to be done. The picture of Titian which we would oppose to this is in the church of the Frari at Venice. The peculiar character of this piece is grandeur and simplicity, which proceed in a great measure from the regularity of the composition, two of the principal figures being represented kneeling directly opposite to each other, and nearly in the same attitude; this is what few painters would have had the courage to venture. Rubens would certainly have rejected so unpicturesque a mode of composition had it occurred to him. Both these pictures are equally excellent in their kind, and may be said to characterise their respective authors. There is a bustle and animation in the work of Rubens; a quiet, solemn majesty in that of Titian. The excellence of Rubens is the picturesque effect which he produces. The superior merit of Titian is in the appearance of being above seeking after any such artificial excellence.

Treatment of Backgrounds.

By the choice and scenery of the background we are frequently enabled to judge how far a painter entered into his subject, whether he understood its nature, to what class it belonged, what impression it was capable of making, what passion it was calculated to rouse. The sedate, the solemn, the severe, the awful, the terrible, the sublime, the placid, the solitary, the pleasing, the gay, are stamped by it. Sometimes it ought to be negative, entirely subordinate, receding or shrinking into itself; sometimes more positive, it acts, invigorates, assists the subject and claims attention; sometimes its forms, sometimes its colour, ought to command. A subject in itself bordering on the usual or common may become sublime or pathetic by the background alone, and a sublime or pathetic one may become trivial and uninteresting by it. A female leaning her head on her hand on a rock might easily suggest itself to any painter of portrait, but the means of making this figure interesting to those who are not concerned in the likeness were not to be picked from the mixtures of the palette. Reynolds found the secret in contrasting the tranquillity and repose of the person by a tempestuous sea and a stormy shore in the distance, and in another female, contemplating a tremulous sea by a placid moonlight, he connected elegance with sympathy and desire.

GENERAL.

Mr. T. Sopwith, the mining engineer, has died at Lismore in Scotland from the effects of an accident while shooting. He was born in 1838. He was managing director of the Spanish Lead Company.

A Statue of the late Dr. D. M. Stuart has been unveiled in Dunedin, New Zealand, where he resided for about forty years. It was designed by Mr. W. L. Morrison, of Wellington, and is the first statue executed in the colony.

The Fourth Edition of Dr. Corfield's "Dwelling-houses: Their Sanitary Construction and Arrangements," has been published by Mr. Lewis.

The Congress of the Royal Institute of Public Health was opened in Dublin yesterday, the 18th inst., under the presidency of Sir Charles Cameron, M.D. The exhibition will remain open until the 27th inst.

Blocks of Creosoted Yellow Deal are being used in the repaving of the Strand, which is now in progress. The blocks removed have sustained traffic for about five years.

Mr. W. G. Dewick, a sculptor, has died in Retford in his seventy-first year. He was employed on the Albert Memorial as an assistant and at the South Kensington Museum.

It is Proposed to erect new assembly-rooms, with market underneath, at Taunton, and, as the result of a competition, Mr. C. H. Samson, architect, of that town, has been awarded the first prize of 100*l.*

A Bronze Statue of Admiral Blake is to be erected on the Cornhill, Bridgwater, his native town. It is said that only two portraits of the Admiral are in existence, and that the dissimilarity is very great.

Mr. A. Carnegie has offered 10,000*l.* for the erection of a public library in Dumfries. Mr. and Miss M'Kie have presented a site for the building.

Mr. H. W. B. Davis, R.A., announced on Wednesday that the Liverpool autumnal exhibition would be of exceptional merit, and one point was the varied character of the works apart from their high standard of quality. There was hardly a phase or a mood of art that was not represented by works of very high excellence. It was the very variety of art that lent freshness to the interest they took in art. For the very fine collection of water-colours they were largely indebted to local artists.

Mr. J. Sinnott, architect, of Liverpool, while bathing at Eastbourne with his brother and partner was suddenly drowned a few days ago.

Mr. W. G. S. Harrison, who up till quite recently had acted for many years as town clerk and clerk of the peace for the borough of Folkestone, died on Wednesday at an advanced age.

An Excursion Meeting of the Northern Architectural Association will be held to-morrow (August 20), when the Dunston Flour Mills will be visited.

Lady Dilke has suggested that the fine bronze plaques found in a house at Kew may have formed part of the series of thirty-six ordered for the decoration of the four groups of columns which originally stood (or were designed to stand, for it is not certain if the scheme was fully carried out) at the four corners of the Place des Victoires in Paris. They were an accompaniment to the bronze statue of Louis XIV. erected in the centre of the Place at the cost of the Duc de la Feuillade, and which was destroyed during the revolution in 1795.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

LIVERPOOL.—Oct. 3 (time extended).—Designs for new buildings for Royal Institution. 50 guineas, 20 guineas. Mr. Harold Waterhouse, hon. sec., 3 Cook Street, Liverpool.

STOCKHOLM.—Aug. 31.—Designs for railway station. Particulars from the Offices of the Consulate, 27 Great Winchester Street, London.

CONTRACTS OPEN.

ABERDEEN.—Aug. 24.—For supplying and fitting-up electric wiring and fittings for the Northern Co-operative Company's loaf and small bread bakeries, Millbank, Berryden. Mr. John Ferries, 54 Loch Street, Aberdeen.

ABERDEEN.—Aug. 25.—For erection of byres, stables and men's room on the Farm of Auchmillan, Auchindoir. Mr. John Annand; Mr. John Craigen, solicitor, 193 Union Street, Aberdeen.

ABERGAVENNY.—For erection of a villa residence on the Brecon Road. Mr. E. A. Johnson, architect, Abergavenny.

ALDERSHOT.—Aug. 22.—For alterations and additions to the West End schools. Messrs. Nash & Son, architects, South Street, Farnham.

ANNFIELD PLAIN.—Aug. 23.—For construction of conveniences. Mr. T. J. Trowsdale, surveyor, &c., to the Council.

BARRY.—Sept. 5.—For erection of girls, boys and infants' schools at Hannah Street, Cadoxton-juxta-Barry. Messrs. J. P. Jones, Richards & Budgen, architects, 18 St. Mary Street, Cardiff.

BATLEY.—Aug. 22.—For erection of four houses and shop on the Black Bull estate, Commercial Street. Mr. J. H. Brearley, architect, Hanover Street, Batley.

BATLEY.—Aug. 26.—For additions of chemical laboratory and joiners' shop at Grammar School, Carlinghow. Messrs. Walter Hanstock & Son, architects, Branch Road, Batley.

BELFAST.—Aug. 23.—For erection of a gangway at the workhouse infirmary. Messrs. Young & Mackenzie, architects, Donegall Square East.

BELFAST.—Aug. 30.—For erection of church, lecture-hall, &c., at Malone Road. Mr. W. H. Stephens, surveyor, Donegall Square North, Belfast.

BERKHAMPSTEAD.—Aug. 24.—For erection of five terrace houses in Station Road. Plans and specifications at the Saw Mill Office, Holiday Street, Berkhampstead.

BIRMINGHAM.—Aug. 31.—For erection of a covered way at the workhouse infirmary. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

BLACKBURN.—Aug. 23.—For erection of probationer homes for pauper children and superintendent's house near the workhouse, also two homes in Cherry Street, and two homes in Poplar Street. Messrs. Stones & Gradwell, architects, &c., Richmond Terrace, Blackburn.

BRADFORD.—Aug. 22.—For erection of higher-grade girls' school and central classes at Carlton Street. Mr. C. H. Hargreaves, architect, 19 New Corridor, Exchange Buildings, Bradford.

BRADFORD.—Aug. 23.—For erection of conveniences at workhouse. Mr. Fred Holland, architect, 11 Parkinson's Chambers, Hustlergate, Bradford.

BURLEY-IN-WHARFEDALE.—Sept. 1.—For erection of a county private retreat at Scaleber Park. Mr. J. Vickers Edwards, county surveyor, Wakefield.

CONSETT.—Aug. 31.—For erection of the new institute-buildings in Park Road, Consett. Messrs. Plummer & Burrell, architects, 13 Grey Street, Newcastle-upon-Tyne.

DARWEN (LANCS.).—Aug. 25.—For erection of iron and steel buildings in connection with the new refuse destructor at Robin Bank Road. Mr. C. Costeker, town clerk.

DEVONPORT.—Aug. 29.—For erection of a public convenience at Northcorner Quay. Mr. John F. Burns, surveyor, Municipal Offices, Ker Street, Devonport.

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DURHAM.—Aug. 31.—For erection of a large chapel and school at Esh, near Waterhouses. Mr. George Rhymer, Tudhoe Colliery.

DURHAM.—Aug. 31.—For erection of institute buildings in Park Road, Consett. Messrs. Plummer & Burrell, architects, 13 Grey Street, Newcastle-upon-Tyne.

ELGIN.—Aug. 26.—For erection of a block of buildings at the corner of Academy Street and South Street. Messrs. A. & W. Reid & Wittet, architects, Elgin.

ELGIN.—Aug. 30.—For erection of a steam laundry and carpet-beating factory near the Highland Railway Station. Mr. C. C. Doig, architect, Elgin.

GARFORTH.—Aug. 22.—For alterations and additions to the farm buildings at the Manor Farm. The Clerks, Joint Agricultural Council, County Hall, Wakefield.

GLASGOW.—Aug. 22.—For erection of a reception-house in Weaver Street. Mr. John Lindsay, interim clerk, City Chambers, Glasgow.

GRANGEMOUTH.—Aug. 22.—For erection of a block of dwelling-houses in Forth Street. Mr. G. Deas Page, architect, Old Glebe Chambers, Falkirk.

HALIFAX.—Aug. 22.—For alterations and additions to premises in Broad Street. Messrs. Jackson & Fox, architects, 22 George Street, Halifax.

HALIFAX.—Aug. 23.—For erection of thirty-four houses near Pellon station. Mr. Medley Hall, architect, 29 Northgate, Halifax.

HALIFAX.—Aug. 24.—For additions to the administrative department of the borough hospital at Stoney Royd. Mr. E. R. S. Escott, C.E., borough engineer, Town Hall, Halifax.

HASLINGDEN.—Aug. 24.—For erection of boundary-walls, entrance-gates and railing on the land provided for a park and recreation-ground at Whitecroft. Mr. Walter Musgrove, town clerk, Municipal Offices, Haslingden.

HASTINGS.—Aug. 31.—For additions, alterations and sanitary works at Sandown (Old London Road) and Hollington Board schools. Mr. Arthur Wells, architect, Queen's Chambers.

HEREFORD.—For additions to the laundry at the General Infirmary. Mr. W. W. Robinson, architect, King Street, Hereford.

HULL.—Aug. 22.—For erection of Constitutional Club premises, Carr Lane. Mr. B. S. Jacobs, architect, Bowlalley Lane, Hull.

HULL.—Aug. 25.—For supply and erection of certain plant in connection with the electric-lighting works. Mr. A. S. Barnard, city electrical engineer, Dagger Lane, Hull.

ILFORD.—Aug. 23.—For erection of an underground latrine in the Broadway. Mr. Herbert Shaw, surveyor, 7 Cranbrook Road.

IRELAND.—Aug. 25.—For erection of two blocks of houses at Laurlie, Princeton Road, Bangor. Messrs. Young & Mackenzie, Donegall Square East, Belfast.

IRELAND.—Aug. 29.—For erection of a Masonic hall, Millisle Road, Donaghadee. Messrs. J. J. Phillips & Son, architects, 61 Royal Avenue, Belfast.

IRELAND.—Aug. 30.—For erection of a schoolhouse in Killaughy, Millisle. Rev. S. J. Lyons, Millisle.

KEIGHLEY.—Aug. 22.—For erection of a greenhouse in Lund Park. Mr. W. H. Hopkinson, borough engineer, Low Bridge.

KENDAL.—Aug. 29.—For erection of a dwelling-house in Chapel Close. Mr. John Stalker, architect, Kendal.

KENDAL.—Aug. 29.—For erection of two large semi-detached villa residences in Chapel Close. Mr. John Stalker, architect.

LEEDS.—Aug. 29.—For erection of twenty-eight trough water-closets, with valve chambers and ash-places, and making good the walls of several cottages with brickwork; supplying about 1,600 square yards of concreting, and making good the walls of several cottages with cement stucco. City Engineer (Insanitary Areas Department), Municipal Buildings.

LONDON.—Aug. 30.—For erection of a sorting office at Lee, S.E. Mr. Wager, H.M. Office of Works, Storey's Gate, Westminster, S.W.

LONDON.—Aug. 31.—For erection of the superstructure of Block 3 of the Parcel Depôt, Mount Pleasant, E.C. Mr. H. Tanner, H.M. Office of Works, Storey's Gate, Westminster, S.W.

LONDONDERRY.—Aug. 29.—For erection of two dwelling-houses in Northland Road. Mr. W. E. Pinkerton, architect, 8 Diamond, Londonderry.

MANSFIELD.—For enlargement of Holy Trinity Church, Shirebrook. Mr. Hedley J. Price, architect, 24 Low Pavement, Nottingham.

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MARYPORT.—Aug. 25.—For erection of cottage at Standing Stone, Broughton Moor, Maryport. Mr. Bowman Eilbeck, at above address.

MICKLEFIELD.—For erection of cottages for the Micklefield Coal and Lime Company. Plans and specifications may be seen at the Colliery Offices, Micklefield.

MIDDLESBROUGH.—Aug. 23.—For erection of retort-house, &c., at the gasworks. Mr. David Terrace, gas manager.

MORLEY.—Aug. 26.—Contract No. 1: For construction of about 817 lineal yards brick culvert, 3 feet internal diameter; about 140 lineal yards of brick culvert, 4 feet internal diameter; with manholes, storm-water overflow, &c. Mr. W. E. Putman, borough engineer.

MORTLAKE.—Aug. 26.—For erection of a postmen's office. Mr. Wager, H.M. Office of Works, &c., Storey's Gate, Westminster, S.W.

NEW MALDEN.—Aug. 26.—For erection of proposed public buildings. Mr. Thomas V. Herbert Davison, architect, New Malden.

NEWTON FERRERS.—Aug. 23.—For erection of a bungalow on the River Yealm Building Estate. Mr. James Ward, C.E., 1 George Street, Plymouth.

OXFORD.—Aug. 22.—For erection of cottages and farm buildings in the parishes of Littlemore and Sandford-on-Thames, near Oxford. Mr. W. H. White, city engineer, Town Hall, Oxford.

PETERBOROUGH.—Aug. 26.—For additions to the infants' school. School Correspondent, Stanground Vicarage, Peterborough.

PRESTON.—Aug. 22.—For erection of cottage, stable and outbuildings at Bushell's Hospital. Mr. Edward Garlick, 33 Winckley Square, Preston.

RISHTON.—For formation of bowling green, or erection of boundary, cellar, and foundation walls at the Conservative Club. Messrs. J. C. Howard Sandbach & J. Parker, architects, 15 Richmond Terrace, Blackburn.

ROCHDALE.—For erection of a billiard-room at the Healey Conservative Club, Ending. Messrs. S. Butterworth & Duncan, architects, South Parade, Rochdale.

ROMFORD.—Sept. 1.—For erection of a cottage, stable, stall and cart-sheds at the town yard, Market Place. Surveyor, Market Place, Romford.

SCOTLAND.—Aug. 25.—For additions and alterations to Fife Arms Hotel, Braemar. Mr. A. Marshall Mackenzie, architect, 1 Bon Accord Street, Aberdeen.

SHEFFIELD.—Aug. 29.—For erection of additional buildings at the destructor, Lumley Street, Attercliffe. Mr. Charles F. Wike, C.E., city surveyor, Town Hall, Sheffield.

ST. AUSTELL.—Aug. 29.—For erection of a Baptist chapel, West Hill. Mr. F. C. Jury, architect, Alma Villas, Tregonissey Road, St. Austell.

STRATFORD.—Sept. 2.—For erection of a museum at The Green, Romford Road. Messrs. Gibson & Russell, architects, 11 Gray's Inn Square, London, W.C.

SUNDERLAND.—Aug. 25.—For erection of a technical college at Green Terrace. Messrs. Potts, Son & Hennings, Ely Place, Holborn, London.

SWANSEA.—Sept. 19.—For erection of Manselton school, Mr. C. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

SWINDON.—For erection of the proposed Holy Rood schools and hall. Messrs. Silcock & Bray, architects, Octagon Chambers, Milsom Street, Bath.

TONBRIDGE.—Sept. 3.—For erection of proposed technical institute and free library. Mr. J. H. Phillips, St. John's Chambers, Cardiff.

WALES.—Sept. 1.—For erection of a classroom at Llechyfedach school, Llannon. Mr. W. Griffiths, architect, Llanelly.

WALTHAMSTOW.—Aug. 23.—For erection of public baths. Messrs. Spalding & Cross, architects, 15 Queen Street, Cheapside.

WARMINSTER.—Aug. 23.—For erection of a pair of cottages at Woodcock. Mr. W. H. Hardick, architect.

WATFORD.—Aug. 31.—For supply and delivery of electricity meters and main cut-outs, for twelve months from November 1, for the Urban District Council. Mr. W. C. C. Hawtayne, consulting engineer, Mansion House Chambers, 20 Bucklersbury, E.C.

WELLS.—Sept. 3.—For erection of a public hall and post-office buildings on the site of the present market hall. Mr. John Johnson, architect, 9 Queen Victoria Street, London, E.C.

WEST BROMPTON.—Oct. 12.—For erection of a laundry at the workhouse, Fulham Road. Mr. Edwin T. Hall, architect, 57 Moorgate Street, E.C.

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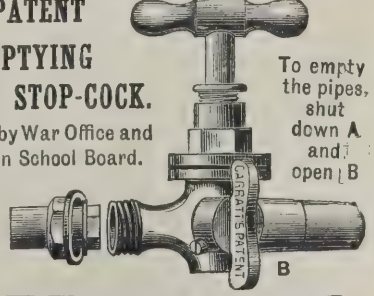
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BANBURY.

For repairs to stonework of parapet, walls and roof at town hall. Mr. N. H. Dawson, surveyor.

S. Orchard & Son	£37 0 0
J. S. Kimberley, Banbury (*accepted*)	31 10 0

For draining, metalling, chanelling, &c., portion of Queen Street. Mr. N. H. Dawson, surveyor.

S. Orchard & Son	£297 0 0
J. S. Kimberley, Banbury (*accepted*)	263 0 0

BARNSLEY.

For conversion of engine-house in furnace yard, Worsborough Bridge, into a dwelling-house. Mr. J. Whitaker, surveyor.

W. Barrow	£155 0 0
Higham & Son	115 0 0
W. Higham	113 0 0
Turton & Field	108 0 0
Porter & Son, Worsborough, Barnsley (*accepted*)	95 0 0

BILLINGSHURST.

For erection of house on the Eastlands Estate. Mr. C. H. Burstow, architect, 6 West Street, Horsham.

Wadey & Sons	£910 0 0
G. Marden	798 0 0
J. Ockenden & Sons	780 0 0
H. Spooner, Loxwood, Billingshurst (*accepted*)	650 0 0

BRIDLINGTON QUAY.

For painting and papering Carnaby House. Mr. J. Earnshaw, architect, Wellington Road, Bridlington Quay.

G. W. Sawdon	£83 0 0
J. E. Garland	79 16 0
G. Knaggs (*accepted*)	74 0 0
E. Gunn	34 0 0

For alterations and additions to Carnaby House. Mr. J. Earnshaw, architect, Wellington Road, Bridlington Quay.

W. Barnes	£358 0 0
T. Foster	289 16 9
Spink, Bridlington Quay (*accepted*)	253 0 0

BRIGHTON.

For alterations and additions to gentlemen's cloakroom and lavatory at the Royal Pavilion. Mr. Francis J. C. May, engineer, Town Hall, Brighton.

Sattin & Evershed	£346 0 0
T. C. Nye	333 0 0
V. P. Freeman, Kensington Street (*accepted*)	320 0 0

BRISTOL.

For erection of factory, Lewin's Mead. Mr. Fred Shove, architect, 8 Colston Avenue, Bristol.

T. H. Brown	£2,770 13 0
J. Bastow	2,500 0 0
J. Perkins	2,250 0 0
W. Foster	2,219 0 0
H. A. Forse	2,200 0 0
Stephens & Bastow	2,198 0 0
W. Hatherly	2,197 0 0
Hughes & Weekes	1,968 10 0
D. J. Tanner	1,967 0 0
J. B. Davis	1,950 0 0
Lovell & Son, Park Row, Bristol (*accepted*)	1,889 0 0

BURTON-UPON-TRENT.

For a new retort-house iron roof at the gasworks. Mr. F. L. Ramsden, engineer, Gas and Electric Light Works, Burton-upon-Trent.

Gough & Felgate, Burton-upon-Trent (*accepted*)	£589 13 6

CARDIFF.

For supply of fifty ordinary lamp pillars. Mr. W. Harpur, borough engineer.

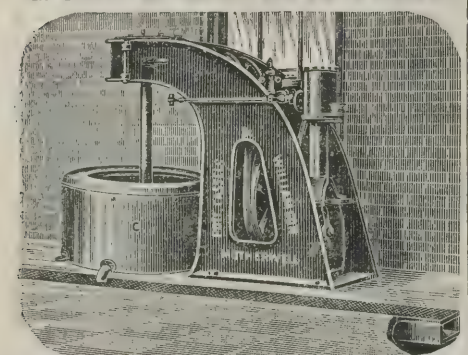
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For paving in Oldham Road, Buersil. Mr. R. J. Webster, surveyor.

S. Fletcher, 7 Millbank Terrace, Heywood (*accepted*).

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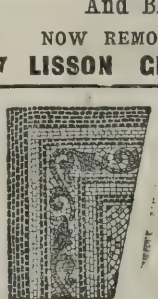
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For alterations to savings bank, Fisher Street. Mr. H. HIGGINSON, architect, Carlisle.

Accepted tenders.

E. J. Hill, builder.
J. Foster, joiner.
W. Anderson, plumber.
D. Armstrong, slater.
R. M. Omerod & Sons, plasterer.
R. W. Westray, painter, &c.
Total, 469*l.* 5*s.*

For alterations and additions to business premises, English Street. Mr. H. HIGGINSON, architect, Carlisle.

Accepted tenders.

W. & H. Davidson, builder.
J. Plaskett, joiner.
W. Forster, plumber.
T. Kellet, slater.
Ferguson & Sons, plasterer.
R. S. Kirk, painter.
Total, 1,700*l.*

For erection of houses and shops, West Tower Street. Mr. H. HIGGINSON, architect, Carlisle.

Accepted tenders.

W. & H. Davidson, builder.
H. Court, joiner.
Graham & Crawford, plumber.
J. T. Kellett, slater.
S. Ferguson & Sons, plasterer.
R. R. Westray, painter, &c.
Total, £1,438 10*s.*

For erection of dwelling-house, Howard Place. Mr. H. HIGGINSON, architect, 3 Lonsdale Street, Carlisle.

Accepted tenders.

Gordon & Logan, builder.
J. Bell, joiner.
W. Anderson, plumber.
C. J. Nanson, slater.
R. M. Ormerod & Son, plasterer.
R. S. Kirk, painter, &c.
Total, £1,091 19*s.*

CARLISLE—*continued.*

For erection of lodging-house, Lowther Street. Mr. H. HIGGINSON, architect, Carlisle.

Accepted tenders.

J. & R. Bell, builder.
J. H. Reed, joiner.
W. Anderson, plumber.
J. Hewitson, slater.
J. Harrington, plasterer.
C. H. Bray, ironwork.
W. N. Ballantine, painter.
Total, £4,293 17*s.*

For erection of house and shop, Haltwhistle. Mr. H. HIGGINSON, architect, Carlisle.

Accepted tenders.

Longstaff & Sons, builder.
T. H. Robinson, joiner.
Clark & Kitchen, plumber.
J. Hewitson, slater.
A. Scudamore, plasterer.
T. Snowball, painter.
Total, £568 8*s.*

CHARTHAM.

For carrying-out redrainage and other works at Chartham Asylum, Kent. Mr. W. J. JENNINGS, architect, Canterbury.

Martin	£22,189 0 0
Paramor & Sons	21,500 0 0
Pryor & Sons	21,000 0 0
Keeler	19,434 0 0
Hill	18,656 0 0
Wise	18,392 0 0
SAUNDERS & Co., Southampton (*accepted*)	17,300 0 0

CRAWLEY.

For erection of shops and houses in High Street. Mr. C. H. BURSTOW, architect, 6 West Street, Horsham.

Cook & Sons, Crawley	£1,699 0 0
Steer, East Grinstead	1,696 0 0
J. OCKENDEN & SONS, Crawley (*accepted*)	1,659 0 0

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CORSHAM.

For erection of parsonage at Corsham Side. Mr. Harold Brakspear, architect, Corsham.

R. Rudman, Chippenham (*accepted*)	£750 0 0

DARTMOUTH.

For erection of a villa at Ford Hill. Mr. J. A. Brand, architect, 3 Victoria Road, Dartmouth.

J. F. Voisey	£917 0 0
G. Row	835 0 0
H. Anderson	822 0 0
J. E. Short	798 0 0
J. Back (*accepted*)	739 10 0

DONCASTER.

For erection of an isolation hospital in Common Lane, Balby. Mr. William H. R Crabtree, borough surveyor.

W. Johnson, Printing Office Street (*accepted*).

EASTBOURNE.

For painting portion of the sanatorium. Mr. R. M. Gloyne, borough engineer.

J. Towner	£70 0 0
Maple & Co.	63 0 0
A. Hudson, Terminus Place (*accepted*)	60 0 0

ELGIN.

For erection of a refreshment room at the Auction Mart. Mr. Charles C. Doig, architect, Elgin.

Accepted tenders.

J. Grigor, carpenter.
J. Wilson, slater.
G. Gray, plasterer.
W. Lyon & Sons, plumber.
W. Fordyce, painter.

GUILDFORD.

For reconstruction of surface-water drains and new works of drainage in connection therewith. Mr. C. G. Mason, borough surveyor.

Pedrett & Co.	£6,224 14 0
G. A. Franks	5,074 5 3
Streeter Bros, Godalming (*accepted*)	4,225 3 2

HALTWHISTLE.

For erection of two shops and dwelling-houses. Mr. H. Higginson, architect, Carlisle.

Accepted tenders.

Longstaff & Son, builder.
T. H. Robinson, joiner.
J. T. Kellett, Carlisle, slater.
W. Anderson, Carlisle, plumber.
W. Barker, Brampton, plasterer.
Total, £749.

HECKMONDWIKE.

For erection of engine and boiler house, chimney, &c., at the Central Stores. Mr. Arthur A. Stott, architect, Heckmondwike.

Accepted tenders.

J. B. Allatt, excavator, mason and bricklayer.
H. Spivey, Liversedge, carpenter and joiner.
J. Lister, ironwork.
W. Walker, plumber and glazier.
J. B. Greenwood, concretor.
J. M. Thornton, slater.
A. Hey, painter.

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For works of sewerage and sewage disposal. Messrs. Sharman & Archer, Wellingborough, engineers.

Siddons & Freeman	£2,044 0 0
E. Brown & Son	1,750 0 0
G. Henson	1,654 12 6
W. G. Willmott, Rushden, R.S.O. (*accepted*)	1,623 0 0
Ford & Hudson	1,597 15 10

HORWICH.

For erection of square brick chimney, 45 yards high. Mr. E. W. Dyson, engineer, 17 Lee Lane, Horwich. Quantities by the engineer.

F. Leonard, Adlington, Lancs	£364 2 10

IRELAND.

For painting and papering inside and outside doctor's residence at Gurteen.

J. Meldrum & Sons	£53 0 0
J. O'Daniell, Boyle (*accepted*)	35 0 0
J. Gordon	34 15 0
J. Black (*too late*)	29 10 0

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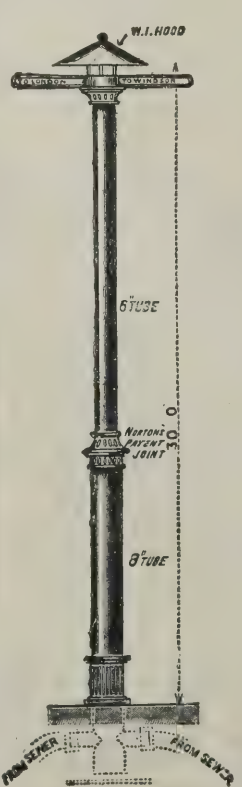
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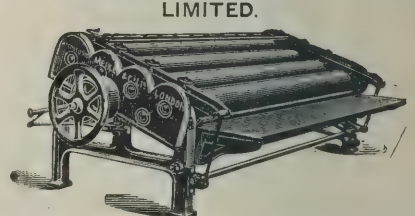
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12-inch borehole 300 feet.

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T. BAIRD (*accepted*)	90 0 0

Sinking well 50 feet deep 11 feet diameter.

T. BAIRD (*accepted*)	76 0 0

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For construction of two settling-tanks, filter, pumping-well, &c., at Lemonroyd, Rothwell. Mr. SAM SHAW, engineer, Union Street, Dewsbury.

M. Arundel	£604 12 0
J. Keightley	583 8 6
A. BRAITHWAITE & Co, 13 Park Square, Leeds (*accepted*)	548 12 10

LONDONDERRY.

For erection of dwelling-house. Mr. T. JOHNSTON, architect, 11 East Wall, Londonderry.

W. J. Maultsaid	£250 0 0
J. Colhoun	220 0 0
J. Hutton	195 0 0
H. CAMPBELL, Violet Street, Londonderry (*accepted*)	184 5 0

LONDONDERRY—*continued.*

For providing and fixing gasfittings in the County Court House. Mr. A. C. ADAIR, surveyor, County Court House, Londonderry.

BAXTER (*accepted*)	£63 0 0

LONDON.

For addition to the Eagle Hotel, Snaresbrook, E. Mr. HERBERT RICHES, architect and surveyor, 3 Crooked Lane, King William Street, London, E.C.

W. MUNDY (*accepted*)	£240 0 0

For alterations at the the Caledonian Tavern, Stoke Newington Road, London, N. Mr. HERBERT RICHES, Architect, 3 Crooked Lane, King William Street, London, E.C. Quantities supplied.

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For erection of classroom and alterations at the school, Maxey. Mr. STALLEBRASS, architect, North Street, Peterborough.

Pine & Letall	£485 0 0
Hipwell	400 0 0
ASPITTLE & NEAVERSON, Werrington (*accepted*)	398 0 0

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For erection of a factory at Ouseburn. Mr. HARRY W. TAYLOR, architect, Newcastle-on-Tyne.

E. & T. George	£1,300 0 0
T. & R. Lamb	1,284 0 0
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For electric lighting of workhouse.

Ames, Garrard & Co., Northwich (*accepted*)	£148 10 0

OMAGH.

For repairs to the chimney of the workhouse kitchen.

P. Gwin, Omagh (*accepted*)	£9 19 0

RAWTENSTALL.

For construction of about 900 lineal yards of 12-inch main sewer, connections, storm-water drains, gullies, &c., in Dean Lane. Mr. A. W. Lawson, borough surveyor.

J. Moore, Accrington (*accepted*)	£636 1 9

RICHMOND.

For construction of about 500 yards of 15-inch stoneware pipe sewer from Sheen Road along Lichfield Gardens and through the railway company's goods and passenger station yards to Parkshot. Mr. J. H. Brierley, borough surveyor.

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For extension and improvement of the front or north pier. Mr. John Russell Thomson, engineer, 5 High Street, Rothesay.

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Gillespie Bros.	16,426 2 9
A. M. Sporran & Co.	16,227 10 5
R. Brebner & Co.	16,052 14 3
J. Goldie & Son	13,671 3 0
W. Kennedy	13,395 15 1
G. Halliday, Rothesay (*accepted*)	13,257 3 10

SCOTLAND.

For painters' work of new school at Crossgatehead, Polmont.

F. Mitchell, Grangemouth (*accepted*).

SHAW.

For erection of public baths in Farrow Street. Messrs. Wild, Collins & Wild, 15 Clegg Street, Oldham, architects.

S. & J. Smethurst, Grinbies Brickworks, Rochdale Road, Oldham (*accepted*).

ST. ALBANS.

For erection of a retaining wall in Harpenden Road.

E. Dunham	£99 0 0
J. & W. Savage, St. Albans (*accepted*)	85 6 6

For works of painting at the Alma Road Board schools. Messrs. Clarkson, architects, St. Albans.

Whibley & Jervis	£245 0 0
E. Dunham	236 0 0
J. & W. Savage	227 6 0
Bushell	224 0 0
Hisket & Ewer	167 12 0
Miskin & Son (*accepted*)	165 0 0

STROOD.

For erection of an assembly hall in connection with the Wesleyan Sunday schools, Cliffe Road. Messrs. J. W. Nash & Son, architects, Rochester.

H. Whittle	£1,532 4 6
E. D. Seagars	1,460 0 0
J. Wilford	1,454 0 0
C. E. Skinner	1,432 0 0
H. E. Filley	1,425 0 0
H. Phillips	1,405 0 0
J. L. Trueman	1,357 0 0
H. Wyles, 114 Luton Road, Chatham (*accepted*)	1,250 0 0

SOUTHALL.

For erection of Bricklayers' Arms public-house. Mr. Chas. P. Ayres, architect, Watford.

Brightman	£1,163 0 0
Turner & Co.	1,130 0 0
A. & B. Hanson, Southall (*accepted*)	1,090 0 0

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SWANSEA.

For alterations and additions, draining, tar-paving, sliding partitions, &c., to the Rutland Street School, for the Swansea Urban District School Board. Mr. THOMAS H. JONES, architect. Quantities by architect.

W. Williams	£1,400 0 0
D. Jenkins	1,350 0 0
Marls & Son	1,317 7 5
Lloyd Brothers	1,180 0 0
T. Davies	1,150 0 0
T. Wakins & Co.	1,139 0 0
Bennett Bros.	1,130 0 0
G. Crocker	1,085 3 0
E. Morgan	1,070 0 0
J. Goodridge	1,025 0 0
G. Davies	1,000 0 0
T. Richards	999 0 0
J. & F. Weaver	992 2 10

USK.

For providing and setting about 146 yards lineal of kerbing and providing materials and laying about 270 square yards of tar asphalte paving. Mr. T. REES, jun., surveyor.

J. MONKS & Co., Newport, Mon. (*accepted*)	£48 6 9

WALES.

For constructing sewage pumping station and settling tanks, and supplying and laying 2,200 lineal yards of stoneware and cast-iron pipe sewer, with manholes, lampholes, flushing tanks, &c., for the sewerage of Pontcanna into the main sewer of the Ystradyfodwg and Pontypridd Main Sewerage Board. Mr. W. FRASER, engineer, Llandaff Chambers, 35 St. Mary's Street, Cardiff.

C. H. Cooksley	£5,217 3 11
F. Ashley	3,693 0 1
Barnes, Chaplin & Co.	3,555 18 6
E. H. PAGE, Castle Street, Cardiff (*accepted*)	3,473 16 7
Williams & Thomas (*withdrawn*)	3,262 18 6

For alterations and additions to Hyfrydle Welsh C.M. chapel at Cefn. Mr. J. W. JONES, architect, Brooklea, Acrefair, Ruabon.

Jenkins & Jones	£424 0 0
J. T. Jones	395 0 0
R. HOBLEY (*accepted*)	375 0 0

WALES—*continued.*

For supplying and laying about 290 lineal yards of cast-iron and stoneware pipe sewer, with manholes, &c., in the parish of Whitchurch. Mr. W. FRASER, engineer, Llandaff Chambers, 35 St. Mary Street, Cardiff.

C. H. Cooksley	£1,844 1 0
J. Wood	248 18 0
W. Davies	236 8 8
Monk & Newell	233 6 0
F. Ashley	226 2 4
Williams & Thomas	215 2 0
Barnes, Chaplin & Co.	205 15 8
E. H. Page	196 8 2
E. MOORE, 63A Clive Road, Canton, Cardiff (*accepted*)	191 9 6

WARKWORTH.

For proposed sewerage works at Warkworth, consisting of 9 yards of 15-inch cast-iron pipes, with tidal flap 230 yards of 15-inch, 640 yards of 12-inch, and 610 yards of 6-inch sanitary pipes, with settling-tanks, junction manholes, &c. Mr. M. T. WILSON, surveyor, Alnwick.

G. E. Simpson	£649 16 8
J. & R. Johnson	641 7 0
J. Thompson	630 10 6
J. & G. GREEN, Warkworth (*accepted*)	595 19 0

WARWICK.

For addition and alterations at the Westgate and Coten End Board schools. Mr. F. H. MOORE, architect, 2 Northgate Street, Warwick.

Coten End School.

E. TALLISS, Westgate (*accepted*)	£387 0 0

Westgate School.

E. TALLISS, Westgate (*accepted*)	164 0 0

WIMBLEDON.

For erection of a detached house at Wimbledon Park. Mr. H. PHELPS DREW, architect, 33 King Street, Covent Garden. Quantities by the architect.

Dickens	£1,650 0 0
Edwards & Medway	1,350 0 0
Norton	1,250 0 0
Pater & Co.	1,200 0 0
BURGES, Wimbledon (*accepted*)	1,180 0 0

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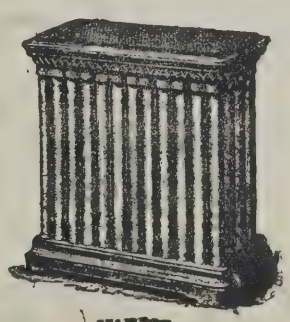
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WOOLWICH.

For pulling-down and rebuilding 17 and 19 Hare Street Messrs. CHURCH, QUICK & WHINCOP, architects.

Proctor	£2,397	0	0
Ware	2,070	0	0
Kitley	1,950	0	0
Sandford	1,879	0	0
THOMAS & EDGE (*accepted*)	1,867	0	0

For alterations to Fox & Hounds public-house, Plumstead Common Road. Messrs. CHURCH, QUICK & WHINCOP, architects.

Kitley	£697	0	0
Proctor	678	0	0
Ware	665	0	0
Sandford	658	0	0
Hodgin	650	0	0
Foreman	638	0	0
THOMAS & EDGE (*accepted*)	634	0	0

For pulling-down and rebuilding 40, 42 and part of 44 Hare Street. Mr. PERCY H. MONCKTON, architect.

West Bros.	£4,515	0	0
Nightingale	4,224	0	0
Battley, Son & Holness	4,045	0	0
Jerrard & Son	3,984	0	0
J. Greenwood	3,960	0	0
H. L. Holloway	3,947	0	0
Thomas & Edge	3,906	0	0
Harriss & Wardrop	3,803	0	0
Turtle & Appleton	3,530	0	0

WREXHAM.

For erection of a bridge over the river Gwenfro at Stryt y bidden, Broughton. Mr. JOHN STRACHAN, surveyor, Crispin Lodge, Wrexham.

DAVIES & SON, Rhostyllen, near Wrexham (*accepted*)	£138	0	0

For extension of sewer at Southsea, Broughton. Mr. J. PRICE EVANS, engineer, Argyle Chambers, Wrexham.

R. Williams	£480	0	0
A. McHutch	478	0	0
Phillips & Jones	452	0	0
S. Moss	444	0	0
WILCOCK & LANGLEY, Leavewood, Mold (*accepted*)	279	0	0

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: NAVE, LOOKING EAST. DOORWAY IN CLOISTERS. TOP OF CENTRAL GABLE, WEST FRONT.

WINTHORPE, EPSOM.

DESIGN FOR PROPOSED JUBILEE CLOCK TOWER, LEWISHAM.

APARTMENT HOUSE IN THE CHAMPS-ELYSEES, PARIS.

BUILDING AND BUILDERS.

THE foundation-stone was laid on the 11th inst. of a new Wesleyan chapel at Overstrand.

A NEW memorial Free church of Gothic design is to be erected in Castleford, at a cost of 2,500*l.*

THE foundation-stones of a new Wesleyan church were laid at Scunthorpe on the 10th inst. The estimated cost of the land and building is 6,293*l.*

THE Great Eastern Railway Company are about to erect a new station, at a cost of nearly 50,000*l.*, to meet the increasing traffic of the popular seaside resort, Clacton-on-Sea.

THE Rev. A. G. Humfrey, the rector of Thorpe Mandeville, is making strenuous efforts to raise a sum sufficient to pay for the restoration of the church tower, which, he says, is in a very dilapidated and dangerous state, and needs immediate repair. The amount required is estimated at 300*l.*

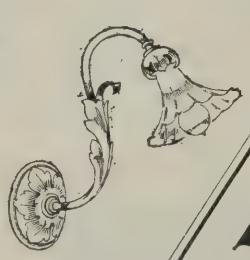
TENDERS have been accepted and the erection will be at once proceeded with, of a block of almshouses at Aberdeen. The buildings are being provided by the trustees in the carrying out of the wishes of the deceased Earl of Moray, and will provide ten houses for deserving persons who formerly had some connection with the Donibristle estate.

PLANS have been passed for the erection at Woodside, Hamilton, at a cost of about 8,000*l.*, of an elementary school to accommodate 824 children. The designs, which are by Mr. Gavin Paterson, architect, show a structure of Grecian design, two storeys high. It is to be equipped in accordance with the most modern educational ideas, including a large central hall.

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About four months ago the journeymen plumbers of Montrose struck work on their employers refusing to increase the wages from 7*d.* to 7½*d.* per hour. The men ultimately resumed work on the understanding that a conference to arrange matters should be held within a certain period. At the expiry of that time the conference was held, but it was resultless. However, owing to the action of one employer all the journeymen have had their rate of wages increased to 7¼*d.* per hour.

In connection with the raising of 100,000*l.* for Congregational church extension in centres of large population, the special committee of the Congregational Union has made among first grants 1,000*l.* to the Sheffield Congregational Association, being 500*l.* for a church at Hunter's Bar, and 500*l.* for another church at Crookes, near Sheffield, and 500*l.* each for the erection of churches at West Hartlepool and Gateshead, on conditions determined by the County Union.

The foundation-stone was laid on the 14th inst. of a new Roman Catholic church at St. Margaret's, Finglas. The building, of which Mr. G. L. O'Connor is the architect, will be Early English Gothic in character. The nave is to be 80 feet long by 32 feet wide, with chancel, sacristies, &c., and will be capable of accommodating 400 persons. The walls will be built of limestone masonry, lined throughout with brick strengthened by buttresses ; the roof of open timber, constructed with curved ribs, moulded principals, &c. ; a handsome porch will shelter the principal entrance at the west side of the church and a neat cut stone base and ornamental railings encircle the grounds.

The strike of operative masons at Lancaster has been settled. The masters are members of the Lancashire and Cheshire Building Trades Federation, and they agreed to abide by the terms upon which the dispute in Manchester and other towns was settled. This meant an advance to 9½*d.* per hour in March next, but the Lancaster men demanded an immediate advance, and refused to commence work. The Federation called upon the operatives' executive in London to adhere to the settlement. The latter promptly ordered the strike to terminate, intimating that if they did not stop the strike pay would cease. This caused the men to agree to the terms, which were accepted by the masters.

The foundation-stone of the Jenny Lind infirmary at Norwich has been laid, and the work of erection is now in active progress. The building will be of brick, relieved with stone dressings, in Free Renaissance style. It will contain the nurses' sitting-rooms and bedrooms on the upper floors. In the rear will be the domestic offices, and on either side will be a wing to be used as a patients' ward. The kitchens and offices are so placed as to be within easy reach of all departments. The wards will be placed on arches so as to admit of a free circulation of air beneath the floors, and the nurses' living rooms will be quite apart from the hospital proper. The cost of erection and furnishing is estimated at 12,000*l.* Messrs. Boardman & Son are the architects, and Mr. T. H. Yelf the contractor.

A church and manse are in course of erection at Howth for the Howth and Malahide Presbyterian congregation. They are being built from the designs of Mr. Arthur Young, of Westminster, selected in the architectural competition held last summer, and when completed will seat about 350. It consists of a nave and transepts with a western tower, and with a vestry and sessions-room attached. The style of the buildings is Gothic of the Perpendicular period, and the group of the church, with its low embattled tower, and the gabled manse, with picturesque tiled roofs and half-timbered porches, will be a pleasant addition to the landscape, with the majestic Hill of Howth forming the background.

The contract for the construction of a sewerage system at Farsley, Yorks, and for the construction of outfall works at Rodley, for the Farsley Urban District Council, has been let to Mr. Wm. Brigg, Shipley Fields, Frizinghall. The amount of the contract is about 12,000*l.* The works are to be completed by the end of September, 1899. A commencement has already been made with the work at Bagley.

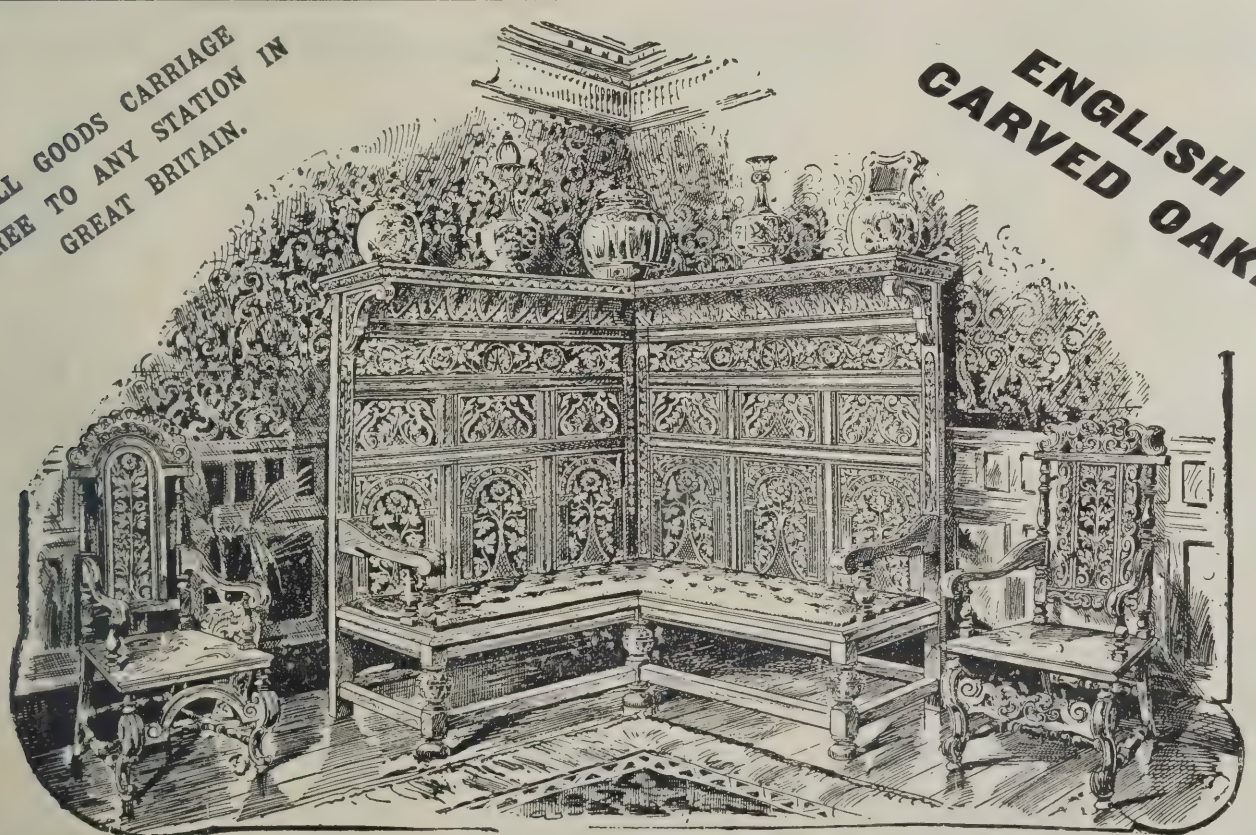
ELECTRIC NOTES.

Arrangements have been made for the placing of a number of powerful electric arc lamps in the forecourt and stable yard at Marlborough House, which are at present very indifferently lighted.

The tramways committee of the Liverpool Corporation have adopted a resolution that the Council be recommended to authorise the tramways committee to take steps to have plans, sections and estimates prepared to continue the overhead electric traction tramways from the termination of the experimental line at the Dingle to the end of Aigburth Road, and also for an extension of the experimental line from the Prince's

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Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, d Decorations

Park gates along Croxteth Road to Lodge Lane, in accordance with the lines as authorised by the tramways provisional order of this session.

VARIETIES.

THE schools which have been erected by the Burnham-on-Crouch School Board were formally opened on the 12th inst.

THE ancient walls surrounding the borough of Conway have been reopened after restoration.

A ROMAN CATHOLIC church which has been erected at a cost of 9,000*l.* was opened at Eccles on the 15th inst.

A CHARTER of incorporation has been received by the governing body of Hove, which has between thirty and forty thousand inhabitants.

THE chancel of Holy Trinity Church at Wakefield has been laid with mosaic pavement as a memorial to the late Rev. Canon Madden, for thirty-eight years vicar of the parish.

THE Duke and Duchess of Westminster on Saturday drove from Eaton Hall to Halkyn, Flintshire, where the Duchess opened a public hall and library erected by the Parish Council at a cost of about 900*l.*

THE recently completed and decorated chancel of St. Mary's Mission church, St. Helens, Lancashire, was used for the first time on Sunday last.

A WINDOW in memory of Principal Caird is to be placed in the Bute Hall, as a distinctive memorial by those who have been, or are, students of the University of Glasgow. The cost of the undertaking is estimated at about 1,000*l.*

PRINCESS HENRY OF BATTENBERG, at Carisbrooke Castle, on the 11th inst., opened a museum established as a memorial in the Isle of Wight of the late Prince Henry of Battenberg, Governor of the island.

THE formal dedication of the tower which has been erected on the parish church of Thornaby, Yorkshire, was performed on the 11th inst. The church was built in 1858, at a cost of 3,000*l.*, but owing to lack of funds the tower remained unbuilt until now.

THE War Department has decided to demolish Landguard Fort at Harwich. The fort is, however, to be reconstructed and improved, so that it will accommodate three batteries instead of one, as at present.

THE Wiggenhall St. Mary (Norfolk) Parish Council has publicly invited metropolitan financiers to tender for a loan of 400*l.* for a new cemetery, to be repaid in forty years. This is said to be the first loan ever publicly offered by any parish council.

THE Mersey Docks and Harbour Board have sanctioned schemes for improvements at the Huskisson, Coburg and Brunswick Docks, at an aggregate cost of 200,000*l.* It was also decided to increase the passenger shelter and waiting-room accommodation on the landing-stage at an expense of 7,500*l.*

SOME workmen employed by Messrs. Price & Wills, contractors, while engaged in excavating the foundations for the walls of the new graving dock at Barry, came across a human skull and arm-bone embedded in the earth. The remains were at the edge of the cutting, and it is expected that when excavations are proceeded with other bones of the same skeleton may be found. Several antelope horns have also been unearthed near the same spot.

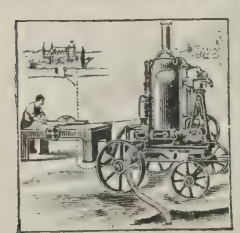
THE new South-Eastern Hotel, Deal, which has been erected for the South-Eastern Railway Company, has just been formally opened. The hotel is situated on the sea-front next to Deal Castle, from which it is only a few yards distant, and commands a fine view over sea and Downs. The hotel is a conspicuous object on the sea-front. It has been built in accordance with modern ideas, and is handsomely appointed; there are lifts to all floors, and the lighting is by electricity from a private installation.

ONE of the remaining old houses in Fleet Street, situate opposite Chancery Lane, which is said to have been formerly the palace of Cardinal Wolsey, has had to be shored up in consequence of losing the support of Gosling's Bank next door, that old building having recently been pulled down. The other side of the house, abutting on Inner Temple Lane, has also been affected, and has had to be strengthened by supports.

THE Bishop of Wakefield has received from Sir Robert Tempest, Bart., a further donation of 1,000*l.* towards the Bishop How memorial scheme for enlarging Wakefield Cathedral. Further meetings are to be held in the diocese in the coming autumn, and it is hoped that the first 10,000*l.* needed in order to commence actual work will shortly be secured.

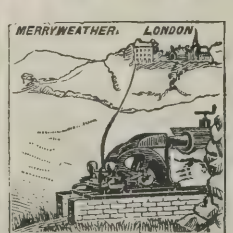
ON Tuesday morning a portion of a block of buildings in Ellesmere Street, Manchester, collapsed, the roof and the two floors beneath crashing to the ground simultaneously. The

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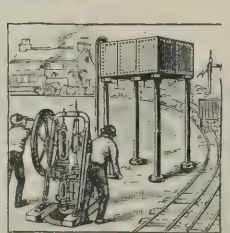

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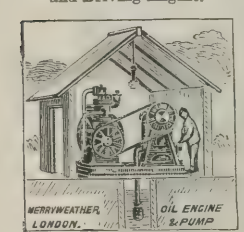

"India" Pattern Pumping Engine.



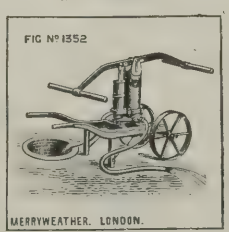
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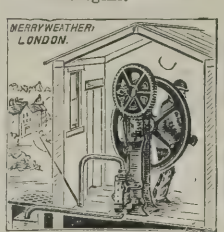
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part of the building where this happened has a frontage of about 45 feet, and extends about 25 feet backward, and it is used by Mr. R. B. Wood as a weaving mill. The accident is assumed to have been caused in some way through the removal of a large boiler in the basement. There were about 100 persons employed in the rooms, but they received warning to clear out of the building, as it was noticed by those who were attending to the taking out of the boiler that everything was not so secure as it might have been. The warning was given not a moment too soon, as the last of the employés were scarcely in the street when the roof and the floors beneath fell.

A NUMBER of members of the Chester Town Council, waterworks shareholders, corporation officials and a few citizens accepted the invitation of the directors of the waterworks company to visit the works in Boughton on the 11th inst. on the occasion of the opening of a new filtering reservoir. The new filtering bed is near the entrance to the works, and is the sixth the company has constructed. The company's object is, of course, to extend the filtration operations and storage capacity of the works, and it is estimated that the new bed will enable them to cease pumping for a period of forty-eight hours without exhausting their stored supply. The cessation could last twenty-four hours under previously existing circumstances, but the new arrangement will afford double security against the risks of taking water from the river during times of flood, or tidal washes from below. The new bed covers an area of 2,000 square yards, with a capacity of storing three-quarters of a million gallons of water. It will filter 18,000 gallons per hour, and there is a special arrangement whereby the water is transferred from a neighbouring reservoir without the possibility of contamination from animal or vegetable matter. The water after being allowed to stand eight hours in this bed is let off into the clear water reservoir, and then it is raised by the engines into the covered reservoir ready for distribution.

IT is expected that the new Custom House which is now being erected in Cardiff will be ready for opening about the end of September. The building, the contractors for which are Messrs. W. Thomas & Co., of Cardiff, was designed by Mr. Tanner, architect to Her Majesty's Board of Works, London. It is a mixed style of Classic architecture and three storeys high, the front which faces Bute Street being in Portland stone, effectively relieved with carvings by Mr. Clarke, of Llandaff, while the side and rear are in white brick, partly relieved with Portland stone dressings. The entrance is from Bute Street, by means of a forecourt at the side nearest the Pier Head. On the ground floor in front is situated the office of the chief preventive officer and surveyor, having immediately behind it the bookroom. At the rear of the premises on the same floor, and reached by a corridor leading from the entrance-hall, are the Queen's warehouse and watchers'-room, while a spacious yard at the rear of the premises opens on to the West Dock. The first floor is devoted, in front, to the testing-room, which overlooks the street, and to the store-room immediately behind, and at the rear to the collector's office and long-room. The latter, which is the principal apartment in the building and where the public transact their business, is a spacious and lofty room, having a length of 37 feet and being 27 feet wide, and is entered from the first floor landing through a pair of large swing doors. The top storey has been set apart for the caretaker and domestic offices, while in the basement are located the heating chamber, wood and coal stores, &c. The whole of the sanitary arrangements are excellent, including especially the ventilation of the long-room, which is by means of a patent air extractor. The offices on the ground and first floors are laid with wood-block flooring, supplied and fixed by the Government, and on the ground floor the entrance hall and corridors are laid with York paving.

THE Stephenson Memorial Hall, Chesterfield, having undergone reconstruction whereby its accommodation is very greatly increased, was reopened on Monday last. Many improvements have been made. On acquired ground at the end of the hall a commodious stage has been erected than which there are very few larger in the provinces. Underneath the stage is large storage for scenery, chairs, &c. The flies, bridge and grid are on the latest and most improved principle. The proscenium opening has been made as large as possible so that the stage may be used by a large choir, as well as for theatrical performances. A fireproof curtain by Merryweather divides the stage from the auditorium and can be raised or lowered in a few seconds. Six new dressing-rooms have been built alongside the stage, and are fitted with all necessary lavatory accommodation. The two old retiring rooms on the Back Lane side have been made suitable for the altered portion of the stage. The public hall has now a floor space of 68 feet by 46 feet 6 inches. The gallery, which runs along two sides and the back of the hall, has not been altered. The heating, ventilation and lighting of the hall have been revised, and the walls, ceilings and gallery have been cleaned and re-decorated. The auditorium and stage have been fitted up with hydrants and

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fire-extinguishing appliances. A water service main has been connected to the main in Corporation Street for this purpose alone, and a flow of water can be turned on at any time. The entrances to the hall have been entirely rearranged. The front entrance way has been retained, and there are three entrances to the hall and gallery on the Corporation Street side. In Station Back Lane are exit doors to the hall and gallery.

The Cookridge Street Baths sub-committee of the Leeds City Council had on Wednesday under consideration the alterations which it is proposed to carry out at the Cookridge Street Baths, recently acquired by the Corporation, and which it is expected will cost about 5,000*l.* At the present time ladies' days are set apart at the other Corporation baths, but in consequence of the large number of persons who wish to make use of the baths this has been found to be a very inconvenient arrangement, and the committee intend to make the gentlemen's first-class bath at Cookridge Street Baths shallower and to turn it into a ladies' bath. This will enable them to do away with ladies' days at the other baths. The large swimming bath at Cookridge Street, which has not been used for some time, will be altered and made into a first-class gentlemen's swimming bath. Its length will be shortened to 75 feet, which will make it a multiple for racing purposes, and at one end a gallery will be erected. With regard to the Turkish Baths it is intended to introduce all the latest improvements, and with the object of inspecting recently erected baths, Harrogate and Openshaw (Manchester) will be visited. The committee also considered the regulations which have been in force for the first-class Turkish baths. Ten tickets could be purchased for 1*l.* and sixty for 5*l.*, but the committee now decided that 2*s.* 6*d.* should be charged for one ticket, 10*s.* 6*d.* for six tickets and 1*l.* for twelve tickets. Mr. Green Hirst (the chairman) presided.

The adjourned public meeting to consider the question of pulling down the block of buildings in the Market Place, Richmond, Yorks, known as the Toll Booth, and the erection of a new Town Hall and Municipal Buildings on the site—between the present Town Hall and the Market Cross—was held on Tuesday evening. The Mayor (Councillor Sidney Robinson) presided, and gave a comparison of the two sites, and pointed out that they would not be able to raise a new Town Hall higher than the present Toll Booth, for they would then be shutting out the light of Lord Zetland's The Golden Lion and other property, whilst they would be losing a rental of 142*l.* per annum. As to the present character of the Toll Booth property, he found the outer walls generally very good, and the cost of putting it into a sanitary state would be about 120*l.* They had room to extend the present Town Hall if they desired. He consistently opposed the scheme, and in their present state the question ought not to have come before them at all. The Town Clerk having explained the details, Mr. Simon Coates objected to the scheme as injudicious. They could not sacrifice a rental of 142*l.* per annum to satisfy the whim of two or three young Councillors. Mr. Coates moved a resolution in opposition to the scheme, and suggested that as the manufacturing element had gone a public park might be obtained, and Richmond improved as a residential place. Councillor W. Brittain seconded Mr. Coates's motion, which was carried by a large majority.

TRADE NOTES.

The new fever hospital, Wallington, Surrey, is being warmed and ventilated by means of Shorland's patent Manchester stoves with descending smoke flues (some single and some double fronted), and patent Manchester grates.

In our note on the new Adam blind which appeared in our last week's issue we inadvertently spoke of it as a venetian blind, whereas it is intended to supersede both venetian and stuff blinds. It is made of laths woven in a loom, is remarkably light, is made in all colours, and, as we pointed out, it can be painted or stained and varnished.

The Simplex Steel Conduit Company, Limited, Coventry Street, Birmingham, have opened a London office and warehouse at Mansion House Chambers, 20 Bucklersbury, E.C., where they intend keeping a stock of their conduit and accessories. They have appointed Mr. E. Sheppard, late electrical engineer to the Peninsular and Oriental Steam Navigation Company at the Royal Albert Docks, as their London representative. Owing to the very large demand experienced for their steel conduit system, they are more than doubling their present plant throughout.

SEA ENCROACHMENT AT DEAL.

The Corporation of Deal have had under consideration a serious danger which menaces the town from the sea encroachment, and have decided to proceed at once with important new works of sea defence near Sandown Castle at the north end of Deal. Telegraphic instructions have been given to a London engineer. The surveyor to the Corporation stated that unless

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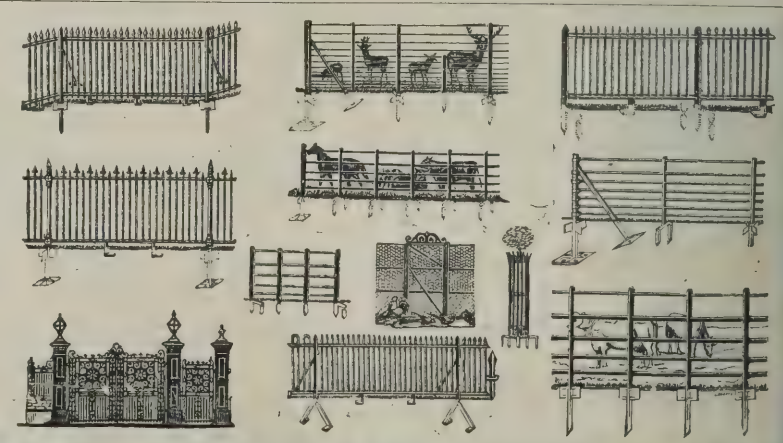
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these works of defence were undertaken at once the encroachment of the sea would undermine the existing wall and cause it to collapse. The urgency of the matter was also emphasised by the town clerk, who said he had visited the spot, and the state of things had so alarmed him that he had written to the Board of Trade pointing out that the whole of Deal was likely to be submerged if the wall went. The sea wall was much damaged by the heavy gales of several months ago, which carried away the shingle to such a depth as to leave the foundations exposed.

PIERCING OF THE SIMPLON TUNNEL.

A CONVENTION between the Jura-Simplon Railway Company and the Italian Government for the piercing of a tunnel through the Simplon was signed in 1896. Under its terms the former undertook to carry out the work on condition that the latter engaged itself to construct the line of access on the Italian side, to pay the company an annual subsidy of 66,000 fr. (2,640*l.*), and to obtain from the Italian provinces and towns most interested in the undertaking a contribution of 4,000,000 fr. (160,000*l.*) towards the cost of making the tunnel.

The corresponding contributions from the Swiss Government, cantons and towns was fixed at 15,000,000 fr. (600,000*l.*), and this sum has already been amply subscribed.

Of the 160,000*l.* to be contributed by the Italian provinces, Milan, Genoa and Navara have raised between them 98,000*l.*, which seemed to be the extreme limit to which they were prepared to go, but as the Government has just declared that if the provinces will make another effort it will give what is ultimately wanting, there is no doubt that the conditions stipulated by the convention will be fulfilled, and that the scheme will be carried out.

The Jura-Simplon Company has already made a contract with a syndicate for the execution of the work at a cost of 2,180,000*l.* if the line be a single one, and 2,780,000*l.* if it be double. The time allowed to the contractors for the completion of the work is five and a half years from the date of its commencement.

The new tunnel will be the longest yet made, its length being 19,731 metres (12 miles 463 yards), of which rather more than half will be on Italian soil. The greatest altitude obtained will be 705 metres (2,310 feet) above the level of the sea, as compared with 1,295 metres in the Mont Cenis and 1,154 metres in the St. Gothard tunnels. The steepest gradients in the lines of access will be 10 in 1,000 on the north and 25 in 1,000 on the south side. The Swiss entrance to the tunnel will be at Brieg, and the Italian entrance at Isella. The distance from Domodossola, to which place a railway already runs, to Isella is only about 10 miles.

The new line will open out direct communication between North Italy and the cantons of Vallais, Vaud, Geneva, Fribourg, Neuchatel and Berne, besides shortening the distance between Milan and Paris by 109 kiloms. as compared with the Mont Cenis, and by 53 kiloms. as compared with the St. Gothard routes.

In addition to the actual saving in distance there will be a further saving in time, for the lower altitude to be obtained will allow of a higher rate of speed being maintained and the cost of traction will, for the same reason, be less.

The plan is to make concurrently two parallel tunnels, each for a single line, only one of which will be opened for traffic at first. At the central point of the tunnel, which is to be first completed, there will be a double line for the length of 400 metres (437 yards), in order to allow of trains passing each other.

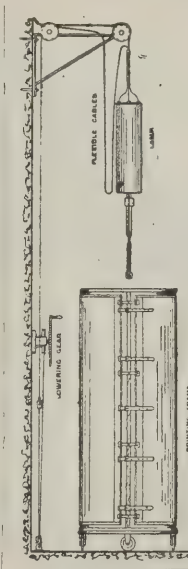
When the yearly traffic returns shall exceed the rate of 40,000 fr. per kilom. (992*l.* per mile), the Jura-Simplon Railway Company engages to complete and open for traffic the second tunnel. The concession to the railway company is for a term of ninety-nine years.

The eventuality of the purchase of the Swiss railway companies by the State is provided for in the convention, the validity of which has already been recognised by the Confederation.

The subvention of 15,000,000 fr. from Switzerland and 4,000,000 fr. from Italy will not be given as heretofore in similar undertakings "à fond perdu" or absolutely, but will take the form of deferred shares in the Jura-Simplon Railway Company, and there is reason to believe that before many years have elapsed those shares will begin to yield a dividend. In the meantime the possession of the shares by Italy will give her the right to four places on the board of directors of the Jura-Simplon Railway Company.

The advantages which the opening of this new line of international communication will confer on Milan are obvious, and the diversion of a considerable amount of import and export traffic, which now goes through Marseilles, will very materially benefit the port of Genoa. The work of piercing the tunnel will be begun in the course of this year.

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ABATTOIRS FOR LONDON.

The public health committee of the London County Council have issued a report in which they deal with the desirability of the establishment of public slaughterhouses throughout London. In dealing with the subject the medical officer shows the inadequacy of the inspection of meat consumed in London, and further points out that to insure the proper inspection of carcases it is absolutely necessary that all animals should be killed in public abattoirs. The greater number of animals are slaughtered in private establishments, and consequently escape the necessary inspection.

The health committee propose to submit their opinions to the Local Government Board, together with an intimation that the Council are prepared to accept such responsibilities as may be necessary to give effect in London to the recommendation of the Royal Commission on Tuberculosis, and to ask the Local Government Board whether they will include in any legislation introduced by them in connection with the Commission's report the provisions that will be necessary for that purpose.

ENGINEERS' STRIKE.

The executive of the Amalgamated Society of Engineers have issued a report bearing upon the engineering trade lock-out and strike of last year.

On July 3 the men ceased work in three London firms, and on July 13 the lock-out was generally enforced throughout the country, 16,944 members of the Society being affected. A notable feature of the dispute, continues the report, has been the manifestation of the international interests of labour, the Continental and Colonial workmen contributing a sum of 28,399*l.* 7*s.* 5*d.* Of this sum over one-half came from Germany. The men returned to work on January 31, and thus was brought to a close a struggle lasting over thirty weeks, involving at the end 27,996 of the 91,944 members of the Amalgamated Society.

The funds of the Society at the end of June 1897 contained a balance of 361,140*l.* At the end of the March quarter, eight weeks after the close of the dispute, the balance was 134,000*l.*, after deducting all loans. The cost to the workers, concludes the report, may be partly computed, but the damage inflicted on the employers can never be known. One authority has calculated the loss to the employers as twenty-five millions, but, whatever the amount, it is certain to be sufficient to make even a national combination of employers hesitate before engaging lightly in a trial of strength with trades unionism.

LIVERPOOL DOCK IMPROVEMENTS.

At the weekly meeting of the Mersey Docks and Harbour Board on the 11th inst., the recommendations of the committee of works which were brought forward at the previous meeting were again submitted as follows:—(*a*) To extend in an eastwardly direction the double storey sheds ordered to be erected at the western ends of the north and south quays of the Huskisson Branch Dock No. 2, the estimated cost of the extension on the north quay being 38,000*l.*, and of that on the south quay 37,000*l.* (*b*) To carry out certain alterations at the north quay of the Coburg Dock, and to erect a shed on that quay at an estimated cost of 43,000*l.* (*c*) To alter the passage between the Brunswick and Coburg Docks to 100 feet in width, the Parliamentary estimate for which work is 82,324*l.*

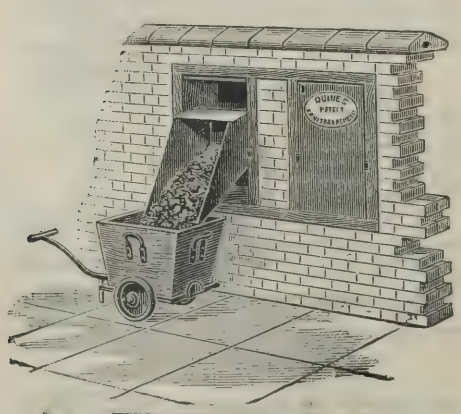
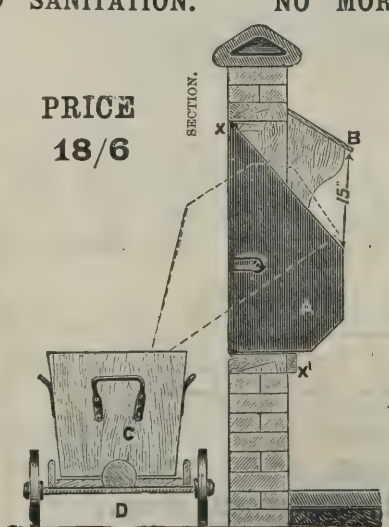
On the last occasion, says the *Liverpool Courier*, it was explained that these recommendations formed part of the scheme which had been frequently discussed by the Board.

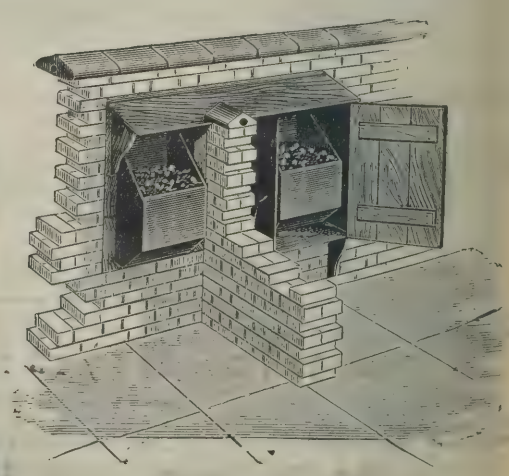
Mr. Hughes moved and Mr. Barrow seconded the confirmation of the recommendation.

Mr. Chadwick, with regard to the recommendation relating to the quay on the north side of the Huskisson Branch Dock No. 2, said he was very much afraid that the works committee were making a serious mistake in encroaching upon the roadway, as they proposed to do, to the extent of about 15 feet, seeing the very heavy traffic at present there and the large increase expected on the completion of the double storey sheds. That morning he noticed a block in the traffic at this particular place. It was quite true that the roadway was encroached upon to a considerable extent by overflow cargo from the White Star berth; on the other hand, there were that morning only three steamers in the whole of that district, whereas when the whole of the buildings were completed, and they had the work in full swing, they would have three times three steamers there, yet they were proposing to make the access narrower. He was strongly convinced that the proposed width of the erection on the north side should be reduced by at least 5 feet.

Mr. H. R. Robertson remarked that the matter had been under the consideration of the traffic committee, who had sent in a communication to the works committee recommending

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them to reduce the width from 95 to 90 feet, so as to give more room in the roadway. The water was being deepened in the Huskisson Dock, and larger ships would naturally go to those berths, therefore it was necessary that they should be able to properly handle the cargo from those vessels.

Mr. Hughes, chairman of the committee, promised that the observations of Mr. Chadwick and the recommendations of the traffic committee should have careful consideration. He had recently made a survey himself, and did not agree with what had been said. The roadway when the shed had been erected would remain 65 feet wide, which would be more than ample if it were used for its legitimate purpose. Regent Road, which took traffic as great, if not five times greater than the traffic here, varied in width from 24 to 40 feet. He personally was of opinion that the 5 feet space would be more valuable in the shed than in the roadway. Still, on behalf of the works committee, he promised that the question should be fully considered.

With this understanding the recommendations were confirmed.

The proceedings of the marine committee included the following recommendation :—To construct an additional shelter shed, with a waiting-room, on the Prince's landing-stage, and to cover over No. 6 bridge and a portion of the Prince's Parade opposite thereto at a total estimated cost of 7,500*l.*

Mr. G. B. Crow, in moving the acceptance of the recommendation, mentioned that the committee had had a good many complaints from people who had to use the north end of the landing-stage as to the great need of shelter accommodation there, especially in bad weather. Passengers embarking or disembarking now had the disadvantage and discomfort of having to wait in the open in all weathers. The matter had received the attention of the committee for a considerable time, but it had been accentuated by the increased number of ships that went alongside the landing-stage at the north end. That day there were three steamers to embark passengers, two of the vessels being bound for Canada and one for the United States. Of course two only could be accommodated at one time. It was a common thing to have two vessels there on Wednesdays, Thursdays and Saturdays, and it was therefore very desirable that, in order to make the port as popular as possible, they should provide passengers with every accommodation it was within their power to give them. He was sure that this proposed improvement would have the tendency to make the port more popular than some people supposed Southampton to be. However, of that they had no fear. At the same time, he thought they should, as far as they possibly could, remove every cause of complaint. They were making an extension of something like 600 feet, and the erection would have a flat roof, so that at any future time should it be found desirable to have communications across the top of the stage from the pier, as had been several times suggested, this could be done by putting an extra bridge there.

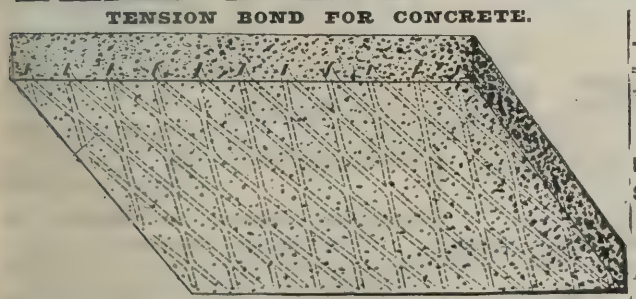
Mr. R. Gladstone seconded the motion, which was agreed to. The recommendation will be brought forward for confirmation at the next meeting, the standing orders requiring postponement of its consideration for a week.

IMPROVEMENT IN BUCHANAN STREET, GLASGOW.

It is understood that a critical stage has been reached in the negotiations between the Glasgow Corporation and Messrs. Stewart & M'Donald with reference to the proposed widening of Buchanan Street. In consequence of the action of the statute labour committee, which resulted in the Dean of Guild Court postponing last week consideration of Messrs. Stewart & M'Donald's application for a lining, the firm are showing a disposition to close the negotiations, if, indeed, they have not already done so. In connection with this dispute, our London correspondent, says the *Glasgow Herald*, has been making some inquiries with regard to the prices paid by public bodies in the Metropolis for land for improvements. After careful investigation he has obtained the following information, which may be relied upon as authentic :—"The price paid for land for improvements depends upon locality and position. For example, in Bermondsey back land costs from 1*d.* to 3*d.* per foot super ; front land 6*d.* to 1*s.* per foot. In the Strand 10*l.* per foot has been paid for front land. In the City the Commissioners of Sewers—in effect the Corporation of London—have paid from 10*l.* to 30*l.* per foot, according to locality. To cite a concrete case, in connection with the widening of a part of Fleet Street from New Bridge Street to Bride Lane, about 813 feet super was thrown into the street at a cost of 28,742*l.* Another recent instance is that of seven houses in Finsbury Pavement, covering a superficial area of 15,700 feet, which were sold by the Corporation ; they realised a ground rent of 7,100*l.* on a building lease for eighty years, being at the annual rental, roundly, of 9*s.* per square foot, the whole property—land and everything standing upon it—to revert to the Corporation at the expiration of the lease of eighty years."

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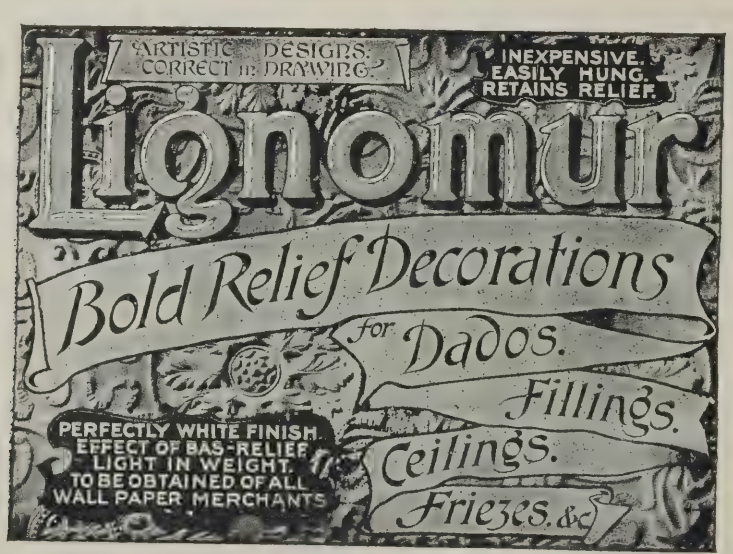
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THE VAUXHALL TEMPORARY BRIDGE.

The engineer's department of the London County Council decided to open the temporary bridge which has been erected across the Thames between Vauxhall and Pimlico yesterday. It has been constructed to last ten years, for the first five of which it will take the place of the old Vauxhall Bridge, which is to be knocked down and rebuilt, and during the remaining period it will be used for the traffic which will be diverted while Lambeth Bridge is being reconstructed. It is not proposed to close Vauxhall Bridge until next week, the officials of the London County Council being desirous of watching the working of the temporary bridge for at least a week in order to be certain that it will be capable of taking the traffic of the old bridge. Providing no hitch occurs Vauxhall Bridge will be closed on the 26th inst., and a fortnight later its demolition will be commenced. The new bridge crosses the Thames immediately in front of the Tate Gallery.

WELSH WATERING PLACES.

Sanitary affairs, especially in regard to water supply and drainage, are well attended to in the chief health resorts on the Welsh coast—for instance, at Rhyl, Llandudno, Aberystwyth, Barmouth and other places ; but there are other parts of North Wales in which there is evidently much to be desired in these respects. According to a report issued by the Local Government Board, the district in question includes much of the finest scenery in the principality. All readers who have travelled in Wales know the beauty of Trefew and Bettws-y-Coed, and the grandeur of Capel Curig, with its magnificent view of Moel Siabod in one direction and of the peaks of Snowdon in another. The Local Government Board's special inspector, Dr. Wheaton, gives a very bad account of this charming and most popular district. Owing to repeated outbreaks of infectious disease during the last two years, Dr. Wheaton was instructed to make a thorough inquiry. His report is that, with the exception of a number of old and ill-ventilated cottages, the dwellings are usually well built and clean, but that the water supply is defective in quantity and bad in quality, and that the drainage and seemingly the provision for the removal of dangerous refuse are practically non-existent. The water supply, for example, is derived mainly from the rivers Llugwy, Lledr and Machno, which are liable to pollution, instead of from the lakes abounding in the hills, and which are entirely free from pollution. At Bettws, where the supply is taken from the Llugwy, above the Swallow Falls, the quantity is inadequate to summer requirements, when tourists are most numerous and when all the available rooms are taken by visitors. So seriously deficient is the supply that the "district council have decided to supply a number of houses near which the water-main passes on its way to the village." Then, as to sewerage, "there is a whole district known as Pentrefelin unconnected with the public sewers, the sewage from the dwellings being either discharged into the Llugwy or allowed to escape into the ground through leaking rubble-drains." At Capel Curig there is a system of sewerage, and the water is obtained from springs and courses flowing down the mountains or from the Llugwy. The village of Cwm-Penmachno is cited by the inspector as "an illustration of the complete neglect in the district of all sanitary matters." The following is the description given of it :—"The roads and paths in this village are unmade and untended ; the water supply is very unsatisfactory ; there is no system of sewerage, and the refuse from the houses is either thrown into the Machno or allowed to accumulate on the banks until a flood washes it away." No wonder that, under such conditions, there have been attacks of enteric fever and diphtheria in the district. There is, if proper care were exercised, every constituent of health and recreation —fine scenery, pure mountain air, ample space for dwellings, abundant supplies of unpolluted water obtainable from the lakes, and yet, owing to neglect by the local authority, some of the worst and most dangerous diseases lie in wait for unwary visitors. It is not for want of warning that this neglect has occurred, for the inspector declares that "Dr. Peter Fraser, the local medical officer of health, has frequently drawn the attention of the district council to the urgent sanitary needs of the district; but hitherto his recommendations have not been carried out; and, in short, the action taken by the district council for the sanitary improvement has been almost nil." That is a deplorable record. Perhaps now that it is published by such an able authority those who are responsible for the health of the locality will bestir themselves to remedy these crying defects. Otherwise Bettws and Capel Curig and the other places referred to will suffer great diminution of their prosperity, for visitors are very keen to note dangers to health in places of summer resort.



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THE IRON AND STEEL INSTITUTE.

On Friday last, says a special correspondent of the *Leeds Mercury*, a small party of the members of the Institute left Stockholm to make a fortnight's tour in the Arctic circle mining district, under the guidance of Mr. R. G. Graves, representing the secretary, Mr. Bennett Brough, who stays at the capital of Sweden in order to complete the arrangements for the meeting.

Although the meeting of the Iron and Steel Institute at Stockholm will be the first assemblage of any technical or scientific body, of English origin, in Scandinavia, it is not because England has failed to recognise the great claims of Sweden to be so distinguished. Few countries have produced a larger muster of great names in science—at any rate, relatively to population—and especially the science of metallurgy. The names of Berzelius, Rinman, Ericsson, Akermann, Styffe, Eggerty and others at once occur in this connection, and in the present day Nordenfeldt and other Swedes have done much to develop the modern systems of ordnance. It was not, however, because of these considerations that the Iron and Steel Institute fixed their meeting on Scandinavian soil, but because there is much in common, and a possibility of their being much more, between Sweden and our own country.

The iron industry of Sweden is nevertheless of small concern after all as compared with that of other countries like our own and the United States. The total make of pig-iron is only about half a million tons a year, which is a sixty-sixth part of the world's production in the current year. The Swedish make of steel by the Bessemer process is about 100,000 tons a year, which is only a fortieth part of that of the United States alone, and about a twentieth part of that of Great Britain. The make of Siemens, or open-hearth steel, is rather less, but it is increasing rapidly. The mainstay of the Swedish works continues to be the manufacture of bar-iron of high quality, which, being made from the best ores and the purest of charcoal, is in large demand for many purposes of commerce. More than 150 works are engaged in this branch of industry, but most of them are of small size, and all of them put together would produce a much less quantity in a year than would a single Bessemer plant of the largest dimensions in Great Britain or the United States. In short, the watchword of the Swedish iron trade, and the secret of their large and continually growing success has been "quality, not quantity," and in this respect the trade and industry differs from those of other countries visited by the Iron and Steel Institute. But it has not been so much for the purpose of ascertaining the conditions under which the Swedish iron trade of to-day is carried on, for few phases of metallurgical industry are better known, nor even for the purpose of seeing ores, Swedish iron and steel works, for few of them are deemed to be of sufficient novelty or general importance to justify a visit, as for the purpose of learning the capabilities of Sweden in the direction of supplying other European countries with iron ores, that the present meeting is of interest. The ore deposits of Sweden are of very large extent, but they mainly lie within the Arctic Circle, and the Arctic Circle is not exactly the place that mining companies would choose for carrying on their operations, if they had any choice in the matter. In the first place, there is darkness for at least seven months of the year, except such light as is furnished by the aurora borealis or by electricity. Then, again, the climate is necessarily very rigorous, and interferes with the business of mining in more ways than one—not least so, by the stoppage of transport to the port at which the ores have to be shipped for export, a distance of about 150 miles. Nevertheless, it has apparently been established, to the satisfaction of leading members of the trade in both the United Kingdom and Germany that the business can be carried on with commercial success, and the best proof of this fact is the trebling of the exports within the last three or four years. There are three main deposits available for export—all of them within the Arctic Circle, but at considerable distances from each other, and from the port of Lulea, where they have now to be shipped. The nearest to that port, and the only deposit actually being worked at the present time, is that of Gellivara, belonging to the Gellivara Mining Company. Gellivara is a village of considerable size, having several thousand inhabitants, of whom 800 to 1,000 are already employed in the mines. The railway from Lulea to Gellivara is already built, having been constructed in 1889, but there is no railway as yet to the still larger deposits of Luossovaara and Kiirunavaara, and hence the party of members of the Iron and Steel Institute, which is now visiting those deposits between August 12 and 25, will have to drive from Gellivara for a distance of 40 miles, thence to take a boat on one of the numerous rivers in this part of the world, for a further distance of 40 miles, and finally to walk for the last stage of 10 miles—making a journey of 90 miles in all from the nearest railway station. The country is exceedingly bleak and inhospitable, vegetation being

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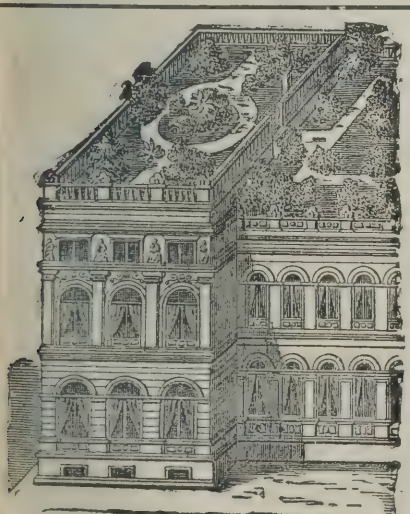
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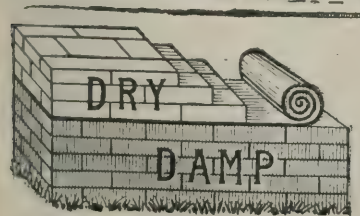
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scanty and scrubby. The ore deposits at all three centres have been exhaustively studied by experts, and have been known for more than a hundred years. Indeed, only quite recently a full report on the whole subject has been presented to King Oscar by the Swedish Iron Board, in view of the proposed construction of a line to connect the Kiirunavaara mines, and possibly also the others, with the Atlantic Ocean on the other side of the country, at a point called Victoriahavn, by Ofoten. These researches have proved that the ores are of very large extent and of really wonderful richness—most of it, so far as tested, exceeding 65 per cent. of iron, although not by any means of equal purity. The deposits are largely on the surface, and are of such thickness that they can be quarried at a very small cost—perhaps more cheaply than any ore deposits in the world, unless it be those of the Mesabi ore range, in the Lake Superior region, whence the works of the Carnegie Company at Pittsburgh are chiefly supplied. It is estimated by authorities and proved by actual experience that when these ores are worked on a very large scale, as they are likely to be before long, they can be put f.o.b. on the Atlantic or the Gulf of Bothnia at not more than 5*s.* to 5*s.* 6*d.* per ton, which compares favourably with any ores mined in Europe to-day of equal value. Even the famous ores of Bilbao, on which the country has drawn to the extent of about five million tons a year for several years past, cost a good deal more than this figure relatively to their metallic value; but, on the other hand, the Arctic mines are almost as far again from British ports as those of the north of Spain. The question that appears to be exciting the largest amount of interest among iron authorities next to that of the cost at which these ores can be delivered in Great Britain and Germany, is the proportions of ores that are suited for the basic and the acid processes of steel manufacture. It is now pretty generally known that the acid process calls for ores of specific composition and purity, while the basic process allows of ores being utilised which, in a metallurgical sense, are by no means free from considerable contamination. The supply of acid ores available in Europe is by no means so large as the supplies of basic ores, and hence the value attached for many years past to the ore supplies of Northern Spain, which are almost entirely adapted for acid treatment—which, by the way, is the system preferred by engineers, railway companies, shipbuilders and others for most of their ordinary requirements. The surveys made in Swedish-Lapland have demonstrated that more than one-half of the ores determined have too much phosphorus to suit them for the acid process of steel manufacture, which would rule them out of the trade as mainly carried on in this country, including Scotland, South Wales, Cumberland and Cleveland. On the other hand, it fortunately happens that the acid system is not so generally followed in other countries as in our own, so that Germany and Belgium, and, to a less extent, Austria, would be likely to supply markets for the basic variety, and leave the acid or non-phosphoric ores for British consumption. This is the trend of events at the present time. Germany, in point of fact, has already imported large quantities of phosphoric ores from Swedish-Lapland, and will furnish an almost unlimited market for the same variety at a price which must, however, compete with the prices at which the much leaner ores of Alsace, Luxembourg and the Moselle are delivered at German furnaces. Whatever the proportions of the different qualities of these Arctic ores may be, the total supply has been declared by experts, after very thorough examination, to be practically inexhaustible. This fact alone is one of good omen for the future of the British iron trade. But there are also those who believe that the Arctic ores will, in course of time, furnish a cheaper source of supply than that on which we have hitherto been so largely dependent in the north of Spain.

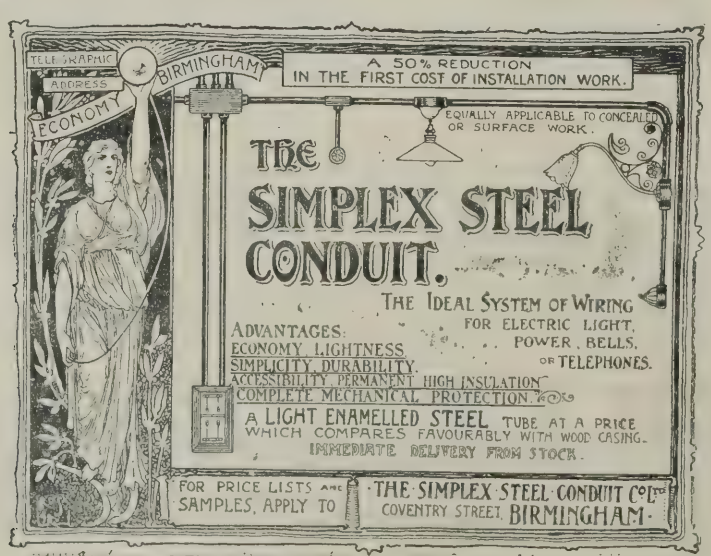
THE WORKMEN'S COMPENSATION ACT.

A CORRESPONDENT of the *Times* writes:—When during the session of 1897 the Government showed a determined front on the subject of workmen's compensation, and resolved upon a scale of payments which at the time seemed to be onerous and excessive, many employers made up their minds that the paths of industry in the future were not to be strewn with roses, if, indeed, they were not to be thick set with thorns. The efforts that were made, mainly by the representatives of the coal and iron industries, to secure some modification of the Bill as originally introduced were not very successful. The main principle, at all events, was preserved. Employers were held to be responsible for all accidents to workmen in their employment, except such as could be proved to be due to the workman's own wilful neglect, and a scale of compensation was definitely fixed which left the employer face to face with liabilities which, though difficult of assessment, were generally believed to be of a serious and even ruinous character. Since the Act was passed employers in all the leading industries have been making earnest efforts to cover their liability by private arrangements with their workmen, by forming local combina-

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tions among themselves, or by accepting the best terms they could secure from outside organisations; and it may be assumed that 90 per cent. at least of the large employers of labour throughout the country are now protected by one or other of these different schemes of insurance against risks which would otherwise be insupportable except by corporations of unusually large means.

Although it is now over a month since the Workmen's Compensation Act came into operation, it has not as yet produced any number of cases that have involved litigation worth speaking of, and so far as rules, precedents and covering cases are needed they have yet to be found. Only one thing appears to have been made clear—the Act is not likely to be such a source of trouble and outlay to the average employer as was at one time anticipated. Two provisions in the Act have proved to be the salvation of the employer—the one freeing him from responsibility until after the expiry of fourteen days, and the other leaving an open door to the question of the workman's fault in causing an accident. It has been found that workmen are, as a rule, anxious to provide for relief from the first hour of their incapacity for work, and are naturally anxious to cover the first fortnight during which, unless they can make some arrangement otherwise, they have to rely on themselves. They can do this in one of two ways—either by insuring themselves with one of their own friendly societies, or by arrangement with their employers. Where the latter have shown a disposition to make mutual arrangements on reasonable terms, the workmen have, in a number of cases, accepted them and agreed to contribute a certain, but of course unequal, proportion of the compensation fund. Thus, in one notable case—that of the Pearson and Knowles Iron and Engineering Works at Warrington—an existing organisation of a mutual character, which has been in operation for many years, has been effectively modified, with the approval of the Chief Registrar of Friendly Societies, so as to meet the provisions of the new Act, and a similar arrangement has been made at the large sheet-glass works of Pilkington Brothers at St. Helens. Again, the Great Eastern Railway Accident Fund, in which over 24,000 workmen are concerned, has been similarly modified to meet the new conditions, and supplies an admirable precedent to the railway world in general. So far as the coal trade is concerned the arrangements made have been very varied. In some of the leading districts the coal-owners have grouped themselves into a mutual protection and indemnity organisation pledged to find the needful funds to provide for all cases of accident as they arise. In other cases many individual collieries have effected insurance with one or other of the insurance companies which have been so vigorously working up this business for the last few months. Some of the leading firms of coalowners, especially those which are known to be specially careful and capable in the management of their affairs, have radical objections to associating themselves with their trade neighbours. Such employers object to being made responsible for the financial position of their neighbours, and they also decline to be unduly taxed for the benefit of employers who are less careful than themselves. It is probable, moreover, that in such arrangements the cost of organisation is higher than it would be in cases where the employer had everything directly under his own cognisance. In the case of insurance with an insurance company the employer has to face the likelihood of larger premiums, but not without some countervailing gains. In such a case the premium is fixed from the beginning so that there would be no danger of additional premiums being called up to provide for sudden and unforeseen losses, while it would be no small gain to feel that every claim, whatever its duration, has been at once got rid of for an annual payment, instead of remaining, in the cases of permanent disablement, a charge on the future for an indefinite number of years. Still another detail, but one of importance, is the fact that if there was a change in the partnership of a firm, from whatever cause, difficulties would be likely to arise because all the pensions running would have to be provided for by the party going out, who would then, at any rate, have to consider the capitalisation of those pensions. The premiums quoted by insurance companies have generally been a good deal more than those that individual employers look upon as required. The cases of the insurance companies and the individual employers do not, however, stand on all fours. An insurance company, in fixing its premium, has to capitalise the value of the allowance for total and partial permanent disablement upon an estimate of the years of duration, whereas the individual employer will naturally deal with such payments as they fall from year to year. Some of the leading insurance companies, admitting the possibility of quoting premiums for present assurance that may be in excess of actual requirements, have undertaken to return any such excess premium after charging the cost of the claims and of administration in addition to a profit of 10 per cent. of the premiums paid.

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have justified the belief that a penny per ton all round will be likely to fully meet the provisions of the Act, and this sum applied to the whole coal industry of the country will work out to an annual expenditure of 840,000*l.* Now in some districts the provision already made for meeting accidents, &c., is so considerable that this burden, if merged in that already borne, will not be nearly so serious as it would otherwise have appeared to be. In South Wales, for example, the Miners' Permanent Provident Society already raises by the joint contributions of employers and employed a sum equal to a halfpenny per ton on the whole coal output, the total sum so provided in 1876 having been 77,300*l.* And so to a greater or less extent in the other coalfields of the country. The maintenance of these provident societies, to which both parties subscribe, although often in very unequal proportions, has in the majority of cases been resolved on. Indeed, it has been stated within the last few days that the largest and most important society of the whole —the central association for dealing with distress caused by mining accidents—so far from having gone to the wall, as it was last year feared it might do, has not only kept alive, but has even considerably increased its membership since the passing of the Act. This must mean that, instead of continual litigation between employers and employed, which was at one time apprehended, they will continue to have interests in common and to share one another's burdens probably under conditions which will leave the business of administration mainly in the hands of the workmen. This last qualification is of obvious importance, because the greater the mutuality in these funds the more unlikely it is that the employers will become the victims of successful malingering which has been found such a serious evil under the German law of 1885.

The iron and engineering industries have, like the coal industry, found up to the present time that they also have been more frightened than hurt. It was at one time anticipated that the Compensation Act would add about sixpence per ton to the cost of producing pig-iron, and it was grimly prophesied that this last straw, on the top of dearer minerals and foreign competition, would completely break the camel's back. Fourpence of the amount stated was expected to be added through the increased cost of coal, and the other twopence was expected to take the form of insurance premiums for the pig-iron industry itself. It now turns out that some districts have been able to effect insurance with public companies at as low a rate as one-halfpenny per ton of pig-iron produced, and that the increased charge made through coal does not exceed another three-halfpence, so that twopence per ton of pig is an outside figure, being one-third or less of the amount originally talked about. It comes, in short, to this, that the Compensation Act of 1897, like the Employers' Liability Act of 1880, has been much less harmful to our great industries than was expected. In 1880 the insurance companies demanded 3*s.* to 4*s.* per 100*l.* paid in wages as a premium in the engineering industries, and some years later the employers found that they could insure themselves and leave a handsome profit on the transaction for about a shilling. It is probable that when risks and rates have been better adjusted to one another, the burden of the Act of 1897 will be attended with equally agreeable disappointments.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

16783. John Robertson, for "An improved square for use upon mouldings and the like."

16791. Hermann Wasserman and Albert Wasserman, for "Improvements in coverings for floors or walls."

16915. Samuel Jones Payne and John James Edwards, for "Improvements in apparatus for moulding bricks or the like."

17002. Henry Harrison, for "Improvements in kilns for burning bricks and similar articles."

20414. Thomson, for "Glass tiles."

23378. Walker, for "Manufacture of roofing-tiles and apparatus therefor."

1087. Beyer & Recke, for "Kilns for baking bricks, pottery, cement and the like."

13061. Mondron, for "Process for decorating glass panels and the like for covering walls or similar surfaces."

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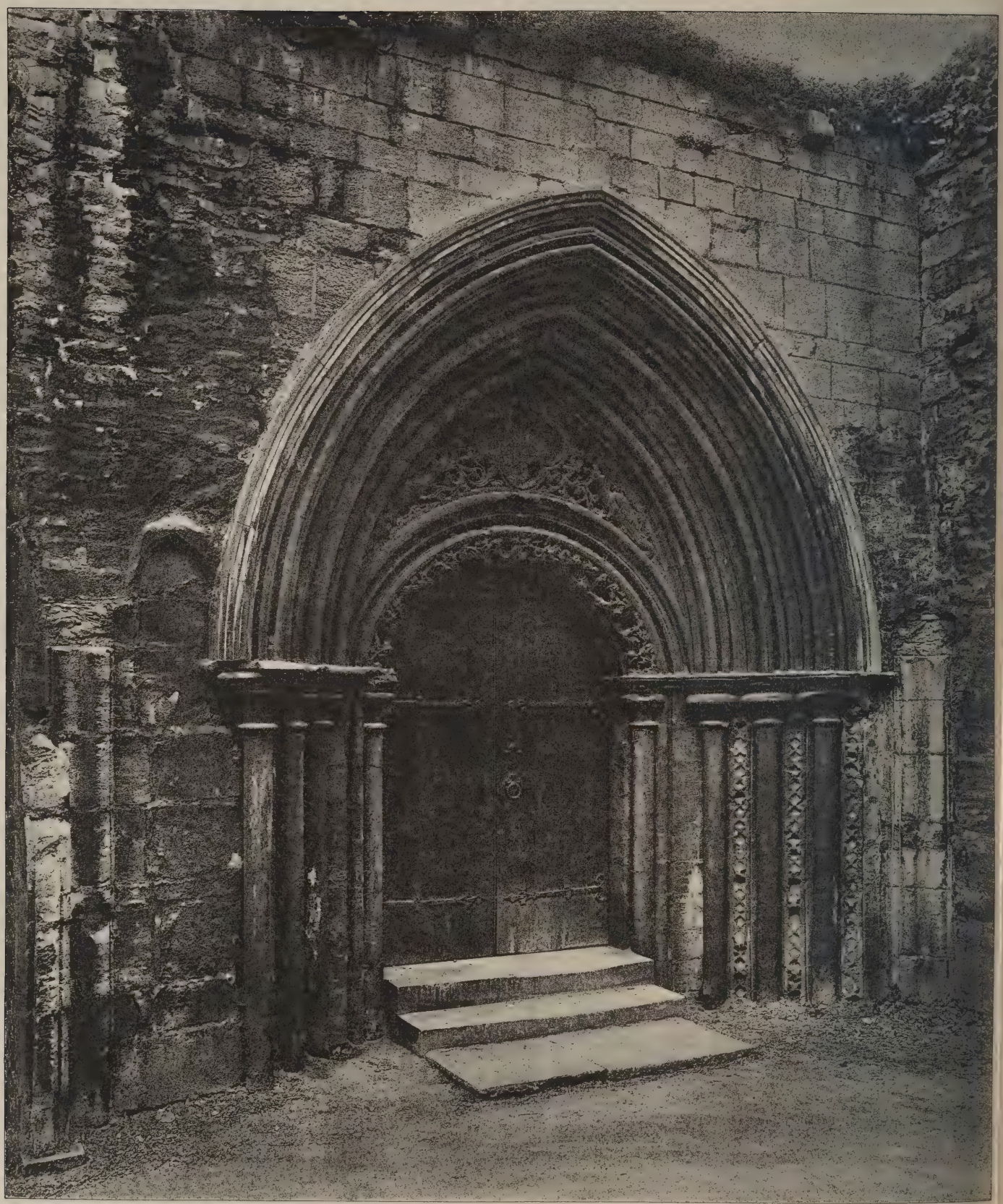
ESTIMATES AND PARTICULARS FROM
THE NATIONAL ELECTRIC FREE WIRING CO., LTD.,
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Clarendon Road, South Shore, Blackpool.
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38 High Street, Peckham.
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The Architect, Aug. 19th 1898.

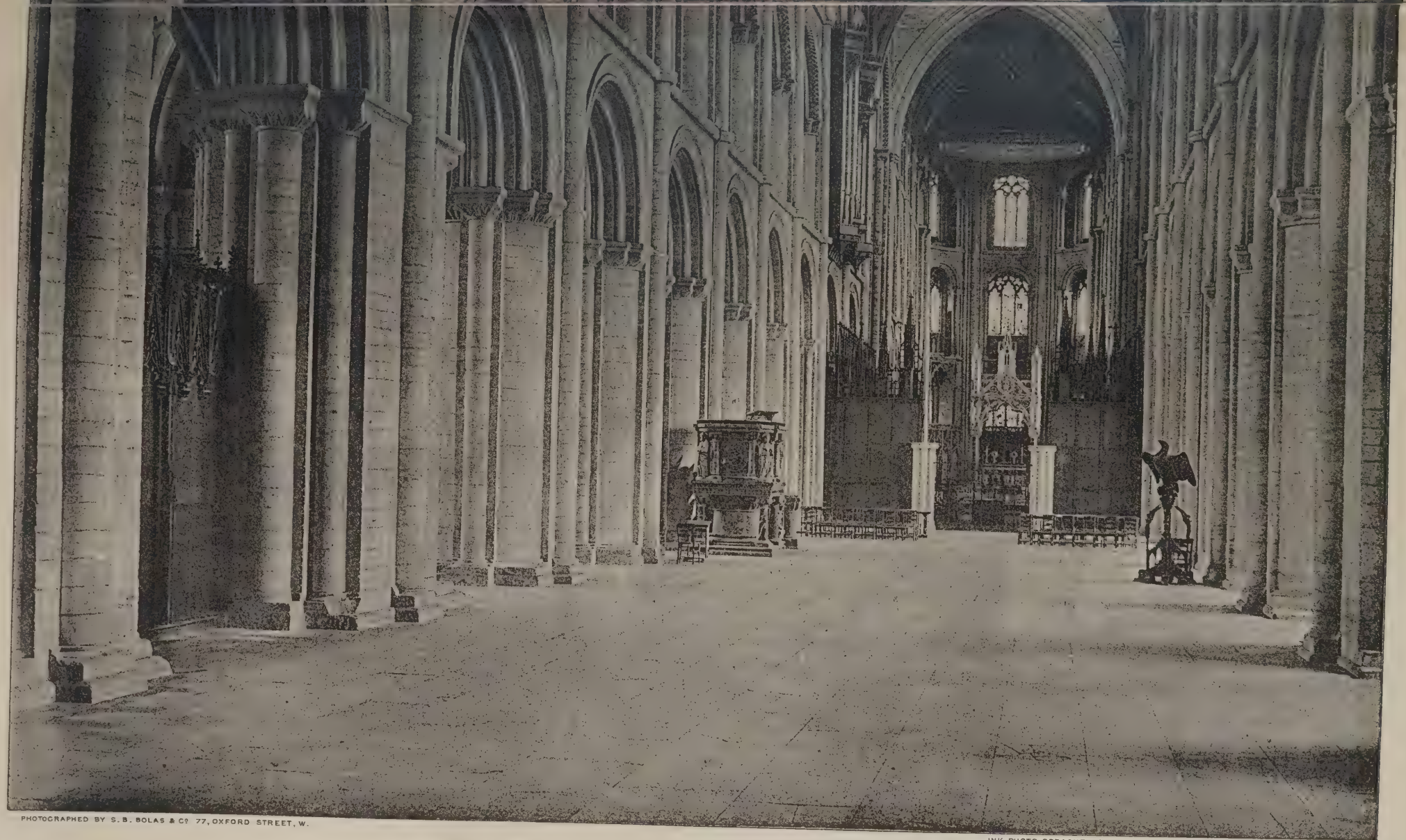


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CATHEDRAL SERIES, No. 159.—PETERBOROUGH: DOORWAY IN CLOISTERS.



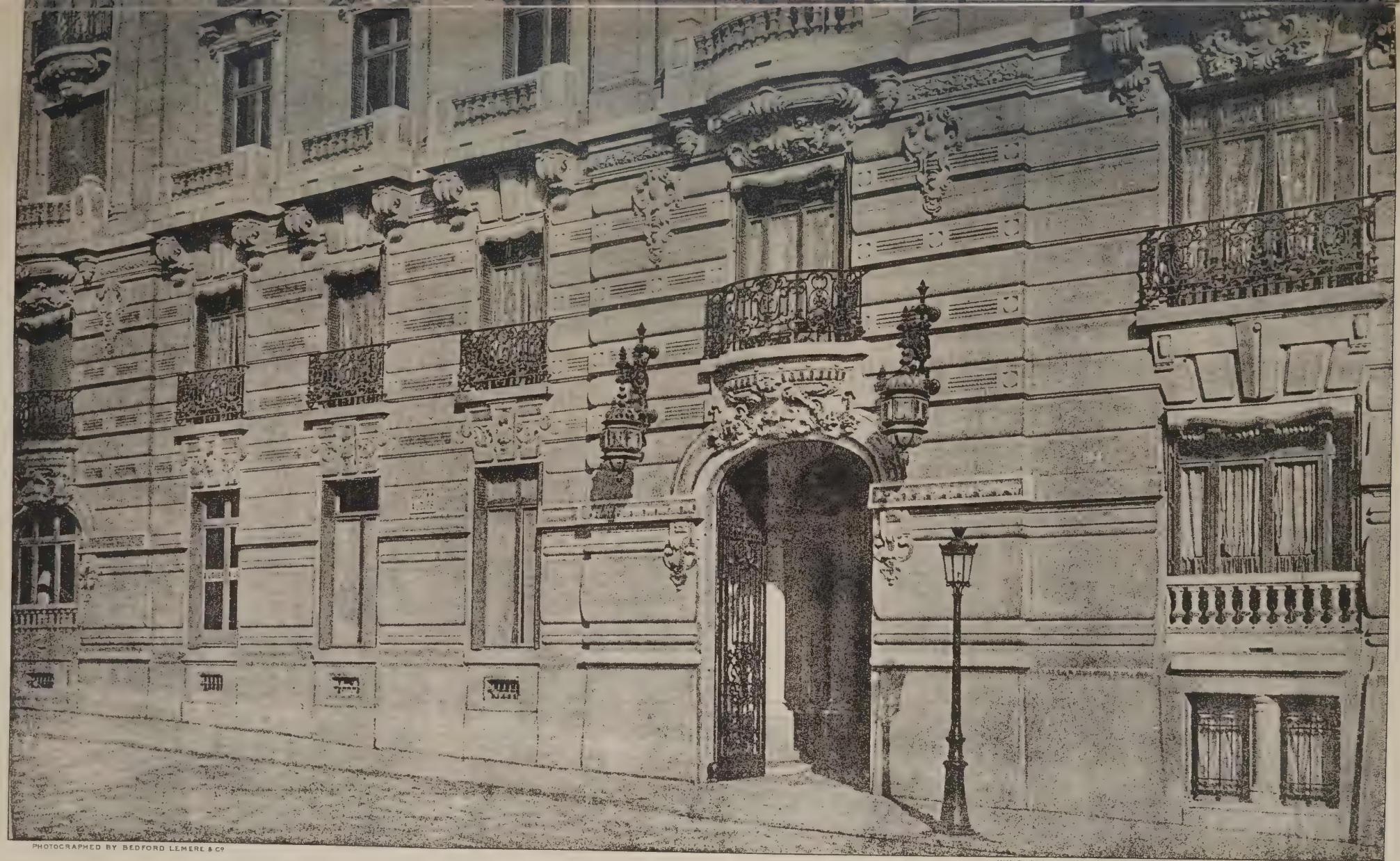


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CATHEDRAL SERIES, No. 158.—PETERBOROUGH: NAVE, LOOKING EAST.





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APARTMENT HOUSE IN THE CHAMPS ELYSÉES, PARIS.

A. DURVILLE, Architect.



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CATHEDRAL SERIES, No. 160.—PETERBOROUGH: TOP OF CENTRAL GABLE, WEST FRONT.

OF THE





PLAN AT CLOCK STAGE

PLAN AT BASE

ELEVATION

SCALE

INK-PHOTO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE E.C.

The Architect, Aug. 19th 1898.

DESIGN FOR PROPOSED JUBILEE CLOCK TOWER, LEWISHAM.

Messrs. WILLIAM G. HUNT and VINCENT STEADMAN, Architects.

The Architect.

THE WEEK.

A social problem for which an urgent solution is demanded in many places is the providing dwellings for a poorer class than the tenants of the ordinary "model dwellings." The Dublin Corporation have had plans prepared by the city architect which show dwellings that can be let at one shilling and threepence per week. That sum will defray the cost of maintenance, collection of rents, &c., besides allowing 2½ per cent. on the capital sunk. But the site must be provided without cost. It is not easy, however, to obtain sites in Dublin, for after five years the Corporation have not secured possession of the land required for an improvement in Bride's Alley, although the outlay up to the present has amounted to 36,500*l.* In Liverpool an association is being formed called "The People's Homes, Limited," that will provide dwellings for those who cannot pay more than two shillings to two shillings and twopence. One of the latest experiments is "The Family Home" in Glasgow. This is a large building capable of accommodating 600 people. One half of the block is for women with children, and the other half is for men with children—men whose wives are dead. There is a staff of servants who attend to the children while the parents are out at work. A similar provision is desirable in many other places.

The connection between the leasehold system and defective building has been often pointed out. In Ireland, where agriculturists can obtain leases that are almost in perpetuity, a feeling is arising that tenants of houses in towns should have similar privileges. It inspired a paper read by Mr. Field, M.P., in Dublin, on "terminable leaseholds in regard to municipal sanitation." He said that the ground landlord took over absolutely the houses built by the tenant. The absence of security for the tenant was a direct incentive to carelessness in everything, particularly sanitation. The present system discouraged enterprise and thrift among working classes and prevented the operation of building societies. It encouraged jerry-building and maintained badly constructed houses. All the sanitary defects which the system gave rise to could be very easily changed if occupation meant ownership. The terminable leasehold system was the father of slums and the progenitor of disease. Rent was to the ground landlord the prime necessity. Health and sanitation and human comfort were seldom considered in opposition to rent, and it was next to impossible to expect that a middleman or a house-jobber, or an experimenting agent, or a holder of premises with a lease nearly expired, would lay out money for the benefit of the ground landlord, who seldom had any regard whatever for the health of the inhabitants. Mr. J. S. Baxter, a barrister, also read a paper, in which he maintained that the real crux of the problem of municipal sanitation, in regard to dwellings, was the housing of the working classes. The Act of 1890, and the powers of demolition and reconstruction which it gives to local authorities, usually results at best in the erection of those blocks of model dwellings which he could but regard as a make-shift for something still better. That "something" was the provision, where practicable, of isolated suburban working-class houses. Even in their larger cities increased railway facilities might do much to enable an artisan to live in the suburbs and yet be within reach of his work. And he confessed that he was in favour of State assistance being given to the working classes to facilitate their becoming themselves the owners of their homes. This was recommended by the Royal Commission of 1885 on the Housing of the Working Classes; and since then much valuable experience had been gained in the somewhat analogous working of the Irish Land Purchase Acts. If they believed in a peasant proprietary might they not also believe in an artisan proprietary for towns? An advance would be made to the tenant of perhaps four-fifths, perhaps the whole, of the amount necessary to purchase a house, and this he would repay with interest by yearly instalments. If these instalments were made to extend over thirty years—not an unreasonable time—they would, even including interest at 3 per cent., be individually less than the rent he had been paying, although the purchase price were calculated so high as fifteen years' purchase of the rent. He could not now go into the details of such a scheme. But it was already within the domain of practical politics. If carried out, it would not merely benefit the industrious and encourage the thrifty, but it would directly and powerfully assist in promoting municipal sanitation. Another speaker thought the whole difficulty would be overcome if an Act of one clause were passed providing that all existing tenures should in future be considered perpetuities.

It is now proposed to effect a thorough restoration of the eastern group of buildings belonging to St. David's Cathedral. According to Mr. J. O. Scott, they form a "very important and especially beautiful part of the cathedral, but are in a state which can only be described as little better than ruinous. The eastern chapels at St. David's are a peculiar feature, being quite unique in their arrangement; they form an integral part of the building, while they are in a great measure cut off from the rest of the cathedral. The group consists of Bishop Vaughan's noble chapel, lying immediately beyond the east wall of the presbytery, of the vestibule of the lady chapel, and, still farther east, of the lady chapel itself, which is the largest and most important of the group, which lies east of the vestibule, though not central with it; and finally, of the later continuation of the north and south aisles of the early English presbytery, which runs past the end of Bishop Vaughan's chapel and vestibule, extending a little farther on, so as to overlap the lady chapel." The restoration of these interesting and very beautiful buildings is intended as a memorial to three good and great men who were for many years closely associated in the service of the Church in the diocese, and were scarcely parted in their death, for they "fell on sleep" in the same year (1897), and within a few months of each other, viz. Bishop Basil Jones, the distinguished scholar, theologian and antiquary, who presided over the see; Dean Allen, who loved each stone in the cathedral, and lavishly spent time and treasure in restoring and beautifying it; and Dean Phillips, whose varied gifts were almost exclusively devoted to the service of the Church in the diocese. This, with other work, will necessitate an expenditure of not less than 12,000*l.*, and Dean Howell, in his appeal, says:—"Engaged as we are in effecting a thorough restoration of the mother church of the see once presided over by the patron saint of Wales, we feel that we may justly claim support, not only from all Welsh Churchmen, but from British Christians of all creeds and classes, both within and without the Principality." Subscriptions may be paid to the Dean, or to Mr. W. S. de Winton, at Lloyd's Bank, Haverfordwest, or the National Provincial Bank, Carmarthen.

Blackpool is in need of a few large hotels, but it is doubtful whether they ought to be erected by the Town Council. If public authorities will meddle with business of the kind there is no reason why they should not monopolise other kinds as well. New laws in social economy would have to be devised. At present the law of licensing appears to be an obstacle to municipal hotels which is not easily surmounted. On Tuesday the Blackpool Town Council applied for a license for an hotel to be erected on land belonging to the Corporation in South Shore. It was designed by Mr. E. G. Stead, and was to cost 36,400*l.* Evidence in support of the application was given by residents. The opposition appealed to the magistrates not to establish a precedent that might become dangerous and lead to abuses. There was another application for a public-house in a different part of the town also by the Corporation. The magistrates declined to grant a license in either case. The expenditure of so much money would be advantageous in Blackpool, but private enterprise is likely to supply what is required, although the Corporation may oppose.

THE BRITISH MUSEUM.

THE revelations about the Science and Art Department are enough to make men despair of the fate of Great Britain should any crisis arise in which it will be necessary for the officials of any of the public offices to take part. The report of the British Museum for the year ending March 31, 1898, has since appeared, and for many people will serve as a corrective of the apprehensions which the inquiry by the select committee on the museums of the Science and Art Department had aroused. The committee have recommended for adoption in South Kensington and the other museums of the Department some of the principles which are followed in Bloomsbury, and by adherence to them the misfortunes which hitherto have appeared to be inevitable may be avoided in the future. But if some of the assistants who were trained in the British Museum were placed in charge of different sections of the Science and Art Department, more would be done towards restoring confidence than by any attempt to reform the present officials.

The British Museum has the disadvantage of a building which is over-monumental in style. It is suggestive of long duration, and consequently was supposed to be in keeping with antiquities. Smirke could not have foreseen that people would one day expect a museum to become a place of recreation. The buildings in Bloomsbury are not attractive to the public, and the collections lose much of their interest from the chilling surroundings. As a consequence, there was only a slight increase in the number of visitors last year, and "the steady annual diminution of the number of evening visitors has satisfied the Trustees that they would not be justified in continuing to incur the expense of keeping the galleries open in the evenings." Dull as London is, the museum is evidently considered to be worse, and even strangers cannot accept it as a refuge. If the walls were properly decorated the galleries would become less deterring, but with so extensive a building the expense must be onerous. The substitution of skylights has enabled the objects in the cases to be more clearly seen, and we suppose the improvement will be continued wherever it is practicable.

In all departments there have been additions. The department of Printed Books has obtained eighty-nine autotype facsimiles of royal proclamations from Henry VII. to Philip and Mary. A copy of the old "Doctrinal of Sapience," printed by William Caxton, which was formerly in the Ashburnham Library, was purchased, and one of Chaucer's "Troylus and Cresseid," which was produced by the press of Wynkyn de Worde in 1517. A most valuable addition is the Malermi Bible printed in Venice in 1490, with woodcut illustrations, for which the drawings were made by celebrated artists. The Bible is one of the greatest of bibliographical treasures, and as exemplifying Italian design at its best it is of great value to artists. Another acquisition is a Hieronymite missal produced at Zaragoza in 1511, which was considered by the printer Georgius Coci to be one of the finest examples of his art.

The manuscripts added are of great variety. There is a papyrus of the first century containing the thirteenth and fourteenth books of the "Iliad." As they relate to the contest in which Neptune took a share, and to the inveiglement of Zeus by Hera, we cannot imagine they were copied to afford enjoyment by themselves. They must have been part of a larger papyrus containing the whole of the epic. Of more importance is the papyrus, which is at least a century older, containing the poems of Bacchylides the Greek, and the only copy which is known to exist. Some of the poems are novelties to scholars. Out of the twenty there are six which are complete, and there are substantial portions of eight. As exemplifying a later time, we have the diary of C. B. Vignoles, the railway engineer, during 1830-33, thus with the diary already presented completing his record for the period 1830-62. He devised the double-headed rail, and was the first to lay out colonial railways. His diary is of importance to anyone who attempts the history of engineering. The score of the "Brides of Venice," by J. F. Duggan, will have interest for playgoers, especially as it was presented by the Julia St. George who, with Madame Vestris, used to charm the town in Planche's extravaganzas. As every year rubbings of English and foreign brasses are added the Museum collection must by this time be at least complete; the latest donor is the late Rev. William Creeny, of Norwich.

The department of Prints and Drawings was enriched by 5,053 examples. In addition, the late Sir A. Wollaston Franks, who was a loyal servant as well as a munificent benefactor of the Museum, has bequeathed about 45,000 English book-plates and 35,000 foreign examples, forming probably the most valuable and important collection ever formed. In the literary and social history of the eighteenth century Mrs. Delany's name often arises. An elegant amusement which occupied the ladies of her time is recalled by a collection of 974 flowers and plants executed in "paper mosaic" by her hands. The wood blocks, numbering 422, cut by Mr. W. H. Hooper from drawings by Sir E. Burne-Jones, William Morris and Walter Crane for the Kelmscott "Chaucer," are now a part of the Museum property. Several sketches and studies by the late Lord Leighton were acquired. Mr. Strang has presented twenty-seven studies in pencil and silver point, besides eighty-seven impressions of his plates in various states.

From English art of our time to the art of 3700 B.C. is a vast stride, but to those who utilise the British Museum greater transitions become easy. The interest in ancient Egypt comes closer to us than ever, for Great Britain has accomplished feats which would have daunted the Pharaohs. The forty centuries can look down on us from the Pyramids with more approval than on the selfish deeds of Buonaparte and other robbers. The portion of a cornice of a door, the false door, and the portrait statue of An-Kheft-Ka, "a royal relative," and of An-Kheft-ek, which belong to 3700 B.C. or thereabouts, are therefore welcome additions. But there are many other ancient examples. From Assyria a mace-head of an early king is inscribed with an account of the building of a temple, a seal shows a conflict with scorpion men, and there are three cylinders which are among the finest examples of Babylonian seal cutting, and none of them is later than B.C. 2500. The contract tablets that are buried in Babylonia appear to be endless. One "find" was rewarded with no less than 864, most of them dating from about B.C. 2200.

The First Vase Room has had to be partially rearranged in order to display the terra-cotta sarcophagus from Clazomenae, which is remarkable for its series of painted decorations. There have been additions to the Greek and Roman antiquities of works or fragments in gold, silver, bronze, marble, terra-cotta, &c. In addition to their value as examples some of them have importance as evidence for archæological problems. Thus of a terra-cotta bowl, which bears a representation of the story of Persephone, it is said :—"The entrance to the lower world is indicated by a stelè on which is inscribed the word 'eusebôs,' and this, perhaps, may be taken as conclusive evidence that the usual form of Greek tombstones or stelæ, representing a portal, was intended to indicate the portal of Hadès."

From the tombs at Maroni and Tekké in Cyprus several examples of jewellery were obtained. According to the report, "The excavations in Cyprus, which had ceased in September 1896, when the site of Enkomi, near Salamis, was exhausted, were resumed in November of last year on a new site, that of Maroni, between Larnaca and Limassol, where were found tombs of the Mycenæan age. The results were at first promising, but after a short time it was deemed advisable to transfer operations to another site, close to a tekké or sacred tomb near the Salt Lakes of Larnaca. Here also the tombs proved to be of the Mycenæan age, and productive of good results, so far as it was possible to carry them with the funds then available. The excavation of this site is being continued in the present year." Cyprus has been rather disappointing as a treasure island, but we suppose its numerous masters in successive ages have carried off the relics.

It is admitted in the report that the most important acquisition of the department of British and Mediæval Antiquities was the collection of gold ornaments from the North of Ireland. In the House of Commons there was some talk on the subject during the last weeks of the Session, and the Irish members have returned home with the conviction that the Government intend to arrange for

the transference of the objects to the Dublin Museum. The opinion of the keeper, which no doubt is also confirmed by the trustees, is as follows :—"This important find is of exceptional interest at the British Museum, as the objects, which may be attributed to the beginning of the Christian era, belong to a class specially connected with Britain, and in which the Britons attained to greater perfection than did any of their continental kindred. The Museum, moreover, possesses already the most important collection of bronze remains of this period of culture, which these gold objects will supplement and enrich in a useful way." The aim of the trustees has been always to make the collections in the British Museum as comprehensive as possible. Students of archæology, foreign as well as native, have a right to expect sufficient examples to illustrate the relations between objects of various countries and periods. In Dublin, as in Edinburgh, opportunities should be given to those who wish to study Celtic art, but that is no reason why in London Celtic art should be ignored. There is an abundance of goldsmiths' work in the Dublin Museum, but as that variety of art is not exemplified in London, the trustees were justified in filling up the void in their collection. It was unfortunate for the Government to talk as if the trustees were over-grasping, and in that way to create an illusion which is sure to end in the familiar cry of injustice to Ireland. The gold objects consist of a collar with ornament of late Celtic character in relief, a twisted collar of solid wire and part of a second similar one, two neck chains, a bowl of very thin metal, and a model of a boat, with oars and other implements.

Among the numerous additions is the fifteenth-century Scottish brooch which is stated to have been in the possession of the CAMPBELLS of Glenlyon for many generations. It is of unusual size for a brooch, circular with a bar across the middle, and having two pins. The front is set with stones and pearls and is somewhat rudely worked ; the back has the names of the Magi as a charm. Another interesting object is the double matrix of the seal of JOANNA, Queen of Sicily and Countess of Toulouse, daughter of HENRY II. of England. It is of silver, and has on each half a figure of JOANNA, in the one case as Queen and in the other as Duchess of Narbonne, Countess of Toulouse and Marchioness of Provence, as shown by the legend. She married WILLIAM II. of Sicily in 1177 and the royal half of the seal was probably used by her during his lifetime. After his death she became in 1196 the wife of RAYMOND VI., Count of Toulouse, and died three years later. The matrix was found in the ruins of the Cistercian Abbey of Grandselve (Tarn et Garonne).

The department of British and Mediæval antiquities is the most elastic of all in the Museum : for the oldest as well as the latest work a place in it can be found. Consequently there is nothing inapposite in bronze medallion portraits by DAVID (d'Angers) of CANNING, BRUNEL, Sir JOHN FRANKLIN, Sir J. ROSS and others, or an ivory statuette of Bacchus by Baron DE TRIQUETI, or Sir DAVID BREWSTER'S microscope, &c.

Anyone who wishes to keep up his history, mythology and geography, as well as his knowledge of one variety of art, cannot do better than pay attention to the annual additions to the department of Coins and Medals. Thus one British coin which is inscribed "Carte" is a proof that it was struck by Queen CARTIMANDUA, who is known in history as the betrayer of CARACTACUS. She rebelled against her husband VENUTIUS in A.D. 69, and, in conjunction with VELLOCATUS, the king's armour-bearer, succeeded for a short time in ousting him from his kingdom, as is recorded by TACITUS. In Greek coinage there was always a connection between the city where it was minted and the animal or device on the obverse. But what is the signification of a toad or frog that appears on a silver stater of about B.C. 600, and which may belong to the Cyclades? Another stater, bearing a head of PERSEPHONE, bears traces of an engraver's signature, which is assumed to be KIMON. If so it testifies that the renowned Sicilian artist was employed to prepare dies by the Locrians, and would show that in the old days the difference between great and small in works of art was not so influential as in our time. A pattern on a coin from Delphi is said to resemble a temple ceiling of the coffered type. Before Corinth was destroyed Tenea was only a village ; then i assumed importance, and possessed its own mint. In the Mediæval series one of the most curious is a gold piece struck at the Abbey of Thorn, in the province of Limbourg, Belgium, by the Abbess MARGUERITE DE BRÉDERODE, A.D. 1531-77. The coin is a close imitation of the English angel of the time of HENRY VIII. The reverse legend is "Moneta Nova Avrea Thorensis." The coin by itself is enough to show the power of nuns among the Flemings.

The report is most satisfactory, and the administration of the Museum is worthy of imitation elsewhere. In fact, the Museum authorities, in addition to their ordinary duties, have suggested one of the most efficacious means of solving the problem of technical education. The probationers and junior assistants have a definite course before them, and do not lose themselves in the mazes of universal knowledge. Subsidiary subjects need not be neglected, but they are not allowed to divert attention from whatever is essential. In some of the large works in England, such as ARMSTRONG'S in Elswick, a similar system has been adopted, with great advantage to the firm as well as to the students and apprentices. But it should be more generally followed. In business specialisation should be paramount, and what is true in Bloomsbury is no less adapted to Birmingham. When what is known about the most important subject is exhausted, it is time enough to deal with accessories and superfluities.

GROUNDS OF WALLS AND PAINTINGS.

A PARAGRAPH has been running through the papers this week concerning the colouring of a church in Guildford. According to it a contract was entered into for painting the interior of the building, and parishioners, committee, churchwardens and rector were horrified when they found that in one part the walls were being covered with a pale green paper above with carpet brown below. Probably the use of paper is merely an experiment. To outsiders it may seem an easy task to prescribe the colour for walls. They believe there are only a certain limited number of paints, and all that has to be done is to make a selection. An architect would therefore be justified to employ paper or other material that would enable him to judge how far the lighting and other circumstances of the church would affect the colours he proposed to adopt.

The generality of people have not even elementary notions of colour. That fact is manifested whenever they select papers for covering the walls of rooms. There is no doubt that pleasing room-papers are obtainable at moderate rates, and in no branch of manufacture is the progress of taste more evident. Designs by artists of standing, in colours which can be described by the old formula "mixed with brains," can cover walls without much sacrifice on the part of the occupant. But at the same time the average pattern-books which a builder and decorator submits to his patrons are filled with forms and colours which should pain instead of gratifying the eyes. Unfortunately they are most in request, and those who pay for the vulgar papers wonder why they are disappointed when the paper is fixed in their rooms.

If the owners and tenants of houses and flats would only endeavour to realise what power the colour of the walls can have upon the nerves, we should then see more eagerness to obtain papers and paints that would attain the effect contemplated. In that strange but vigorous romance, "Flames," by Mr. HICHENS, we can read some remarks on the subject which most likely were inspired by a study of books on psychological medicine. One of the characters has a flat in Victoria Street, Westminster. In the days when his mind was in a healthy state, before he began to experiment in occultism, his drawing-room was dominated by a picture of the modern religious type, *The Merciful Knight*, and the room was, so to speak, luxuriously ascetic. But a change takes place in the man, and one of the results is a transformation of the drawing-room. To a nerve-doctor who awaits the owner in the room, the colours about are a revelation. The writer tells us :—"The doctor was aware of a deep and dusty note of red in the room, sounding from carpet and walls, tingling drowsily in the window curtains and in the cushions that lay upon the couches. This was was not the crude and sealing-wax red with which the festive Philistine loves to dye the whiteness of his dining-room walls,

cooling its chubby absurdity with panels of that old oak which is for ever new. It was a dim and deep colour, such as a dust-filmed ruby might emit if illuminated by soft light. Everywhere, as a deep and monotonous bell ringing relentlessly through a symphony of discordant and crying passions, there sounded that sinister note of deep and dusty red. Despite his own complete health of mind, and the frantic disquisitions of the morbid NORDAU, the little doctor felt as if he heard the colour, as if it spoke from beneath his very feet, as if it sang under his fingers when he laid them on the brocade of a couch, as if the room palpitated with a heavy music which murmured drowsily in his ears a monotonous song of dull and weary change." We must allow a writer of Mr. HICHENS's power to have full swing, but what he says is not falsified by experience in this neurotic age. The colours of walls and carpets exert more influence over people than they may be willing to admit, and it cannot be said we are always above the operations of colour in church. If the Guildford architect wished to experimentalise with paper in order to produce or to avoid certain effects, he deserves credit rather than mockery. But as we have started the subject of colour especially in grounds, or, as the French say, *fonds*, we may consider another aspect of it.

When we find the great picture by REMBRANDT in the Amsterdam Museum is universally known as the *Night Watch*, it is impossible to avoid the conclusion that whoever originally employed, as well as the people who afterwards accepted, the title must have had strange notions about the qualities which distinguish night from day. It is true REMBRANDT was fond of the contrasts which night allows. As BYRON says, he could make darkness equal light, and therefore a fallacy might arise about his restricting his pencil to night scenes alone. But a glance at the picture should be enough to demonstrate there was no intention of representing a nocturnal assembly. The designation at length became inseparable from the work, and when an etching is made it is expected to be as black as printing-ink will allow. The case is only one among many which could be cited to prove the weakness of the colour-sense, or rather of the power to discriminate between tones which seems to be inherent in mankind.

It was no doubt on account of that weakness so many of the Italian painters adopted conventional arrangements. In the pictures which were prepared for churches the figures can be identified by colours as easily as by symbols. Works of the later Renaissance period show almost an indifference to symbolism. But blue robes, golden hair, green gowns, brown raiment, &c., are so carefully retained, there is little difficulty in the interpretation of the pictures. Respect for what was handed down from one generation to another, and which was not based on nature, could not fail to have an injurious influence on art. Something of the kind was seen also in the representation of trees, rocks, hills and buildings in the backgrounds of pictures and occasionally in other parts also. It is now incredible how painters who lived amidst country scenes could imitate nature so abominably, or how country folks could accept such forms as representations of things with which they were familiar. In course of time there was an improvement in forms and conventionalisms were gradually abandoned. But while the outlines of rocks became less bizarre the stereotyped colours were allowed to remain. Less than a century ago a brown tree was supposed to be an indispensable ingredient in landscapes which were intended to display all the glow of summer's verdure.

It is possible that many of the defects or inaccuracies which we see in the landscape backgrounds of Italian pictures were not caused by an inability to distinguish between the true and the false. The artists may have simply utilised the bizarre forms just as M. BONNAT does his broken tones in the grounds of his portraits. They were elements which could be transformed at pleasure. If we consider the rocks which DA VINCI introduced in his *Vierge aux Rochers* by themselves as representations of nature, they will appear as unnatural as anything we can see on a Chinese plate. But who would care to see them removed and a representation of a scene in the neighbourhood of Milan substituted? The strange rocky masses impart an air of mystery to the picture, and the figures in the foreground stand out with more vigour against a background that to some extent appears to be a mass of ice illumined with most delicate colours. This theory derives some confirmation from the old rule which was adopted in some of the Italian, Dutch and French academies. According to it the ground should be one of the first thoughts of the painter. With that object he was recommended to obtain canvas approaching in colour to the contemplated ground, to place it in front of the scene he proposed to represent, if a landscape, and to make experiments with colour upon it. With the dyed canvas an artist was supposed to be more impartial than with one which would have a ground laid on it by himself.

Another rule was to employ white objects, such as flowers, vases, blocks, as models to paint from. In any case, a white object is difficult to represent, and a common white china teacup is almost if not more trying as a model than TITIAN'S bunch of grapes, which by itself was supposed to go far towards training a painter. But it was not merely on account of the pains which were required to give an appearance of roundness or other qualities to an object without diminishing its constituent whiteness that the recommendation was expressed. It was because by the aid of white objects the effects of a background were most sensibly exemplified, as well as the effect of objects of other colours on white. Too often the background was the last part of the picture which was considered. Young artists supposed that every colour could be heightened and parts brought together into unity by the ground, and therefore it was wise to delay the treatment until the rest of the work was nearly completed. But that procedure was not always successful. It was not followed by GAINSBOROUGH, to name one artist, for, as REYNOLDS relates, he formed all the parts of his picture together, the whole going on at the same time, in the same manner as nature creates her works, and much of the charm of his work arises from that mode of treatment. A portrait by him is not a head with accessories by assistants, but a work which from its unity might be commenced and completed in one sitting. The few unfinished paintings left by GAINSBOROUGH are accordingly invaluable as revelations of his method. There might be more imitators of GAINSBOROUGH if painters did not conclude from the ancient examples, such as the pottery paintings of the Greeks, the golden surfaces of the Byzantines, and the uniform colour adopted in many Mediæval examples, that as backgrounds can have no part, or a very supernumerary one, in expressing a subject, their inefficiency should be recognised. There can be no general law on the subject. In decoration the background should not be obtrusive. But if carefully considered in their effects on the colours of the other planes of a painting, there is not much chance of error. The early works in which, from the excess of figures and details, the last plane became a sort of revelation of a different world, often injured the effect of the important parts of the picture, unless in those cases where monotony of colour was employed, and by which they approach the pre-Christian and early Christian decorative works.

THE CAMBRIAN ARCHÆOLOGICAL ASSOCIATION.

THE fifty-second annual meeting of the Cambrian Archæological Association opened at Ludlow on Monday, August 8, and was continued until the following Friday. Although not, according to strict geographical definition, within the boundaries of the Principality, the ancient town of Ludlow, which abounds in objects of antiquarian interest, is situated in the midst of an extensive tract of country possessing many associations with the history of Wales and border warfare. The Society last visited Ludlow in 1852. The retiring president, Sir Owen Scourfield, Bart., was succeeded by Lord Windsor, who has local connections with Ludlow.

Ludlow.

Buildings of antiquarian interest in Ludlow were first examined. The members assembled in the Castle Square at 9 A.M., and proceeded to inspect the castle, which stands on a rocky promontory at a height of more than 100 feet above the junction of the Corve with the Teme to the west of the town. Mr. C. Fortey conducted them over the building. The castle

was founded in the eleventh century by Roger de Lacy; it is composed of an inner, middle and outer ward. The inner ward occupies the south-west angle of the middle ward. The south wall divides it from the outer ward, and its western wall is part of the general enceinte. Its two other walls divide it from the middle ward. This ward has three towers, the keep, the bake-house and the postern, at its south-east, south-west and north-west angles. In it is the well. The middle ward contains a pile of Tudor buildings over and about the gateway, built against the south curtain, which is of Norman date. Along the north curtain is the grand mass of the state and domestic buildings, being of mixed Norman and Decorated date, and composed of the buttery tower, the hall, the state and private rooms and the square tower which occupies the north-east angle of the ward. In the centre of this ward stands the chapel, dedicated to St. Mary Magdalen. All that remains of it is the circular nave, 28 feet in interior diameter, with walls 4 feet thick. The entrance-door to the west is a fine example of enriched late Norman work. Round its interior walls is an arcade of fourteen arches resting on a low stone bench. The arches are alternately chevron-moulded and beaded, the capitals cushion-shaped and roughly ornamented. Above the arcade was a timber gallery resting upon twelve corbels, of which one is decided Norman and one Early English. Its chancel was standing in the reign of Charles II., and had two Tudor windows in its north wall and windows in the roof. This chapel is, with great probability, attributed to Jocelyn de Dinan, in the reign of Henry I. (1100-35), the Temple Church, which it resembles, dating from 1127. The outer ward contains but few buildings. Near the centre of its curtain is the principal entrance, in rooms over which Butler wrote his "Hudibras," being secretary to the Earl of Carberry, Lord President of the Court of the Marches, 1649-72. Built against its south wall is a range of Tudor buildings, probably stabling. One square tower of early date stands on the east wall, and another, later and semicircular, on the west wall above the river, bears the name of Mortimer. When the Court of the Marches was finally abolished (1689), the castle was suffered gradually to decay.

The church, dedicated to St. Lawrence, and one of the finest parish churches in England, was next visited, and the Rev. Prebendary E. ff. Clayton acted as guide. The church has a nave, side aisles, transepts and choir, with side chapels. The south porch is hexagonal, similar to but earlier than that of St. Mary, Redcliffe, Bristol; there is a large plain Norman font. The choir is separated from the nave by a handsome screen; its stalls are good examples of fifteenth-century work and have misereres well worthy of notice. In the sixty-five compartments of the east window is illustrated the life of St. Lawrence. Only the upper part of the reredos, containing a number of small figures in tabernacle work, is original. In the choir are also several sixteenth-century monuments. St. John's Chapel is to the north of the choir. The glass of the east window depicts the Legend of the Ring; the story is as follows:—King Edward the Confessor, having no money to give an old beggar, gave him a valuable ring. Some time after, the same ring was given to some pilgrims in the Holy Land by an old man, who told them to give it back to the king as a token that he should shortly afterwards die. The pilgrims, who are stated to have been Ludlow men, on their return did as they had been ordered to do. On the back of the stalls dividing the lady chapel from the choir is a copy of the Ten Commandments, somewhat abbreviated, painted on panels in Old English characters, apparently of the reign of Elizabeth, 1560.

Hosier's almshouses, to the west of the church (founded in 1468, but rebuilt in 1758), and in a line with it the college, lately made a cottage hospital (retaining its fifteenth-century portal), and the Reader's house, close by, having been seen, the Bull Inn (an interesting old house), where may be seen the sixteenth-century panelling with coats-of-arms, once in the castle chapel, was visited. Then a move was made to the Feathers Hotel, the well-known black-and-white timbered house, with the coffee-room ceiling divided by moulded beams into three compartments filled with intricate ornament. In an adjoining room are the Fox arms, on a carved panel over the door. The arms are a chevron, between three foxes' heads erased (Fox), impaled with three hatchets proper (Hackluit). The Museum of the Ludlow Natural History Society, which contains a fine collection of Silurian fossils, many relics from the castle church and monasteries of the town, municipal charters and documents of the Guild of Hammermen in the original seventeenth-century oak chests, and the Grammar School, were also visited. In the fifth year of Edward VI., 1552, a new charter was granted to the school, which states that a grammar school had been maintained by the Palmers' Guild. The building has a pointed door and three fourteenth-century windows. Barneby House, the lodging place of pilgrims on their way to St. Winifred's Well, with some Early English remains, the Broad Gate, the only remaining gateway, and Ludford House, which is approached through an Edwardian archway and formed part of the Hospital of St. John in the thirteenth century, were duly inspected. At the Dissolution the house was granted to the Earl of Warwick, who sold it to William Fox, secretary to the Council of the Marches. Fox was buried in Ludford Church in 1554. It was sold again in 1667 to the Charltons. Sir Job Charlton, Speaker in 1686, entertained James II. here in great state in 1687. Ludford Church, with a brass to William Fox (who is represented as clad in plate armour of the early part of the sixteenth century) and his wife Jane, proved interesting to the party.

The Presidential Address.

A public meeting was held in the Town Hall, Ludlow, at which Sir Owen Scourfield presided. He said it now became his duty to give up the reins of office to his successor, and that successor was very well known to many of them there—Lord Windsor. They had made many expeditions in various parts of the country, but they were now visiting the most beautiful part of very beautiful Shropshire. He did not think the Society in visiting Ludlow were, archæologically speaking, going out of their own country, for he always believed that Wales actually began at the western side of the Severn, and his experience had been that in a town nearer the Severn than Ludlow the people were as Welsh as ever they were, and always would remain so.

Lord Windsor, on taking the chair, said he wished to thank the Society, first of all, for the honour they had done him in electing him president for this year. He had been looking over some of the transactions of the Society, and some accounts of their past meetings, and he noticed that with very few exceptions their past presidents had opened their remarks with some apology for their unfitness for the office. It was not because of any exaggerated idea of his archæological knowledge—he would remind them that they themselves were to blame for electing him—that he did not ask but claimed their kind attention and patient ear while he made a few remarks in opening the proceedings. There was no doubt about the importance of this country or about the stirring events which must have taken place during the struggles of the Romans and Britons for the border counties of Wales; and whether the great battle which ended in the defeat of Caractacus really took place near Coxwall Knoll, between the Clun and the Teme, or whether, as seemed more probable, the site was thirty miles further north on the banks of the Severn, the portions of Roman roads and the numerous Roman as well as British encampments abundantly testified to many such bloody encounters between invaders and invaded. But the position of Ludlow as the centre of this interesting country—its importance and magnificence—were of later date. He could well imagine that King Arthur's knights, as they came upon the valley of the Teme during their wanderings, and followed the river past the Druid oaks at Oakley Park, must have seen an enchanted castle rise up before them on the rocks in the valley—some prophetic vision of the stately pile of which now, alas! we saw but the ruins, but which from its foundation at the end of the eleventh century to Cromwell's time played a most important and brilliant part in the battles and the pageants, the love-makings and the treacheries of those stirring Mediæval times. The oldest part of the castle, the keep or dungeon tower, was believed to have been built by Roger de Lacey, and so far as they were able to retain it against their foes, or against the will of an offended sovereign, was more or less in the possession of the Laceys till it passed by the marriage of the heiresses in 1244 to the De Genevills and De Verdons, and later by another marriage in 1316 to Roger de Mortimer, and finally became the property of the Crown. Afterwards it became the official residence of the Presidents of the Council of Wales and the seat of the Court of the Marches. But the most interesting event in its later history was the writing and performance of Milton's "Mask of Comus" in the Banqueting Hall, in 1634. We were told in Todd's edition of Milton that "Lord Bridgewater, being appointed Lord President of Wales, entered upon his official residence at Ludlow Castle with great solemnity." Thither came his children, Lord Brackley, Mr. Thomas, and Lady Alice Egerton, from Herefordshire. They were lost in Haywood Forest. This was the foundation of Milton's poem. But it was not so much in the fact that it was first performed in the banqueting-hall at Ludlow that the chief interest of the poem lay, but that only a few miles from this spot Milton found the origin of his inspiration and the local colour of his scene. Comus's valley was still to be found, and in that delightful woodland scenery, where imagination ran riot, they could picture to themselves the haunts of the wizard, and people if they pleased his rabble crew with their own unloved acquaintances. But this seemed to have been the last brilliant flash in the history of the castle. In 1646 came Brereton and his Roundheads. They took possession of it, and immediately inventoried its contents and offered them for sale, and the president's court was practically abolished, though not actually so till 1688. It remained for the hopeless dulness of the Georgian times to complete the destruction which Cromwell

had begun. In the reign of George I. the lead was ordered to be stripped off the roof, and the castle's ruin became complete. The first act was the outcome of a violent animosity against the Crown and the old order of things; the second was the result of pure and unadulterated stupidity, owing to an entire absence of appreciation of all beautiful things that did not conform to the narrow and artificial taste of the day. Thank God they had touched the bottom, and they could claim to live in a second age of renaissance, wherein, whatever might be their faults, they felt a real appreciation and reverence for the beautiful creations of the past, which they might some day emulate, even if they could not eclipse. His lordship concluded by again welcoming the Society to Ludlow, and hoped that the members for themselves would feel at the end of their visit that they had spent a profitable week there, and he was perfectly certain their visit would be profitable to the inhabitants, because it made them interested in their own surroundings and in the preservation of their ancient monuments.

Caractacus.

Mr. Jasper More, M.P., read a paper on Caractacus, in the course of which he said they derived the most accurate account of what was done in that district in the first century from Tacitus, the son-in-law of Agricola, the governor who finally pacified Britain. The name in Latin was Caratacus, not Caractacus, in Welsh Caradawg, and in British Caradoc. Caratacus was one of the sons of Cunobelin—the Cymbeline of Shakespeare—who reigned at Colchester. The attack of Aulus Plautius on Caratacus, made after the death of Cunobelin, was only given by Dio Cassius, whose grandmother was a contemporary, A.D. 50. Caratacus retreated before Ostorius Scapula, and then it was that the camps extending through Herefordshire to Montgomeryshire bearing his name were used. This led Hartshorne, the secretary of the Society of Antiquaries, to argue that the last battle took place on the Breidden, in which case the retreat would be through the difficult but beautiful ground leading from Clun to Bettws y Crwyn, with a large camp at Caer Caradoc, near Clun, and other camps at the Burg Ditches, Bettws, and probably Churchstoke, which formerly bore the name of Chestoke, or camp. Caratacus had a castle in South Wales, now belonging to Lord Dunraven, and another in Denbighshire. After the final battle Caratacus fled to Boadicea, whose capital was York, and she gave him up to his Roman enemies. Caratacus who had kept the Roman army employed for nine years, with his wife and daughter, were taken to Rome, and with an iron band around his neck and waist Caratacus was led in procession before Claudius and his wife Agrippina, the mother of Nero. Caratacus saved kimself and his family by the speech he made, and the scene was the subject of a painting in the possession of the royal family of France. He lived in respect with his family in Rome, and it was an interesting consideration that he might have been contemporary there with St. Paul. Quoting the last words written by St. Paul at the end of the second epistle to Timothy, "Eubulus greeteth thee, and Pudens, Linus and Claudia," Mr. More said when foreigners submitted to Rome they all took the name of the Emperor. Caratacus would, therefore, take the name Tiberius Claudius Caratacus, and his daughter's name would be Claudia. Caratacus's son was called Llyn in Welsh, which would be Linus in Latin. If Linus was the brother and Pudens was engaged to Claudia, and Claudia was the daughter of Caratacus, the order in which St. Paul mentioned them would be the natural order. Mr. More quoted Mr. Lewin, the author of the most elaborate life of St. Paul, Fuller, Archbishops Usher and Stillingfleet, Archdeacon Pryce of Bangor and others, in favour of the view that Claudia was the daughter of Caratacus. Dealing with the first introduction of Christianity into Britain, Mr. More said the Triads stated that the family of Caratacus brought Christianity back with them, and Claudia was said to have had three or four sons who were called saints. Discussing the site of Caratacus's final battle, Mr. More said Mediæval opinion favoured Caer Caradoc, near Clun, but Hartshorne argued the point and placed the site on the Briedden. If Hartshorne were correct the Romans must have been drawn through the difficult ground to Bettws, above Kerry, and if Caer Caradoc were the site, Caratacus must have retreated over that difficult ground to effect his escape. In conclusion he said we had no statue of Caratacus, and suggested that a good local monument would be collections of books on the period at Church Stretton, Clun and Ludlow. Incidentally Mr. More mentioned that Prince Arthur, brother of Henry VIII., and Catherine his wife, whose subsequent marriage to Henry brought about the Reformation, lived at Ludlow; that Edward III. came to hunt in Clun Forest and that Sir Walter Scott took his family to stay in Clun, and made the old castle and Powis Castle the scene of "The Betrothed."

Archdeacon Thomas said he thought their thanks were due to Mr. More for the very able paper he had read. The Archdeacon dealt at considerable length with the controversy which rages round the site of the last stand of Caractacus, and after pointing out in what manner the Church Stretton and Coxhall Knoll sites disagreed with certain details of the battle found in Tacitus, he expressed himself as being strongly in favour of the Breidden site.

Bromfield Priory.

The Rev. C. H. Drinkwater read the following paper on Bromfield Priory:—I have been asked to read a paper about Bromfield Priory, simply because some time last year a document was brought to me for transcription by your recorder, which I found to be a copy in English of a confirmation by Henry III., in July 1235, of certain charters to the prior and monks of Bromfield by his grandfather, Henry II. This document was in English, and when I had read it I considered it worthy of being put in permanent record, not merely for the quaintness of its language, but as being an almost unique specimen of fifteenth-century rendering of a Latin charter. To this, when it was ready for publication, I was enabled to subjoin in an appendix certain particulars relating to the final disposition of the priory estates at the time of the Dissolution, but I felt that very little was done even then to clear up the mystery which hung over the original foundation of this ancient ecclesiastical house. We know that it had its beginnings before the Norman Conquest, and that its territorial possessions were originally very large, but as the cartulary was lost, or rather non-existent, very little was known concerning the history of this religious establishment until in the reign of Henry II. it became a Benedictine priory, subject to Gloucester Abbey, and it continued such until the Dissolution. Of the early history, as I have said, very little is known; that little, however, is found in Domesday. Under the heading "Quod tenet Ecclesia Sanctæ Mariæ" we read in the Conqueror's record that "the same church holds Brunfelde, and there it is built. Here are now x hides, and in demesne vj ox teams, and there are xij neat herds, xv villains, and xij boors, with viij teams. It is worth 50*s.* annually to the canons, and Nigel the physician has 16*s.* annually from this manor. In this manor there were in King Edward's time xx hides and xij canons of the said church had the whole. One of them, 'Spirtes' by name, had alone x hides. But when he was banished from England King Edward gave these x hides to Robert FitzWimarch as to a canon, but Robert gave the same land to a certain son-in-law of his, which thing, when the other canons had shown to the king, forthwith the king ordered that the land should revert to the church, only delaying till, at the court of the then approaching Christmas, he should be able to order Robert to provide other land for his son-in-law, but the king himself died during those very festal days, and from that time till now the church hath lost the land. This land Robert now holds under Earl Roger, and it is waste, and was found waste. One part with another the arable land is sufficient to employ liiij ox teams." Eyton further presumes that Robert FitzWimarch is identical with Robert the deacon, that Norman ecclesiastic whose daughter Richard Scrob married. This intended restoration of the lands to the church was never effected, for the king died January 5, 1066. The church continued to be served by these xij or perhaps xj canons, without any ostensible head, till very early in the twelfth century, when the Saxon and Collegiate Church of St. Mary of Bromfield became a regular monastic institution, and Osbert, prior of Bromfield in 1115, attested an ordinance of the Viceroy. They in 1155 became Benedictine monks, and yielded up their church and all their lands to the abbey of St. Peter, Gloucester, whereupon a prior and monks were placed here, and continued till the Dissolution. The confirmation which I transcribed is dated July 19, 1235, and refers to a period eighty years after the change took place in the constitution of the house; Henry II. began his reign in 1154. In the first of the charters confirmed, he speaks of "prebendes held in the tyme of Kyng Henry, our grantfader." This would be Henry I., who reigned from 1100 to 1135, and would seem to show that the prebendes still existed in his day and were only gradually extinguished by death, for four of them are mentioned by name, and other canons are also referred to. The first charter of Henry II. styles the manor a "royal demayn," and the church a "lordly chapelle," and gives both manor and church to the "prior and monks there seruing God." It grants to the prior and monks, subject only to the life interest of the old canons, all the landes and towns of Hawford (Halford, near Craven Arms), of Dodynchop (*i.e.* Dinchope), of Efford, a lost place, which is once mentioned in the "Cal. Inq. P.M.," p. 42, as a township in South Salop, and under the name of Asheford. Esseford may refer to Ashford Carbonell, but this is only conjecture. ffelton (this is known as a member of the manor of Bromfield). Two places are mentioned, Clay Felton and Rye Felton. Here, probably, was a chapel served in Henry I.'s time by Robert, who is called "Prist of ffelton." Bourway (or Burway, the Latin has Burgeheye) is 1½ miles south-east of Bromfield. Johannes and Adam de Borewey are names found in a subsidy roll of 1327. Ledewich (alias Lethewick) is a township five miles north east. Halton (or Halentone); no doubt Priors Halton, close to

Bromfield; the others were Hill Halton and Lady Halton. All these were members of the manor of Bromfeld Nernes, which last is a very rare and difficult word, not altered except in the spelling in the Latin version of this confirmation, but here it probably means jurisdiction, the extent of the prior's vassalage. The charter goes on to exempt these towns and lands from all secular "seruices and exaccions." The second charter confirmed is one of the same king, Henry II., conferring facilities of free travel and passage through all his lands by "stret or wey in towne or in water in se and in haven," in addition to other privileges and exemptions on their own properties. The third charter mentions further exemption from all secular services and taxation. The fourth gives them the privilege of free chase and hunting in certain specified woods and forests, and forbids all royal foresters and other officers to meddle with them. The woods of Moktree and Ailncherwood, the land and pasture of Benet are mentioned, and all hunting and chasing by others are forbidden under a penalty of 10*l.* The last charter adds another wood, that of Esruge, to the former, speaks of hares as game and repeats the penalty of 10*l.* All these five charters are confirmed by Henry III., and the grants and gifts made firm and stable, the witnesses to the confirmation thus made being the Bishops of Durham, Salisbury and Carlisle, Geffrey, Earl Marshal, Hugh, Earl of Kent, Rauf the son of Nicolas, John the son of Philip, Geffrey Despencer, Geffrey Cawz and others, every one of whom was living in the year 1235. These scanty notices are about all we know of the history of this house, which as a religious establishment had existed in one form or another for nigh two hundred years, first as a collegiate establishment and then as a Benedictine priory. Pope Nicholas's taxation in 1291 gives this estimate of the prior's income as lord of this manor—

	£	s.	d.
Eight carucates of land that yielded per annum	4	0	0
The hay (10 loads at 1*s.* 6*d.*) was worth	0	15	0
The assized rents and tollage of natives amounted to	22	13	4
Pleas and perquisites of court, the labour dues and the fines on copyhold land were	3	0	0
The pannage of swine yielded	0	2	0
Three mills	3	0	0
Profits on stock (8 cows and 260 ewe sheep)	7	2	0
Making a total of	40	12	4

78*l.* 19*s.* 4*d.* was about the income which the priory derived from the manor of Bromfield and its adjuncts in 1534-35. At this period, the time of the Dissolution, the property had much increased in area and value. Many new names are found in the papers referring to it in the Augmentation Office. We may gather that the prior and monks had not neglected their worldly interests in the 300 years which had elapsed since the confirmation of Henry III. in 1235. An enumeration of the separate items may be of interest to residents of South Salop:—

Revenue of the Cell of Bromefeld.

	£	s.	d.
Assized rents in Bromefilde	10	18	8
,, ,, Burwey and Chapel	5	3	8
,, ,, Whitebache and Cleyfelton	6	14	4
,, ,, Ryefelton	9	19	4
,, ,, Dodyngethorp	3	3	8
,, ,, and Ledewych	4	0	0
	50	18	0
	10	19	4
N.B.—Some item omitted, for the total is only	39	19	8
Rent of certain lands in Overton field psh. Richard Castle	0	2	0
Farm of wheat tithe Hawford and Dodyngethorp	2	0	0
,, ,, Halton Prior and Ludford	2	13	4
,, ,, in Ledewyche Leete and Stevynton	3	10	0
,, ,, Halton of the Bd. Mary of the Hill	2	1	0
,, ,, Burwey, Chapell, Whytebach and Ryefelton	4	0	0
,, ,, Cleyfelton	0	14	4
,, ,, Asheford	3	6	8
,, ,, Bromefeld	2	0	0
,, ,, Cokerugge	0	13	4
Portion of tithes parish of Stokesay	0	8	4
Income of arable, meadow and pasture land	2	13	4
Rent of a water-mill in Bromefeld	2	3	4
Perquisites of court held there	0	16	8
	78	0	4

or nearly 80*l.*, or almost double the income of 1291. In 1557 the sum of 444*l.* 10*s.* 6*d.* was paid by Charles Fox for the site of the priory, with all the appurtenances in Bromefeld, Netherhalton, Ledwiche, Dinchoop, Hawford, Burweye, Cleyfelton, Ryefelton, and Whitbache. From Chas. Fox the estate at Bromfield passed by marriage to Matt. Herbert, whose descendant George, Earl of Powis, devised it to his nephew, the Hon. Henry Clive, whose descendant now inherits the estate.

Mr. Jasper More said that though the County Council's petition to have a geological survey of the county prepared seemed to have been refused by the Government, the latter informed him last week that they thought it a matter of great importance, their difficulty in having it done chiefly being as to who could draw up such an account. He (Mr. More) knew who could draw up the western portion and the coalfields, but they wanted to know who could write an account of the Ludlow district. He hoped and thought, considering the talented men in the district, if it were known, the neighbourhood would produce a man who could do the work.

The Excursions.

On Wednesday morning the party set out in rather threatening weather in carriages for Holgate, Abdon Burf and Burwarton. The route taken was by way of Stanton Lacy, Diddlebury and Corfham Castle to the Heath, with its Early Norman church, possessing flat buttresses at each angle, and in the middle of the north and south walls. There is a good doorway, an early font, and four very small windows in the east wall. The arrangement made was that members should leave the carriages at Abdon and rejoin them at Burwarton, proceeding in the meantime to ascend to Abdon Burf, 1,792 feet above the sea-level. Here are hut circles and other prehistoric remains in an oval area, 1,317 feet from north to south, and 660 feet from east to west, enclosed by a vallum 65 feet wide at the base. From Abdon Burf can be seen, about a mile to the west, Nordy Bank, a Roman station, in the shape of a parallelogram with rounded angles. A road led from here through Ludford and Hungerford, over Roman bank to Rushbury. After tea at Burwarton, the party returned to Ludlow.

On Thursday morning the visitors started, in brilliant weather, for Richard's Castle, where are the remains of an Early Norman fortress; the church also possesses several interesting features. A small party went off to examine the church of Ashford Carbonell, an edifice containing much Norman work. The east end of the church is lighted by two windows, having the ordinary plain Norman rounded heads; above these is a beautiful oval window, technically termed a vesica. This, if contemporary with the lower windows, would be one of the earliest instances of the appearance of the pointed arch in association with that with rounded head. Until the restoration of the church, about fifteen years ago, these windows were hidden by plaster, and it was only at that period that the original form of the windows was discovered. The two parties united at Orelton, where is another late Norman church, enlarged probably in the time of Edward I., as it is said that two beautifully carved corbel heads represent the king and his queen, Philippa. At Shobdon, the only old portion of the present church is the tower. About a century ago the owner of the ruins of Shobdon Priory carted away the remains of several arches, which had survived the destruction of the priory church. The central archway was probably the arch between the chancel and the nave, and the two side arches were, no doubt, doorways in different parts of the original building. Two tympana have been placed over openings between the central arch and arches on the right and left. The arches are of the most elaborate Romanesque character, the sculpture with which every portion of the arches is covered possessing certain features which seem more continental than English. These were pointed out in detail by Mr. Romilly Allen, and a few remarks upon the church were made by Canon Rupert Morris. Mr. Allen thought the subject of the eastern tympanum was the Redeemer in glory, according to the Apocalyptic vision of St. John. The subject of the second tympanum was more difficult of identification, the sculpture having become considerably weathered. He was inclined to think it represented the passage which spoke of our Lord during the three days after His crucifixion as having visited the lower regions and returned, "bearing captivity captive."

After lunch, which was partaken of at Mortimer's Cross, the site of the disastrous defeat of the Lancastrian forces by the Yorkists in 1461, the party moved on to Aymestry Church. Here they found a church consisting of a nave, chancel and nave aisles. Across the chancel arch runs a tall oaken screen of beautiful Perpendicular work, which is an evident insertion. The vicar, the Rev. J. Sidebotham, stated, on the authority of an old parishioner, that the screen was put into the church about the commencement of the present century, and that it had been brought from a church somewhere in the neighbourhood of Swansea or Neath. Colonel Morgan, of Swansea, observed that about a hundred years ago the old church of St. John at Swansea was taken down and replaced by a building in the poor taste of that period. It was well known that the old church was a fine edifice, containing some beautiful details, none of which had been perpetuated in the present church. The general opinion of the experts seemed to be that the

(*Continued on page* 137.)

NOTES AND COMMENTS.

The qualifications of sanitary officers are as yet indefinite, and it is believed that much latitude is exercised by local authorities in appointing those officers. The Sanitary Institute has endeavoured to promote competency by means of lectures and examinations, but the possession of a certificate from the Institute is not always demanded by corporations. In a paper by Mr. MacMahon, of Torquay, which was read at the Dublin Congress, it was said that, as special training was necessary, a regular course of study and sanitary practice under an experienced inspector for a fixed period was the most likely method of preparing young men to be properly qualified to efficiently carry on the duties of the office which they aspired to obtain. It was suggested that well-educated youths of from eighteen to twenty years of age should be regularly articled for two years to a sanitary inspector in the town to which they would like to be appointed when competent. They should also study the various Acts of Parliament dealing with the subject. Mr. M'Mahon had trained a youth on those lines, and in eighteen months he passed the Institute examination, and in two and a half years won an appointment from over a hundred competitors under the Manchester City Council. Mr. Kenneth Cameron, of Aberdeen, considered there should be a course of practical instruction, to be followed by an examination by a central board, whose certificate of competency would be recognised and accepted by all. Candidates for the office of sanitary inspectors should be well recommended, and they should also possess the hall-mark qualifying them to undertake the work for which they offered themselves, and he thought the Institute should direct its efforts to the securing of such a central board as he had indicated. There should in addition be reasonable security for tenure of office as well as a superannuation scheme to provide for old age and retirement. The most effective manner for redressing these grievances was by co-operation among themselves, and he strongly recommended the Irish members to follow the example of Scotland by forming associations in several centres. If they did so they would succeed beyond their anticipations.

It was arranged that Mr. Thomas Drew, R.H.A, president of the Irish Institute of Architects, should read a paper on "The Prevention of Hideous Hoardings and Structures in Streets" before the Congress of the Institute of Public Health in Dublin. As Mr. Drew was unable to attend, Mr. Carton, Q.C., in the emergency, read a paper on the subject. He said that advertising stations were of recent origin, and were one of the most hideous and objectionable institutions of the time. They prevailed to a great extent in Dublin, and the advertising station, whether hoarding or otherwise, was unsightly in itself. He thought that the Corporation should be empowered to exercise supervision over advertising. Alderman Meade said he hoped that the Corporation would have control over public billposting, in order to exercise the same supervision that was exercised over certain pictures in shop windows. In regard to newspaper placards in the streets they had appealed to the Chief Commissioner of Police to prosecute in some test cases, but that gentleman replied that he had no power. It is to be regretted that Mr. Drew did not read his paper, for the subject is one that concerns architects more than other citizens, although the support of lawyers is desirable. Hoardings are not only hideous objects, but they diminish the value of the buildings which are near them. On that account the Property League should take up the question, for it is plain that the Corporation of Dublin, although possessed of much power over the streets, dare not interfere with a hoarding or anything hideous upon it.

One of the best proofs of the efficiency of the instruction in the Glasgow School of Art is found in the number of appointments obtained by the students. During the last session there were recommended a professor of design and decoration, a head-master of an art school, five assistant architects, three decorative artists, two designers and a mechanical draughtsman. Among the students of the last session 79 were described as architects, 140 as designers' draughtsmen and litho artists. Out of 618 only 88 were said to be "art students." The figures will suggest that the majority of those who attend the class have in view the improvement of their skill in business. The staff is numerous. The architectural department is under the direction of Mr. W. J. Anderson, the author of a book on "Italian Renaissance Architecture." By desire of the Governors he will deliver a corresponding course on "The Architecture of the Renaissance in France" during the winter term, having visited France for the purpose. The subjects taught in the architectural classes are building construction, specifications and quantities, drawing, sketching, measurement, ornament, colour decoration, design, perspective and sciography. There are several bursaries and studentships attached to the art school.

During a quarter of a century M. Pascal has been professor of architecture in connection with the Ecole des Beaux-Arts. A great many architects have completed their academic treatment under his supervision, and among others several winners of the Prix de Rome. So interesting an occasion could not be allowed in Paris to pass by without the creation of some artistic memorial. Accordingly M. Pascal's past and present pupils decided to give a commission to M. Chaplain, the medallist, for a plaquette which should bear a portrait of the master. The effigy is a faithful likeness, which has received the commendation of the architect's friends. On the reverse is an oak, which is illuminated by the rays of a sun that rises behind a dome resembling St. Peter's, with the legend, "Abrités par son ombre et nourris de sa sève."

* * *

It is remarkable to find such grave authorities as those who have charge of the Ecole des Beaux-Arts and of the Académie de Medecine at loggerheads on a question of light and air. In order to erect a palace more worthy of the Académie than the existing building in the Rue des Saints-Pères, property has been purchased which in part adjoins the court of the Ecole. The Conseil des Bâtiments Civils naturally wish to preserve as much light and air for the court as can be secured, and therefore have demanded that the building must be at least 3 metres or about 10 feet distant from the boundary wall. In order to avoid a rupture three different plans have been prepared, but as yet they have failed to secure approval. On behalf of the Académie it is maintained that the ownership of the property acquired gives the right to use the wall of the court as a party wall, and over that point the battle will be fought if necessary. The case has been submitted to M. Liard, director of education, and his judgment may not be given for some time.

The demolition of the Mazas prison of Paris for a moment gave rise to speculations about the interest which the stones would have for collectors. French archæologists are not disposed to contest for treasures of the kind, and the Americans displayed no ambition to carry specimens back to Chicago. A very few memorials of the prison have been secured. The stones have no chance of preferment or liberty. It has been decided to use them in the new sewers of Paris, and from a prison above ground they will be transferred to one which will be far beneath the traffic of the Rue de Rivoli.

After rendering services during more than thirty years, Hurst's "Handbook for Architectural Surveyors" (E. & F. N. Spon) stands in need of no commendation. Few professional books have reached a fifteenth edition so quickly. Little that is new about architecture remains to be expressed in formulæ. But for that reason when a subject so important as electric lighting is to the fore, it deserves to be noticed. Why should it be omitted when so many memoranda are printed about gas?

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: CHOIR AND NAVE, LOOKING NORTH-WEST.

APARTMENT BUILDINGS, RUE VERNET, PARIS.

SKETCH FOR PAIR OF SMALL HOUSES, AT WHITTON PARK, MIDDLESEX.

THE CAMBRIAN ARCHÆOLOGICAL ASSOCIATION.

(*Continued from page* 135.)

balance of evidence was in favour of the Aymestry screen having come from St. John's juxta Swansea. If this hypothesis can be verified the visit of the Cambrian archæologists to the churches in this part of Shropshire will have had valuable results, and the identification should, at any rate, be attempted.

The members next proceeded to Wigmore Church, a large edifice built in Norman times, but almost entirely remodelled in the Decorated period. The castle is a strong post, erected by one of the first members of the Mortimer family, but it has been so effectually dismantled that it is not easy to make out its ancient features. It seems to have consisted of three wards, and, with the exception of one Norman tower and part of the adjoining curtain wall, to have been rebuilt in the Decorated style in the earlier part of the fourteenth century by Roger, eighth Lord Mortimer and first Earl of March.

The annual meeting of the Association was held in the evening, and a large increase of members was announced. Sir Owen Scourfield, the retiring president, was elected a vice-president, and the various officers and members of the committee were re-elected. An invitation from the Royal Society of Antiquaries of Ireland, to join in a marine excursion to the Celtic districts and islands on the western side of Scotland during the summer of 1899, was cordially accepted, though considerable feeling was manifested at first in favour of a meeting at Merthyr Tydvil, which has never been visited by the Association.

Friday's excursion began at nine o'clock with a drive through the president's (Lord Windsor) park of Oakley, passing by a decaying group of trees known as the Druidical oaks. A short walk brought the antiquaries to the church of Bromfield, once the conventual church of the priory of that name. This was described by the vicar, the Rev. W. Selwyn, a son of the late Bishop Selwyn, and his son-in-law, the Rev. Clarke Maxwell, vicar of Clunbury. The church contains traces of Norman work, especially at the east end, but it is in the main a fine example of Early English. The chancel has a curved ceiling, painted in the extravagant manner of the seventeenth century, the result of a restoration which took place in 1658. In the dark days of the Hanoverian dynasty the beautiful features of the early work were hidden beneath a covering of plaster and whitewash, and it was left to a later restoration, largely due to Lord Windsor's munificence, to make manifest the original characteristics of the fabric. His lordship, with whom were the Hon. the Misses Windsor-Clive, met the party at the entrance to the Oakley demesne, and accompanied it until its departure from Bromfield. In the church his lordship expressed his thanks to the Society for having explained the historical and architectural merits of the church.

The next halt was at Leintwardine, the supposed site of the Roman station of Bravinium. The plan of the castrum is said to have been satisfactorily made out, but it at present leaves much to the imagination. The church is reported to be partially built upon the walls of the Roman camp, and the difference of elevation between the nave and the chancel gives colour to the suggestion. It is a large building, having, in addition to the manifold changes that befel almost all ecclesiastical edifices during the Mediæval period, undergone a somewhat drastic restoration within the last forty years. It consists of a nave, a chancel reached from the nave by five steps, and northern nave and chancel aisles. The west tower is a massive structure of no particular architectural distinction. At the west end is a closed Norman doorway, which gives the period of the foundation of the church. The east window is new and (either it or its predecessor) has been lowered, a splendid Late Decorated reredos being removed, and only the ends are left to testify to the extraordinary absence of taste that characterised the times. A remarkable feature of the north side windows is that they are turned inside out, as, so Mr. Stephen Williams stated, is the case in the parish church of Llanidloes, the explanation of this, he added, being that it was the work of some country masons, who did not know what they were actually doing. The screen is not unlike the one in Montgomery parish church, and, as it was believed that the latter came from Chirbury Priory, there was good reason to believe, continued Mr. Williams, that the screen at Leintwardine formerly belonged to Wigmore Abbey.

The party divided after luncheon, a carriage full driving to inspect the remains of Wigmore Abbey, where they made some interesting discoveries, which were dealt with at the evening meeting by Mr. Stephen Williams and Archdeacon Thomas. The larger portion of the party proceeded to Brampton Brian Church, which consists of a single chamber without structural division between chancel and nave. It looks for all the world like the banqueting-hall of a castle which has been adapted to sacred purposes. The visitors, however, were informed by one of the churchwardens that the fine oak roof once covered the banqueting-hall of the now ruined castle, the remains of which adjoin the church. The roof is a splendid specimen of the hammer-beam variety, the oak pilasters, which rest upon wooden bases, having Classic details. There is an early effigy of a lady, probably of the reign of Edward III., which has come from an earlier church destroyed by fire in 1644. The registers of the church are fine specimens, and on examination one was found to contain a license by the rector of the parish to Dame Brilliana, giving her permission to eat flesh on fish days by reason of her great weakness and ill-health; this to be continued till it should please God to restore her health. The date of the license is March 1652. The castle was a small building, and though originally constructed in the time of the first Edward, became of more domestic character in the reign of his grandson, when many beautiful details were added. Alterations were made in Tudor times, and soon afterwards it was deserted for a more prosaic, but probably more comfortable dwelling. The modern residence of the Harleys—over whch the party were kindly conducted by the Hon. Mrs. Harley, a descendant of Lord Rodney—contains much of the spoils of the ancient castle, and evidences of the stern struggles of our ancestors in the shape of Cromwellian armour, man and wolf traps, and diabolical engines called "branks," used for branding wandering villains upon the cheek, and much different to the scold's bridles seen at the recent exhibition of Shropshire antiquities. Amongst the portraits is one of Sir Harry Vaughan, one of the Vaughans of Hergest Court, where was deposited the celebrated manuscript known as the Red Book of Hergest. The portrait bears the following motto:—"Remember them that wache and ward for you their prince and realme and suche as doo wythe bludy swets ofte tymes deserve to gayne. MDLX."

Next came a stiff climb to the summit of Coxwall Knoll, where the last fight of Caractacus was fought over again. After inspecting Bucknell Church the party bade good-bye to the brakes and took train for Craven Arms, *en route* for Stokesay, where is one of the finest examples in England of a castellated mansion of the thirteenth century, a description of which was given at the evening meeting, reported below.

A public meeting was held in Ludlow Town Hall on Friday evening for the reading of papers on local antiquities and history. In the unavoidable absence of the president, Lord Windsor, the chair was taken by Mr. Lloyd Philipps, one of the vice-presidents of the Society.

Stokesay Castle and Church.

The Rev. J. D. La Touche, rector of Stokesay, in an interesting paper on Stokesay, which was read by Mr. Llewelyn Jones, after giving a detailed history of the castle, called attention to what he considered a few points of special interest, upon which the opinion of archæologists would be of value. The gate-house, he said, would at once be pronounced as of the Elizabethan age. Yet, he asked, was there not some difficulty in supposing it to have been standing when in 1645 the castle was about to be stormed, for it could then have offered no effective resistance to the attacking party. Was it possible that it dated from the time when the castle was attacked? He also called attention to the grooving of the mullions or transoms of the windows. He had seen an exactly similar grooving in two other places, Haughmond Abbey and an old house at Brinsop in Herefordshire. His third point was with regard to the octagon of stones in the great hall on which the brazier stood, the beams of the roof above, blackened by the smoke which curled up from the fire which filled it, being worthy of remark, as were also some traces of fresco ornamentation in the basement of the north tower. Continuing, he said the church, which stood near the castle, although of plain and homely appearance, possessed many points of interest. An arch inside between the nave and the tower appeared to be of fifteenth-century date, but expert opinion on the point, he said, would be of value. During the Civil Wars the building was certainly injured. On one occasion some Royalist troops, with their horses, took refuge in it, and the tradition in the parish was that the roof was set on fire from the castle, which was then in the possession of the Parliamentarians. The round-headed windows in the south wall of the nave must have been inserted after this event. The keystone of the arch above referred to informed them that the restoration took place in 1654. The canopied pews in the chancel gave the interior a quaint and picturesque appearance, but what their date might be was a subject of speculation. On the walls in several places appropriate texts and the Creed and Ten Commandments in antique characters had recently been discovered under a thick coating of whitewash, also two life-sized figures representing doubtless Moses and Aaron. These were in process of restoration.

A vote of thanks was accorded Mr. La Touche for his paper.

Wigmore Abbey.

Mr. Stephen Williams next described the result of a visit by some members of the Society to Wigmore Abbey that day. It was many years since he last visited the abbey. At that time there was a large tithe barn in existence, which had since been destroyed by fire, but that fire did not destroy all the remains of Wigmore Abbey, and there was much which had not yet been swept away from the face of the earth. In the "Archæologia Cambrensis" was an article with reference to the building, and they discovered that day some of the beautiful work mentioned in the article, together with several excellent specimens of mouldings, in addition to some Early English mouldings. They also found the windows and a seat from inside the abbot's house. On the north side of the wall they found windows of early date, while they were also able to locate the position of the cloisters. He did not wish to say that Wigmore offered facilities for excavation, as the site of the abbey was now covered with farmyards. He, however, suggested that local archæologists should make a few diggings here and there in order to define the shape of the abbey. They were glad that they went there, and he hoped the information he had given them was sufficient to show that the whole of the great abbey had not been done away with.

Archdeacon Thomas, referring to Mr. Williams's last suggestion, pointed out that the ground showed that there had been a great number of haphazard diggings, which had not been done in a systematic way. He thought the best thing to do would be to dig a number of trenches so as to intercept the extended line of the chancel. By so doing they would come to the foundation walls, and when once the foundation walls were found it would be an easy matter to follow them out.

The Vallum of Bravinium.

Referring to another part of the day's excursion, Archdeacon Thomas mentioned that immediately after luncheon some of them were taken to the north-west corner of the vallum of Bravinium. It was well defined, and they followed it eastwards, a little more than parallel with the east wall of the church, which was represented on a plan by Dr. Bull as the eastern vallum of the station. A slope in the ground at that place also supported such a theory, but not being quite satisfied they continued in the same line for some distance further. Crossing the famous Watling Street, and turning southwards, where they imagined the line might be, they found themselves on a slightly raised bank just outside the hedge. After a while they lost sight of the vallum, owing probably to its having been cultivated away. They, however, continued their search along the line, and on crossing the hedge they at once found themselves upon a continuation of the vallum. This they followed till they came to an angle turning westwards, which satisfied them that they had discovered the angle on the true eastern side of the station.

Mr. Fortey, curator of the Ludlow Museum, who assisted Dr. Bull in the preparation of his plan of the vallum, expressed himself satisfied with the archdeacon's statement.

Mr. Glascodine (Swansea) asked the Archdeacon whether what he had said was not an argument against the new theory that the Roman road passed through instead of passing on the side of the station. His opinion was that Roman roads did not pass through, but by the side of stations.

Archdeacon Thomas, replying, said it was really an argument in favour of the wider area—that the Roman road should pass through the centre.

Mr. Stephen Williams supported the Archdeacon's argument by quoting the case of Silchester, which the Society of Antiquaries had recently been exploring, where the Roman roads did pass through the centre.

The discussion then dropped.

Mr. Romilly Allen afterwards described some of the architectural features noted by him in the course of the excursions.

Black and White Timbered Houses in Ludlow.

Mr. A. W. Weyman, in the course of a short paper on this subject, said many of their old houses had been altered or rebuilt from time to time, as the necessities of a busier and changing age had compelled, and few, if any, remained in the state they were in some hundred years ago or so. As an instance Mr. Weyman mentioned the beautiful old house in Castle Street, which was restored to its former state by one of their ex-mayors, the late Mr. Thomas Roberts. He also referred to the beautiful old windows which had within the past few months been opened in the Feathers Hotel, which were so long covered up and forgotten. Continuing, Mr. Weyman remarked that without doubt the builders of every generation had left for good or ill the largest mark upon the centuries, and it was to them that archæological associations were so greatly indebted for assistance in building up the remains of a bygone age, and in again showing them in their former condition. He gave the following list of old black and white timbered houses visited by members of the Association during the week:—Shop at present occupied by Miss Howells in Broad Street, Reader's house in Churchyard, Feathers Hotel, house in Durhain at present occupied by Mr. Chester, house in Castle Street at present occupied by Mr. Sharpe, the Conservative Club, house adjoining Mr. Butler's, the Cross and Lane's Asylum. These specimens of architecture, he said, in addition to a number of others, were well worthy of record, and would, he thought, show that Ludlow had many rich specimens valuable alike to the archæologist and the artist.

The proceedings concluded with the customary votes of thanks.

We are indebted to the *Border Counties Advertiser* for the excellent report of the meeting.

THE FRANKS BEQUEST.

THE late Sir A. W. Franks entered the service of the Trustees of the British Museum in 1851, and held the office of keeper of the department of British and Mediæval Antiquities and Ethnography from 1866 to 1896, when he resigned. In 1892 he was elected President of the Society of Antiquaries, and thus became also an official trustee of the British Museum. By his death the Museum has become possessed of one of the most important bequests of modern times, which was, however, only the conclusion of a long series of benefactions, Sir A. W. Franks having from his earliest connection with the Museum periodically made valuable gifts to the trustees of objects of interest not only to his own department, but also to other departments of the British Museum. The objects in the bequest may be summarised as follows:—

1. A collection of finger-rings of all ages and countries, numbering about 3,300. 2. A large number of examples of ancient, Mediæval and more modern goldsmith's work and jewellery. 3. A collection of drinking-vessels of various materials and of all ages, but chiefly Mediæval and later. 4. A collection of porcelain manufactured on the Continent, numbering 512 specimens. 5. A collection of Japanese ivory (*netsuké*), about 1,500 in number. 6. A collection of Japanese sword guards, about 850 in number. 7. A very large collection of book-plates (*ex-libris*), trade cards, tickets, &c. 8. Books on pottery and porcelain, for the library of the department. 9. In addition to the foregoing specific bequests the trustees were empowered to select, from among the other works of art or curiosities, any that would be of value to the Museum. So extensive a series of collections obviously cannot be here dealt with in any detail, but it may be of use to indicate the character of, or the principal objects in the various sections.

1. *Finger-rings.*

This collection occupied many years in its formation and contains rings of all periods. The classical series is very rich, including fine Greek rings, several of the first importance of Roman times, *e.g.* those from the Treasure of Tarsus, and others of the same massive kind of the first half of the third century; a Christian marriage ring inscribed ACCIPE DULCIS MULTIS ANNIS, and a fine ring with the shoulders modelled in the form of figures of Atys. Among the Saxon and Byzantine rings the most remarkable, and probably the most important in the whole collection is the ring of Æthelswitha, Queen of the Mercians and sister of Alfred the Great. It is not a little remarkable that this ring will now be shown by the side of the ring of the father of both, Æthelwulf, which has been in the Museum for many years. Among the rings of more modern date the following are worthy of mention, viz. a series of twelve of the so-called Papal rings, the large devotional ring with the "Five Wells" known as the "Coventry ring," a rich series of signet rings, including one of a Courtney, a number of Hebrew betrothal rings, a collection of mourning rings extending over about two centuries, a large number of wedding rings with mottoes or posies and a long series of ancient Javanese and other Oriental rings.

2. *Goldsmith's Work and Jewellery.*

This section includes a large quantity of jewellery and other objects in the precious metals, many of them of classical times, but with the exception of the "Treasure of the Oxus," the greater part is of Mediæval and later times.

The "Treasure of the Oxus" is without doubt the most important part of this section from the archæological point of view. It consists of a large number of utensils and works of art, chiefly in gold, which have been sent to England from the N.-W. Frontier during a certain number of years past, and it includes also a similar collection formed in India by the late Sir Alexander Cunningham, by whom it was ceded to Sir Wollaston Franks.

As works of art the most important are a large gold armlet with two gryphons in full relief, their wings once set with pastes or stones; the remains of a dagger sheath with hunting scenes in low relief in Persepolitan style; two discs, one in gold the other in silver, with designs of a similar character; a gold jug,

the handle terminating in a lion's head; and a model of a king in his chariot, in gold.

The principal piece of historical interest is the gold signet of a Persian king of about 350 B.C., whose name has been read as Phahaspes. The treasure contains a very large number of objects, armlets, thin gold plates with figures of Persian warriors, as well as many smaller articles of adornment.

Among the classical jewellery may be mentioned two shoulder ornaments of gold from the Fould collection, with Etruscan designs in granular work; a large series of jewellery, earrings, &c., from Crete; two small gold bells, from the Treasure of Tarsus in Cilicia, with the labours of Hercules; and a number of articles of Roman date found in Egypt.

Of post-classical times the representation is fully as great. It includes a find of gold ornaments of the Lombard time from the north of Italy, a limited series of Byzantine objects, a number of Mediæval brooches with devices and mottoes, a remarkable set of fifteenth-century jewels found in the Meuse, a hoard of silver ornaments of Italian work found in the castle of Chalcis in Eubœa; pendants and earrings in the form of ships of Venetian work; the gold covers of a small devotional book, enamelled and of English work, temp. Henry VIII.; several fine cinque-cento jewels, spoons, enamelled miniature portraits, &c.

3. *Drinking Vessels.*

This collection has been on loan and exhibited in the Gold Ornament Room for some years. It consists of more than 150 cups and other drinking vessels formed of gold, silver, wood, crystal and a variety of other materials.

Among the most remarkable and important are the following:—A hoard of silver vessels of doubtful date but of somewhat classical style from Van in Armenia; a series of Roman silver bowls, spoons, &c., some of them with Christian symbols, found with articles of jewellery on the Hill of St. Louis, Carthage; dishes, &c., of Sassanian work, one of them with a figure of Sapor II.; a Saxon silver bowl found in Lancashire full of coins of Canute; an Arab crystal cup of the thirteenth century in Flemish silver mount of the fourteenth; several mazer bowls, including the Rochester mazer and the mazer with enamelled mounts of Louis de Male, last Count of Flanders; glass jug with silver mounts with the arms of the great Lord Burghley; and a remarkable globe cup with a map of the world after Oronce Finé.

4. *Continental Porcelain.*

This collection consists of 512 specimens, representing most of the factories of Europe. It is especially valuable for the great number of marked pieces, some of them of great rarity, and the collection is for this reason of especial value for the history of the various factories. The whole is now on loan to the Science and Art Department, and is exhibited at the Bethnal Green Museum. A catalogue, written by Sir Wollaston Franks, has been printed by the department. There is at present no room at the British Museum for the display of the collection.

5. *Japanese Ivory Carvings.*

This large and important series has been on loan and exhibited at the Museum for some years past; it consists of about 1,500 of the small carvings known as *netsuké*. This collection is of especial value for several reasons; it includes examples of most, if not all, of the best known artists in this style of Japan, and further it gives an unusually complete representation of the manners and customs, the legends, folk-lore and ordinary occupation and dress of the Japanese, all on a conveniently small scale.

6. *Japanese Sword Guards.*

This collection numbers about 850 pieces. Its interest is of much the same character as that of the foregoing section, the subjects being of a similar kind, although the warlike element is somewhat more prominent. In addition the various metals employed show the extraordinary skill of the Japanese in alloying and otherwise treating metals in an artistic manner.

7. *Book Plates, Trade Cards, &c.*

This very large series is in the department of Prints and Drawings.

8. *Books on Pottery and Porcelain.*

This portion of the bequest comprises about 370 works on the subject, and forms a most useful addition to the library of the department. Several of the works are of some considerable value, but the great importance of the bequest is that the department now possesses what was practically the working library of Sir Wollaston Franks, on a subject in which he took the keenest interest.

9. *Selections.*

The somewhat difficult task of selecting from among the very numerous collections not specifically bequeathed was much simplified by the fact that Sir Wollaston Franks had, during his lifetime, already presented nearly all the objects that he thought worthy of being placed in the Museum collections. The selection that has been made comprises a number of additions to the continental porcelain which Sir Wollaston Franks had bought since the catalogue was printed; a few examples of Oriental and other wares; a few specimens of glass and of Japanese lacquer; a number of enamelled portrait miniatures, as well as charms and other curious objects. In making this selection the trustees had the valuable aid of one of their number, Mr. Drury Fortnum, whose great knowledge of works of art and long friendship with Sir Wollaston Franks made his help of exceptional value.

It is proposed that, for a time, at any rate, the principal collections of Sir Wollaston Franks shall form a separate exhibition in the Museum. Catalogues of some of the sections are in progress, and will appear from time to time. It is felt that the publication of such catalogues is a better recognition of the importance of the bequest than a permanent separation of the objects bequeathed from others in the Museum of which they are in many cases the complement.

The foregoing summary account gives an idea of the extraordinary extent and importance of the accessions to the Museum under the will of one of the greatest benefactors that it has ever known. To the devotion of a lifetime, in which almost every hour was given to the service of the Museum, Sir Wollaston Franks, by this munificent bequest, added to his constant benefactions up to the day of his death, has raised to himself a monument which will equal the great reputation he enjoyed during his life.

SANITATION IN IRELAND.

IN the Engineering and Building Construction Section of the Congress of the Institute of Public Health in Dublin, Mr. Charles P. Cotton, chief engineering inspector of the Local Government Board, presided.

Before delivering his presidential address he mentioned that he was asked to preside in the absence of Sir T. Newenham Deane, who, they regretted, had been unable to accept the position of president of the section. It appeared to him (Mr. Cotton) that sanitation, as regards "building construction" and "the house" had been brought theoretically as near perfection as might be. In speaking of recent sanitary legislation he meant to refer to the period since the passing of the Public Health Act of 1875, followed by the Public Health (Ireland) Act, 1878. It was left for the last-mentioned Act to sweep away all existing legislation on the subject in this country and to make a fresh start by re-enacting the most useful parts of the previous Acts with amendments. Having dealt with various measures which were passed on the subject of public health he pointed out that the power of making by-laws respecting new buildings, &c., was confined in England to urban authorities, but by Section 41 of the Irish Act such by-laws could also be made by any rural sanitary authority. The importance of that was evident when it was considered how many towns in Ireland were as regards sanitary matters under the jurisdiction of rural authorities such as Omagh, Strabane, Dungannon, Castlebar, Mullingar and others. He regretted that this most useful provision was not more generally availed of by the rural authorities. Indeed, he doubted that many of them were aware that they possessed such powers. The Open Spaces Act, 1887, gave great facilities to sanitary authorities to provide open spaces for the use of the inhabitants of the respective sanitary districts for exercise and recreation. The Labourers (Ireland) Act for providing improved house accommodation for the labouring classes has been in operation since 1884. The number of houses definitely authorised since that time had been 15,748, and loans to the amount of 1,909,311*l.* had been sanctioned for their erection, and over 13,000 had been completed and were tenanted. At least three rooms—a living room and two bedrooms—were required in each house, together with proper sanitary accommodation, the average rent being 1*s.* a week for the house and half an acre of land. These dwellings induced habits of neatness and comfort, and must be attended also with a general improvement in health. Previous to 1878 waterworks for the supply of the larger districts—Dublin, Belfast, Londonderry, Cork, Limerick and Waterford—had been constructed under local Acts, but since that time it had been found necessary to increase these supplies, not so much from increase of population—except in the case of Belfast—as from increased consumption per head. Having given descriptions of these water supplies, he went on to say that a sewerage system of considerable magnitude was now being carried out in the city of Dublin. Hitherto the internal drainage had been all discharged into the river Liffey along its entire length through the city. The Corporation were now carrying an intercepting sewer along each side of the river, the contents of which would be taken to precipitation tanks at the Pigeon House Fort,

whence it would be conveyed out by specially-constructed vessels, and discharged in the sea. A Royal Commission had, as they were aware, been appointed to inquire into and report upon the methods of disposing of sewage, and make any recommendations that might be considered advisable. The Housing of the Working Classes Act swept away all previous legislation on the subject, and replaced it with a concise code dealing with the clearing of unhealthy areas in towns and the erection of dwelling-houses for the working classes. It might be expected perhaps that he should say something of the new order of things in connection with public health under the Local Government Act, 1898, when it came into operation. He had not studied the measure closely, but he understood that beyond the changes of designation and constitutions of the local authorities there would be absolutely no alteration in the procedure for carrying out structural works under the sanitary laws.

Mr. W. Kaye Parry proposed a vote of thanks to Mr. Cotton for his address. He said that the most important Royal Commission that had sat for a long time, as far as civil engineers were concerned, was the Commission dealing with the question of sewage purification. They were gratified to have Mr. Cotton as their representative on that Commission. They knew that his presence would be an element of strength, justice and impartiality on the Commission.

Mr. Ryan seconded the motion, which was carried.

The President expressed his thanks for the compliment paid him, particularly at a time when he was retiring from his present position.

Mr. Frank Leslie Watson read a paper on "The Designing and Construction of Refuse Destructors."

The President said the working of the destructor in the township of Pembroke would be watched with interest by the authorities of all the towns in Ireland.

Mr. Leslie Watson, in reply to some questions put by members present, said he had never heard of the smallest objection being made by the inhabitants of towns in which the Horsfall destructor was at work in consequence of the smoke emitted.

Mr. Edward Magennis, M.D., read a paper on "Hidden Dangers in the Sites of Dwelling-houses."

Mr. James Dillon read a paper on the "Subsoil in Relation to Sites for Dwellings." He said the Local Government Board for Ireland and their able officers, including their President, had rendered valuable services to the people of this country, pointing out to them their present defective sanitary conditions, while at the same time assisting them to obtain loans on easy terms for sanitary work. Parliament having sanctioned that year a new Local Government Act for Ireland, they must all hope that each district council and county council would try without delay to carry out the suggestions of the Local Government Board in the directions indicated, as they would have ample legal powers to do so.

THE ROYAL DUBLIN SOCIETY.

IN letters of gold over the portals of the Royal Dublin Society's premises, says the *Irish Times*, should be written the names of Thomas Prior and Samuel Madden. The pioneers of an institution such as this, which for 167 years has encouraged and fostered every attempt for the improvement of the arts and industries of the country, are worthy of the highest honour. To go back to the year 1731, when several gentlemen, including the two above named, held their first meeting on June 25, and decided to found a Society having for its object the promotion and improvement of anything or everything that could be raised or made or manufactured in Ireland, brings us to a period when things were very different to what they are to-day. The great impetus that the various crafts have received from the holding of international and local exhibitions, and the attention publicly drawn to the great benefits to be derived therefrom has caused private aid or encouragement in such matters to be almost unnecessary now, but at the time of which we speak personal and particular patronage was an essential element in furthering every project, and it was only the extreme energy and perseverance of the first founders of the Dublin Society that brought them through the many difficulties and disappointments that came in their way. Fourteen members joined at the first meeting, and for many years the principal effort made in furthering the movement was in offering prizes for new inventions or improvements in any useful art or manufacture. They also published a paper dealing with observations on "Agriculture, Brewing and Flax Husbandry." Land was also taken near Dublin where experiments in farming were carried on, and premiums were offered for the encouragement of the fine arts. The aim and scope of the Society was to include every article that, by improved manufacture, would add to the wealth of the maker and the good of the community. Prizes were bestowed on those persons who produced the best flax, cider, earthenware, lace, thread or hops. Sculpture, painting, needlework, curing fish and making paper all obtained recognition at the hands of this wonderful Society, and for the first fifteen years of its existence it carried on its work solely by the efforts of its members. In 1745 an application was made to the Government for an annual grant of 500*l.*, and the Viceroy, Lord Chesterfield, having recognised the importance of the work the Society was doing, supported the request, which was granted. To trace the labours of the Society and the results to which they have led would occupy too much space; but when we remember that a number of the public institutions in our city, which are generally founded by the State, owe their origin in this case to it, the citizens of Dublin are under deep obligations to those bygone members and workers who were the means of obtaining for them such advantages. The Royal Dublin Society can claim the credit of founding the Science and Art Museum, the National Library and the Metropolitan School of Art. For many years the only effort made in connection with such studies was done through the Society, and at a time when, with limited accommodation, the annals of the Society point to an increasing perseverance on the part of the first promoters to carry on the good work begun in spite of every drawback. Parliament was petitioned for further funds "to enable the Society in a more ample manner to promote and encourage agriculture, arts and manufactures." The early members met where they could, sometimes in rooms in Trinity College, sometimes in the Parliament House, and the first collection of models or specimens was stored in one of the vaults of the Irish House of Commons, awaiting more fitting premises. It was in 1815 that the Dublin Society finally settled down in Leinster House, but before that they had many changes, being first in Shaw's Court, where they took a large dwelling-house in 1757. They removed to Grafton Street later, and afterwards on the site of the present Theatre Royal occupied a splendid building, which they had erected and used for fourteen years. In the early years of this century the Society founded the Botanic Gardens at Glasnevin, which, with the other institutions named, have since been handed over to the care of the State. The National Gallery and the Royal College of Science are also both outcomes of work begun by the Royal Dublin Society. To enumerate the variety of ways in which the Society has worked and the great number of objects it has assisted would be impossible in a short notice like this, but it is simply amazing to look back on the vast amount of work it has accomplished, to estimate the good it has done, and the benefit it has conferred can never be known. The refining influence it has exercised can hardly be recognised, so quietly and gradual has been its working; but that a semi-private enterprise should have such far-reaching results is an astonishing fact.

ADVANCED INSTRUCTION FOR DRAUGHTSMEN.

AN address was lately delivered by Professor W. R. Ware to the members of the Architectural League on their visit to the School of Architecture of Columbia University. It describes some innovations in the usual course of instruction which could be followed with advantage elsewhere. The following report is taken from the *American Architect*:—

It is an open question in a school of architecture, as it is in a university, and in every place of education where the students are somewhat mature, what is the best system of study. It is not clear whether such students are best served by a fixed curriculum, in which prescribed studies are taken up in a prescribed order and pursued for a given term of years, as is the case in our American colleges, and in the Gymnasia of Germany, the colleges and lycées of France and the public schools of England, and in technical and professional schools almost everywhere, or whether advanced studies, including technical and professional subjects, cannot be followed to better advantage under a freer system, such as is found in the German universities and in the Ecole des Beaux-Arts in Paris, a system under which every student studies what he pleases, when he pleases, as he pleases, taking up whatever he likes best or finds he is best fitted for in whatever order he will.

But this is a controversy in which we ourselves have not been obliged to take part. The question has been settled for us, and settled in the happiest way. Starting seventeen years ago as a department of the School of Mines, we necessarily came under the rules of that school, and the first thing to do was to frame a four-years' course of study conformable to the courses previously existing. This four-years' course still obtains, though it has been so much changed as almost to have lost its identity. All the subjects formerly shared with the other departments either have been taken into our own hands, such as the mathematics, mechanics and engineering, or, like physics, chemistry, geology and botany, have been

discontinued altogether. Our students have to study the elements of physics and chemistry before they come to us, and this suffices to give them the general notions, which are all that an architect has occasion for. The time formerly given to these studies is now more profitably spent upon a course in building materials specially devised to meet the scientific needs of our own students, into which is incorporated such further scientific instruction as is needful. For this we draw freely upon our neighbours, and thus, thanks to their friendly co-operation, profit quite as much by our scientific environment as when we were an integral portion of the School of Mines. The lectures and recitations, moreover, have been concentrated in the first three years, leaving the fourth year almost entirely free for what is virtually post-graduate work. But it is still a four-years' course, and though some men manage to accomplish it in three years and others give five to it, it still presents a definite curriculum, a prescribed path leading to our degree.

Whether or not such a definite line of work is really best for professional schools as distinguished from schools of liberal culture, there seems no doubt that it is best for young men who are still in a state of pupilage.

Meanwhile, however, there has sprung up alongside of it the freer system of study. We do not indeed receive young men of the age and standing of our regular students, except into the regular course. The statutes expressly declare that "special students are not desired, though men of maturity are sometimes received as such for reasons of weight." But if a man has been a professional draughtsman for three or four years this is generally found to be a sufficiently weighty reason for accepting him as a special student, and in the last half-dozen years nearly a hundred such have been on our books. These men study what they please in whatever order they choose. Thus we have the two systems working harmoniously together side by side, each serving its own men better than the other could do.

These draughtsmen are received on exceptionally favourable conditions both as to fees and as to the period of their attendance. They pay thirty dollars for each two months. This entitles them to instruction in the draughting-room and to four hours a week of recitations and lectures. Draughtsmen who are temporarily out of work can accordingly drop into the school at almost any moment and take part in whatever they are qualified to take part in. In the German universities and in the Ecole des Beaux-Arts there is not only freedom of study but also freedom of teaching. Almost anybody can get leave to take part in the instruction. There have accordingly grown up in Paris, outside the Ecole itself, a considerable number of private *ateliers*, in which the ablest architects in France give the students the incomparable benefit of their personal counsel, and a number of circumstances happily combine to make this scheme the most triumphantly successful scheme of architectural instruction that the world can show. The backbone of the system is the French Academy at Rome and the annual bestowal of the Grand Prix leading to it. This in turn leads to Government employment when the students return to France. The promise of a prosperous career attracts to the school a company of able candidates who year after year frequent the *ateliers* in the character of *anciens*, and the presence of these mature and skilful men gives to the work of the school a character and quality nowhere else to be found.

All these favourable conditions are obviously exceptional and local, and they cannot be expected to repeat themselves elsewhere, least of all in this country. Even if Government patronage and the promise of Government employment kept men year after year at their studies, the conditions of professional practice in this country are so unlike what they are in France that it would be impossible for the men at the head of the profession to take an active and responsible part in directing them.

But the repeated testimony of the men who have profited most by what the Ecole des Beaux-Arts has to offer seems to show that it is to this unique opportunity of intercourse with able men that its paramount excellence is due. The emulation, the *camaraderie*, the honours and the prizes are picturesque and profitable circumstances, but they may be dispensed with, and in other places other customs and influences may produce equally good results. But this opportunity for personal guidance is not elsewhere to be had. Men must go, and must probably long continue to go to Paris in order to enjoy it.

This advantage a school like our own cannot possess. It must be carried on not by exceptional men occupying conspicuous positions in the ranks of the profession, but by ordinary persons like ourselves, fairly intelligent and well-informed, but who, however devoted and faithful, are nothing out of the common. In this case it would be easy for us, like the fox in the fable, to disparage the fruit we cannot reach, and to point out that it is only the men that are exceptionally far advanced in their studies who really enjoy these exceptional advantages in any great degree. We might even maintain that an overpowering personal influence is likely to do as much harm as good, and that the most famous masters have seldom turned out famous pupils. They stimulate imitation, not originality. But it is more to the purpose to consider that, this source of influence being closed to us, we are the more concerned to make the most of the more humble appliances within our grasp, and to strive by perfecting our system and methods to make up for the lack of such personal inspiration.

It is to our continued efforts in this direction that are due the radical modifications in our curriculum that have already been mentioned, and in all these changes we have been guided by two or three considerations to which we have come to attach special value. In the first place, we have tried to arrange it so that the different branches of instruction that are going on at the same time may co-operate with one another to enforce the same points, and we find it practicable, with a little management, to make the history, the ornament, the design, the freehand drawing, the perspective, and sometimes even the descriptive geometry and the shades and shadows, all illustrate one another and combine to illuminate the same subject-matter.

In the next place, we have tried to manage so that the students, while strictly conforming to certain requirements, shall at every stage of their work have a degree of latitude and freedom, always finding some necessary element to supply from their own taste and intelligence. We find that this tends, as we expected it would, to develop in every student whatever independence of character and spark of originality he may chance to possess.

How sedulously we have observed this principle even in the study of draughtsmanship, which, if anything, might be pardoned for being imitative, insisting that, even in copying a drawing, the copy shall not slavishly follow the mechanism of the original, I have already set forth at length in print. In the same spirit we accustom our students from the moment they come to us to exercises in what might be called absolute design, in which they have to rely, like the aboriginal savages, on their own taste and judgment and on the nature of things, not upon precedent or prescription. Indeed, as far as possible, we carry the same idea into the teaching of mathematics and mechanics, substituting problems for theorems and discovery for demonstration, wherever the subject to be investigated can be brought within the range of the student's own investigations.

But the final test of this procedure comes at the end of the course, and nothing gratifies us so much as to find, when the graduating theses come to be made, that they are as unlike each other as are the men who make them, that they seem to bear no common stamp characteristic of our school, however uniform they may be in excellence, and that they might reasonably pass as having been made under the instruction of as many different masters as there are students. They often look very much as if they had come out of so many different offices.

Indeed, to develop in the school a distinctive method in design by which the style of contemporaneous building shall be influenced and controlled, as the architecture of France seems to be influenced by the fashions which from time to time prevail in the Ecole des Beaux-Arts, is by no means our object. This would be, under the circumstances, an improper and most unbecoming ambition. It was, to be sure, suggested some years ago, in high quarters, that the schools in this country would do well to take up and solve the problem of developing a new architectural style, which should be thoroughly national and should express the characteristics of the twentieth-century civilisation in this country. But this cry finds no echo in our minds. It is for the architects themselves, practising in their offices, to create, as they may, the architecture of the future, by erecting the most sensible and beautiful buildings they can. It is the business of the schools to see to it, so far as we may, that the architects themselves have the good sense and good taste, and the self-reliance and independence of mind which shall qualify them for this task.

The thing upon which we chiefly rely, both to foster this individuality and to make up for our disadvantage in not being able to command the personal services of the best men, is the study of architectural history. This brings to the knowledge of our students such abundant resources that each can freely choose for himself what best suits his turn of mind, and, at the same time, brings into our service as coadjutors and colleagues the great masters of all ages.

It is the prominence thus given to historical studies which constitutes, I think, as also I have taken occasion to point out in print, the special characteristic of our work. It is the devotion to them of what might be considered an extreme amount of time and attention which chiefly discriminates this school from its neighbours. At one time, indeed, the attention given to these studies was somewhat excessive. But now that we are able—by an arrangement which is, I believe, unique in institutions of learning—very nearly to dispense with recitations and lectures in our fourth year, and to give all the time to work in design, the balance is corrected. We can now well afford, besides giving from three to five hours a week in the first three years to the study of architectural history and ornament, with

illustrative exercises in drawing and tracing, to add stated problems in historical design. In the second and third years, moreover, under the head of historical research, six or eight weeks are every spring given up to the study of the books and photographs and of the collections and museums at our command. Of this work each student brings every week a written report, accompanied by tracings, sketches and drawings.

This experience familiarises the men with books and accustoms them to their use, while it supplies them with abundant resources not only for the special exercises in architectural history, but for all their work. If they are at any time at a loss for a suggestion they turn as familiarly to Bramante or Peruzzi as to ourselves, and these masters become enlisted, as it were, upon our personal staff.

Nothing is more interesting, indeed, than to take a masterpiece of one of these masters, such as the arcade of Santa Maria della Pace, the façade of Santo Francesca Romana, or the great triumphal arch at Naples, study out its governing motives, both of construction and of expression, and give it out as a problem to be solved by the student. If then he makes a careful drawing from the original in the style in which he has rendered his own version, so that the element of draughtsmanship may be eliminated from the comparison, and compares the two drawings, it is as if he had the old master himself at his elbow, condemning his lapses in taste and judgment, as with authority. It will go hard if the comparison does not reveal some merit in the original work, either of conception or of execution, which might otherwise have escaped detection.

All this is rendered possible and made of inestimable value by the collections to which I have just referred. Of these our own store of photographs and drawings and of prints and engravings, all classified and arranged according to their subjects, forms a conspicuous part. The Willard collection of architectural casts and models at the Metropolitan Museum, probably the most carefully selected and best arranged, if not the largest, of any in the world, offers another opportunity of which, so far, we have made less use than perhaps we might. But the special thing to which the attention of the League should be directed is the splendid architectural library which the munificence of Mr. and Mrs. Avery has placed at their disposal and ours. The trustees of the University have greatly enhanced the value of this benefaction by administering it in the most generous spirit. They not only keep the library open through the evening, but have added close at hand a large room furnished with draughting-tables, a convenience not elsewhere to be found, while a special custodian well informed as to the contents of the books makes it easy and profitable to consult them.

I think there are only two points of importance that I have not mentioned. One is the instruction in office-work, which is carried on under the name of specifications, and which is supplemented by the course of lectures in building materials already mentioned. But this has no special interest for men who are already in offices. The other is this, that in our fourth year the men who wish to become architectural engineers separate from the others, substituting special studies in scientific construction and practice for the work in history and design. But this feature also I have made the subject of a paper which is still in print, and I need not detain you to explain the matter in detail.

CONNAUGHT CABINS.

At the congress of the Royal Institute of Public Health in Dublin a paper was read in the section of Preventive Medicine and Vital Statistics by Mr. R. B. Mahon, F.R.C.S.E., Ballinrobe, on the causes and management of outbreaks of typhus fever occurring in rural sanitary districts. He said :—In considering the importance of typhus as an epidemic disease one labours under the disadvantage of its study having become, shall I say, unfashionable. It is no longer to any extent a disease of important centres of population served by efficient sanitary staffs. It now scarcely ever attacks the well-to-do who live in good houses. The fear of its taking a wide-spread epidemic character no longer exists. It cannot at the present time even be called a prominent danger to armies in the field or to beleaguered towns. But it still exists, and to me and to medical men situated like myself it is an ever-constant source of anxiety, trouble and danger. The eighth degree of longitude carried down through Ireland divides the island into two fairly equal parts. The western part is more especially the habitat of typhus fever, and from portions of this district it is never entirely absent. In this district resides the remnant of the old Celtic race of Ireland. From various causes these people are poor, and a large proportion pass their lives ill-fed, ill-housed, ill-clothed, in apathy and ignorance. The sanitary laws are not efficiently enforced for reasons it would be scarcely proper for one in my position to detail. The people live for the most part in crowded villages under most unsanitary conditions. A typical west-country village is composed of from ten to twenty or thirty houses, not built on any regular plan as regards location of the dwellings. We find houses facing each other, houses behind others in relation to the village road, houses placed in T-shaped position, and all close together. A typical house has two doors, one on each side wall, and the direction of the wind determines which door shall be kept open. One or two bedrooms and a kitchen, or living room, with a loft, make up the available space inside, few of the houses exceeding 25 feet by 15 feet altogether. The windows to these rooms, when they possess windows, are small and often immovably fixed. Beside and in close proximity to the house is the cesspool into which all the refuse of the house goes, and in which manure is prepared for the land. The cesspool is always open and usually undrained ; indeed, the addition of a drain would be fatal to its utility, as it is in a measure a catchment basin for water, which aids the rotting of the manure. When full of manure these cesspools are not so offensive, but when the manure has been emptied away and nothing remains but foul, offensive slime-covered water, emitting noxious gases, they become dangerous nuisances. Oftentimes they are situated right behind the bedroom windows. In one of these bedrooms, perhaps not more than 10 feet by 6 feet, six, seven, even ten of the family may sleep. There is no ventilation, and the amount of poisonous air breathed is only regulated by the time spent in the room. In the kitchen, or off the kitchen, pigs, cattle, sheep and fowl may be kept, particularly in the winter season. Put all this animal life into this small space, shut the doors to keep out draughts in the long winter's night from 9 P.M. to 7 A.M., add deficient ideas of personal cleanliness, neglect of thorough cleansing out of the house for years, even the small quantity of fresh air that may enter (and this is sure to be small, for the greatest dread of the peasant is catching cold ; to this malign cause they ascribe all diseases), charged with the foul gases of the adjoining cesspool, the people themselves poorly fed and hard worked. Again, the condition of the water supply to these villages is often very bad, the wells in some instances being themselves mere cesspools. I have often noticed bad wells in villages infested with typhus, and the disease appears to me to be very virulent among those who habitually drink bad water. Now, nothing seems to be better established than the fact that typhus fever is a disease that complicates filth, poverty and overcrowding, and such an environment as I have depicted would be most favourable to the spread of the disease. When public suspicion of the existence of typhus in a house or in houses of a village is aroused, self-preservation institutes a rude system of isolation, which usually serves to limit the disease to the first infected houses. A rigid boycott is initiated, and the infected family is thrown entirely on its own resources. The still unaffected members can get no new living accommodation; they must take their chances in their old dwelling, and in consequence very often are struck down one after another. I have myself seen a house in which all the members of the family were struck down seriatim, with the single exception of the father of the family. He continued to occupy the same bed as his wife, although she was herself a very severe case. He was probably immune from a previous attack. Out of almost every family attacked some succumb, possibly the bread-winner, or the woman of the house, or a strong, able, working son helping to support the family. Reasoning by analogy, we may assume that a specific germ exists which is the essential cause of typhus. What its exact nature is we do not at present know. I incline to the opinion that it is a spore-bearing obligate parasite. The well-known favouring conditions for the development of this hypothetical parasite are defective ventilation, defective personal and household cleanliness, and overcrowding with deficient sunlight. As favouring conditions for its development in the human body may be added an enfeebled power of resistance, produced by the above-mentioned sanitary defects, by the presence of unhealthy gases in the air from fetid cesspools, and poverty, with deficient food and insufficient clothing. These defects obviously suggest their remedies. In dealing with an outbreak of typhus a sanitary authority should bear in mind the following points:—(1) The importance of early diagnosis ; (2) the prompt isolation not alone of the affected parties, but also of those living in the same houses ; (3) the proper disinfection of the infected houses, a measure which might well be extended to all the remaining houses of the village or neighbourhood. In the disinfection of houses no plan should, in my opinion, be considered satisfactory that did not fulfil the following conditions :—(*a*) The complete removal into the open air and light of heaven of all furniture, removable wood-work, bedding, clothes, &c. ; (*b*) the thorough washing of floors, ceilings, wood-work and walls with a suitable and efficient antiseptic ; (*c*) the removed furniture, &c., should be thoroughly washed with soft soap and an efficient antiseptic ; (*d*) thorough fumigation with sulphur, formalin, or such efficient germicide of the rooms in the infected dwelling ; (*e*) satisfactory lime-washing inside and outside of the house ;

(*f*) maintenance for some time of a thorough draught of air through the rooms; (*g*) efficient disinfection by superheated steam of all beds, mattresses, clothes, &c., which have come in contact with the sick, or been in the house while fever was there, or, failing such disinfection, destruction of these articles by fire. There is little doubt if such were done in all cases typhus would soon be as extinct as the dodo. To satisfactorily carry out their important duties a sanitary authority should possess the following apparatus, rules and staff:—(1) A properly constructed fever hospital with at least two observation wards; (2) a properly constructed and smart looking van, with stretcher for removing patients to hospital; (3) an efficient disinfecting chamber for clothes, bedding, &c.; (4) adoption of the Contagious Diseases Notification Act; (5) standard disinfectants, with directions for using laid down by instructional order of the Local Government Board; (6) a routine and efficient plan of house and furniture disinfection to be rigidly followed out in all cases, and laid down by instructional order of Local Government Board; (7) a thoroughly instructed and capable staff of sanitary officials; (8) rigid medical supervision of all sanitary measures; (9) a permanent nursing fever staff; (10) proper attendants for removal van. In the case of patients the diagnosis of whose cases has been made too late to allow of removal, or who, declining removal to hospital, and possessing proper lodging and accommodation, cannot be compulsorily removed, I suggest the following measures:—(1) strict isolation; (2) removal of unaffected members of the family to a place of safety. In the case of poor persons this would in the first place be the observation wards of the fever hospital; (3) provision in the case of poor persons of proper dietary and efficient trained nursing. To complete the measures we should prevent all wakes in fever cases, insure proper care at funerals and look to the general sanitary condition of the neighbouring houses and villages. For the last, these filthy cesspools should be absolutely forbidden. All drains should be properly cleaned and made efficient, a proper water supply should be obtained and the keeping of animals in dwelling-houses strictly tabooed. Compulsory ventilation should be established in dwelling-houses, and compulsory house-cleaning and lime-washing by order of the sanitary authority done once, or preferably twice a year, in the spring and autumn.

TESSERÆ.

Joseph Bonomi.

HE was born at Rome in 1739 and studied architecture under the Marchese Teodoli. In 1767 he was invited to England by the brothers Adam, and was for many years employed by them as an assistant and architectural draftsman. The acquaintance which he formed in London with Angelica Kauffman, then in the zenith of her fame, led to his marrying her cousin and ward, Rosa Florini, in 1775. When Angelica returned to Italy, after her marriage with Zucchi, the painter, she induced Bonomi to do the same, and he left England in 1783, taking with him his family of three young children; but he did not remain in Italy above a year. About five years after his return, in November 1789, he was elected an Associate of the Royal Academy, but was never raised to the rank of R.A., although Reynolds interested himself very warmly in his behalf, and did all that he could to obtain for him the professorship, which was bestowed on Fuseli. Bonomi died March 9, 1808, leaving a widow and six children, the eldest of whom also practised as an architect; and another son was known as an authority on Egyptian antiquities. Bonomi's chief professional works were additions and alterations at Langley Hall, Kent, 1790; the chapel of the Spanish Embassy, near Manchester Square, London, 1792; Eastwell House, Kent, 1793; the pyramidal mausoleum in Blickling Park, Norfolk, 1794; Longford Hall, Salop; mansion at Laverstock, Hants, 1797; mansion at Roseneath, in Dumbartonshire, for the Duke of Argyll, 1803, which is his most celebrated work, although chiefly remarkable for the heresy, if not the solecism, of an entrance portico with a column in the centre. The reason assigned for this caprice is that, as the portico was intended for carriages to drive through, it was thought a column in the centre of the front would express its purpose better; yet, besides having a most awkward effect in itself, a column in that situation is not a little objectionable, on account of its obstructing the view from the entrance door. Nevertheless the design is praised as displaying originality of genius. Bonomi also made designs for the new sacristy of St. Peter's at Rome, of which edifice he had been appointed honorary architect in 1804.

Florentine, Roman and Venetian Styles.

The Florentine is mostly astylar, the style of fenestration and rustic quoins; the Roman, the style of pilasters; the Venetian, that of columns. In calling the first astylar, we do not imply the total absence of external orders, but their absence as main features or on any considerable scale. Their chief application is to windows and doors, and the greatest orders never include so much as the height of a single storey. In the Roman school the great scale of the principal order renders it chiefly an order of pilasters, since the entablature could hardly be carried from column to column, except by disingenous contrivances which the art was not yet debased enough to allow. The interpilasters, however, of the great order were often filled in with smaller and columnar ones in two tiers, while a still smaller set, decorating the openings, yet further enhanced the apparent scale, or rather enabled the eye truly to estimate the greatness of the actual scale, which in large buildings affecting Grecian purity is hardly possible. As the Venetians did not use such large orders they easily made them more columnar, and introduced hanging entablatures, beautiful though useless. In this school there is (except in churches) no principal storey or principal order; for if there be only one, it is mounted on a basement sharing attention with itself, and if there be more than one they are nearly equal, or equally important arcuation is almost absent from the Florentine, only sparingly used in the best Roman, and most abundantly in the Venetian schools. General plan in outline in the Florentine is of the utmost simplicity and compactness (rendering it fitter for town than country buildings); in the Roman slightly more varied; in the Venetian (whenever an open site will admit), broken, complex, picturesque and poetic, like the architecture of a a painter's backgrounds, pyramidising, *percée à jour*, and bristling with detached members. It is, of course, the only school attractive to the young, the romantic, the half-cultivated taste, and hence it naturally became the parent of all other schools, as far as the advance of the new or modern order of things would permit anything like schools to arise, which was only very imperfectly the case after the introduction of the modern architecture into France, England and other transalpine countries.

Rubens as a Colourist.

What has been said of Michel Angelo in form may be said of Rubens in colour; they had but one. As the one came to nature and moulded her to his generic form, the other came to nature and tinged her with his colour—the colour of gay magnificence. He levelled his subject to his style, but seldom if ever his style with his subject; whatever be the subject of Rubens—legend, allegoric, stern, mournful, martyrdom, fable, epic, dramatic, lyric, grave or gay—the hues that embody, the air that tinges them, is indiscriminate expanse of gay magnificence. If the economy of his colours be that of an immense nosegay, he has not always connected the ingredients with a prismatic eye; the balance of the iris is not arbitrary, the balance of his colour often is. It was not to be expected that correctness of form should be the object of Rubens, though he was master of drawing and even ambitious in the display of anatomic knowledge; but there is no mode of incorrectness, unless what directly militated against his style, such as meagreness, of which his works do not set an example. His male forms, generally the brawny pulp of slaughtermen; his females, hillocks of roses in overwhelmed muscles, grotesque attitudes and distorted joints, are swept along in a gulf of colours, as herbage, trees and shrubs are whirled, tossed and absorbed by inundation.

Contrast in Painting.

The rule of contrasting figures or groups is not only universally known and adopted, but it is frequently carried to excess. The artist is advised not to destroy the grandeur and simplicity of his design by violent and affected contrasts. The artless uniformity of the compositions of the old Gothic painters is far preferable to this false refinement, this ostentatious display of academic art. A greater degree of contrast and variety may be allowed in the picturesque or ornamental style, but we must not forget that they are the natural enemies of simplicity, and consequently of the grand style, and destroy that solemn majesty, that soft repose, which is produced in a great measure by regularity and uniformity. Those two qualities are separately exhibited by two great painters, Rubens and Titian. The picture of Rubens is in Antwerp, the subject (if that may be called a subject where no story is represented) is the "Virgin and Infant Christ," placed high in the picture on a pedestal, with many saints about them and as many below them, with others on the steps, to serve as a link to unite the upper and lower part of the picture. The composition of this picture is perfect in its kind; the artist has shown the greatest skill in disposing and contrasting more than twenty figures without confusion and without crowding; the whole appearing as much animated and in motion as it is possible where nothing is to be done. The picture of Titian which we would oppose to this is in the church of the Frari at Venice. The peculiar character of this piece is grandeur and simplicity, which proceed in a great measure from the regularity of the composition, two of the principal figures being represented kneeling directly opposite to each other, and nearly in

the same attitude. This is what few painters would have had the courage to venture ; Rubens would certainly have rejected so unpicturesque a mode of composition had it occurred to him. Both these pictures are equally excellent in their kind, and may be said to characterise their respective authors. There is a bustle and animation in the work of Rubens, a quiet, solemn majesty in that of Titian. The excellence of Rubens is the picturesque effect which he produces. The superior merit of Titian is in the appearance of being above seeking after any such artificial excellence.

Etruscan Tomb-Paintings.

If not the most valuable part of the spoils obtained from the Etrurian tombs, the paintings on their walls were not the least interesting, especially when first discovered, for since that time they have all suffered by exposure to the air. While they are for the most part more carefully and better executed than the Egyptian paintings, they are equally curious, inasmuch as they are almost the only existing records of a people respecting whom history has preserved very little. One of the most interesting sepulchral chambers is that which has been named from the subjects represented on its walls the "Camera del Triclinio del Ballo." In the "Triclinio," or banquet scene, are three couches, with a male and female figure upon each, crowned with wreaths of ivy and myrtle and richly attired. Everything bespeaks luxurious refinement—the embroidered tablecloth and draperies on the couches, the rich dresses of the attendants, the quantity and variety of the vessels heaped up on the sideboard, and the number of dishes with which the table is set out. Nor does the other scene convey a less favourable idea of the gaiety and liveliness of an Etruscan dance. The subjects of some of the paintings that have been discovered are, however, of a very different character, and as a contrast to the above may be mentioned those in what is distinguished by the name of the "Camera de' Morti" at Tarquinii, one of which represents a procession of the dead conducted by genii to their final judgment.

Raphael's Ideal Figures.

In the characters with which some of his angels are endowed Raphael has shown what may be accomplished by art in this respect ; the countenances are not merely lovely, but divine. The union of intellect and of feeling and beauty of the highest order is here accomplished. Features, attitude, grace, action, figure—all combine to aid the effect. His angels are not only superhuman, but they are celestial also, and they are not only celestial, but superhuman. Their very emotions and passions and actions, as well as the character of their countenances, betoken too their high nature and their distinction from corporeal personages. Even sex seems to have merged into their celestiality, and beings possessing the highest and purest qualities are created by the artist's power. Nor in expression and character which this great painter has given to persons intended to represent real men has he been less successful, as evinced by the numerous exquisitely-drawn countenances and figures depicted in the cartoons, each true to nature and to their own individual qualities. In the portrayal of beings of a higher order than the common race care should be taken to endow them with character in all respects suitable to their exalted station. Attitude and propriety of figure will sometimes essentially aid in the foregoing respects. Truth to nature forms, as it were, the climax which crowns the whole. There is, moreover, to a certain extent an expression and a character, too, not only in the face, but in the form and figure, which serves to correspond with and to carry out the expression of the countenance.

Corrodies.

Under the head of corrodies were included many varieties of singular rights and privileges claimed by the founders or benefactors of a religious house. The following is a very curious instance of the surrender of a corrody for a pecuniary compensation. A lawsuit had arisen in the thirteenth century respecting the customs and services due from the priory of Lewes to the manor of Longeney. The lord of the manor, William of Echingham, in agreeing to a compromise, enumerates his former claims :—"The priory was bound to receive me, with my wife and all family and horses, four times a year, to be blooded and to dwell there at the expense of the priory each time for three days (and on the fourth day to the hearing and singing of the Mass), either in the halls of the convent or in other competent houses, and to supply with food and drink and all other things necessary at my stay and arrival. And, moreover, they were bound to keep at their expense in the said priory one charger or one palfrey and one youth through the whole year, and that the said youth should receive all necessaries and a robe of the same fashion as the prior's youths, and they were also to support one youth in the kitchen of the prior in order to learn the business of the cook for the hall ; he was to have his allowance, robe and shoes with the men in the service of the prior. Further, they were bound to keep two puppy greyhounds or beagles until they were a year old, and I was entitled to remove whenever I pleased the horse, the youths and the puppies, and to substitute others in their stead." All these claims he surrendered for the sum of 100*l*. The very frequent allusions to corrodies or to contracts of that nature in monastic annals prove that the religious houses were to a great extent not only inns for the reception of travellers, but the great bakeries, brewhouses, kitchens and surgeries of the neighbourhood, places of general education, and schools of training for various crafts. It is easy to see that in all these ways they must for a time have been great blessings to the country. They were centres of civilisation and humanity as well as of religion, in the midst of barbarism and ferocity. On the other hand, the amount of secular business in which they were involved by the management of their landed property, and by the transactions of which specimens have just been given, undoubtedly tended to lower their religious tone.

GENERAL.

Don Federico Madrazo, the director of the Madrid Academy of Fine Arts, has died in that city. He was born in 1815, and was the son of Don José Madrazo, the Court painter. One of Don Federico's sons, Raymond de Madrazo, is also an artist who is well known in Paris.

The Tapestries in the Queen's Gallery of Hampton Court Palace have just been replaced after undergoing cleaning operations. The tapestries were discovered some thirty years ago quite by an accident, the superintendent of the apartments (Mr. W. H. Pleasants) seeing them through defective woodwork, which was observed on a picture being removed.

M. Falquière is now engaged on a sketch-model of the statue of Balzac for the Société des Gens de Lettres, which it is proposed to erect in the Palais-Royal. It is to be hoped the sculptor will be more fortunate than was M. Rodin with the same subject. M. Falquière has finished the rough model of the monument in honour of Pasteur. The scientist is represented seated, and draped in a sort of toga. A young woman is in the act of entrusting her child to him, while in the background a figure, symbolising Death, starts back in the attitude of one who is vanquished.

The Bishop of Bristol has received numerous promises of support for the proposed restoration of Malmesbury Abbey. It is rightly felt, says a correspondent of a contemporary, that the local restoration committee could find no better adviser than Dr. Browne, who is pre-eminent as an archæologist. It is fitting that this unique Wiltshire abbey should be preserved in the best possible way. Only the nave with its aisles, a part of the transept and the splendid south porch now remain. It dates from the twelfth century, and, as old Leland said, it is indeed "a right magnificent thing."

The Colony of Queensland has taken 30,000 feet of space in the "Greater Britain Exhibition," which will be held next year at Earl's Court. The greater part of Queensland's display will be devoted to the collection of minerals which is being made in the colony for show in London and Paris, but it is expected that the colony will also exhibit specimens of products in other departments. Mr. R. L. Jack, head of the Geological Department, will be in charge of the Queensland mining exhibit.

Mr. Donnelly, a painter, has discovered on the banks of the Clyde, at a spot between Dumbarton Rock and Dunglass, what is supposed to be a lake dwelling, or "crannog." It is thought that the remains belong to the same period as the occupation of the neighbouring hill fort of Dunbuie, discovered a couple of years ago, and regarded by archæological experts as among the most valuable finds of recent years. The officials of the Helensburgh Antiquarian Society, who carried through the Dunbuie excavations so creditably and so successfully, have undertaken to make a thorough investigation of the supposed crannog.

The Sub-committee for examining and reporting upon the competitive plans for the buildings for the 1901 International Exhibition in Glasgow have made a selection of seven of the sixteen designs sent in, and have remitted them to the measurers with instructions to measure and report on cost.

Plans have been passed by the improvement committee of the Manchester Corporation for the new Midland Railway Hotel, which is to be erected on the Concert Hall site. The elevations to Windmill Street and Lower Mosley Street were not presented, but the committee had before them the other plans in detail, including that for the new concert hall, which forms part of the company's scheme. At the same meeting plans for the new Religious Institute, to be erected at the corner of Deansgate and Lloyd Street, were also passed.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

LIVERPOOL.—Oct. 3 (time extended).—Designs for new buildings for Royal Institution. 50 guineas, 20 guineas. Mr. Harold Waterhouse, hon. sec., 3 Cook Street, Liverpool.

STOCKHOLM.—Aug. 31.—Designs for railway station. Particulars from the Offices of the Consulate, 27 Great Winchester Street, London.

CONTRACTS OPEN.

ASHTON-UNDER-LYNE.—For additions and alterations to the Station Hotel, Warrington Street. Messrs. John Eaton, Sons & Cantrell, architects, Ashton-under-Lyne.

ATHERSTONE.—Aug. 29.—For stripping off the defective cement facing of the union workhouse, making good and painting the same. Mr. W. A. Hatton, clerk, Atherstone.

BARRY.—Sept. 5.—For erection of girls, boys and infants' schools at Hannah Street, Cadoxton-juxta-Barry. Messrs. J. P. Jones, Richards & Budgen, architects, 18 St. Mary Street, Cardiff.

BANBURY.—Aug. 31.—For relaying the floor and for alterations to the boilers in the washhouse at the workhouse. Mr. G. C. Salmon.

BELFAST.—Aug. 30.—For erection of church, lecture-hall, &c., at Malone Road. Mr. W. H. Stephens, surveyor, Donegall Square North, Belfast.

BELFAST.—Sept. 1.—For erection of a training college. Messrs. E. & J. Byrne, 4 Waring Street, and J. O'Shea, Donegall Street, joint architects.

BIRMINGHAM.—Aug. 29.—For providing temporary rooms for offices in one of the infirmary blocks at workhouse, Gravelly Hill. Mr. Cooper Whitwell, architect, 23 Temple Row, Birmingham.

BIRMINGHAM.—Aug. 31.—For erection of a covered way at the workhouse infirmary. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

BURLEY-IN-WHARFEDALE.—Sept. 1.—For erection of a county private retreat at Scaleber Park. Mr. J. Vickers Edwards, county surveyor, Wakefield.

BURY ST. EDMUNDS.—Sept. 10.—For erection of buildings, chimney shaft, &c., for the electric-lighting station. Mr. F. Hastings Medhurst, Westminster Chambers, 13 Victoria Street, S.W.

CHELMSFORD.—Sept. 2.—For erection of physical laboratory and workshops at King Edward's grammar school. Mr. Charles Pertwee, architect, Chelmsford.

CONSETT.—Aug. 31.—For erection of the new institute buildings in Park Road, Consett. Messrs. Plummer & Burrell, architects, 13 Grey Street, Newcastle-upon-Tyne.

CORNWALL.—Aug. 29.—For erection of a Baptist chapel, West Hill, St. Austell. Mr. F. C. Jury, architect, Alma Villas, Tregonissey Road, St. Austell.

CORK.—Aug. 31.—For alterations and improvements to 88 Old George's Street. Mr. D. J. Buckley, architect, 21 Adelaide Street, Cork.

CUMBERLAND.—For reslating and lathing of a large mill at Egremont. The Wyndham Mining Company, Limited, Egremont.

DERBY.—Sept. 7.—For erection of brick boundary wall on north side of land recently acquired for extension of Nottingham Road cemetery. Mr. John Ward, surveyor, Babington Lane, Derby.

DEVONPORT.—Aug. 29.—For erection of a public convenience at Northcorner Quay. Mr. John F. Burns, surveyor, Municipal Offices, Ker Street, Devonport.

DOVER.—Sept. 13.—For erection of workshop, &c., adjoining car shed at Maxton. Mr. Henry E. Stilgoe, Town Hall, Dover.

DUKINFIELD.—For erection of the Town Hall. Messrs. John Eaton, Sons & Cantrell, architects, &c., Stamford Street, Ashton-under-Lyne.



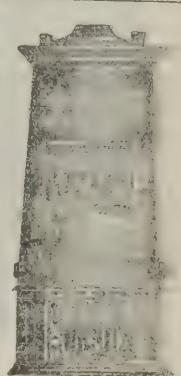
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DURHAM.—Aug. 29.—For pulling-down and rebuilding premises. Mr. F. H. Livesey, architect, 7 Market Place, Bishop Auckland.

DURHAM.—Aug. 31.—For erection of a large chapel and school at Esh, near Waterhouses Mr. George Rhymer, Tudhoe Colliery.

DURHAM.—Aug. 31.—For erection of institute buildings in Park Road, Consett. Messrs. Plummer & Burrell, architects, 13 Grey Street, Newcastle-upon-Tyne.

DURHAM.—For erection of three shops and two houses in Front Street, Stanley. Mr. William Forster, architect, Clifford Road, Stanley.

EDINBURGH. — Sept. 7. — For erection of public baths, Portobello. Mr. R. Morham, city superintendent of works, Public Works Office, City Chambers, Edinburgh.

ELGIN.—Aug. 30.—For erection of a steam laundry and carpet-beating factory near the Highland Railway Station. Mr. C. C. Doig, architect, Elgin.

EPPING.—Sept. 14.—For erection of a new ward at the isolation hospital, Theydon Garnon, and sundry works to existing buildings, with heating and hot-water supply. Mr. E. Egan, architect, Holmdale, Loughton.

GAWTHORPE.—Sept. 1.—For erection of two semi-detached residences. Mr. B. Watson, architect, Bradford Road, Batley.

GODALMING.—Sept. 20.—For erection of cemetery chapels and lodge at new cemetery grounds in Eashing Lane. Messrs. Welman & Street, architects, Church Street, Godalming.

GUISBOROUGH.—Aug. 30.—For erection of storehouse and taking-down and rebuilding boundary wall at workhouse. Mr. W. Richardson, clerk, Guisborough.

HALIFAX.—Sept. 10.—For additions to premises of Campbell Gas-Engine Company, Limited. Messrs. Jackson & Fox, architects, 22 George Street, Halifax.

HASTINGS.—Aug. 31.—For additions, alterations and sanitary works at Sandown (Old London Road) and Hollington Board schools. Mr. Arthur Wells, architect, Queen's Chambers.

HULL.—Sept. 1.—For erection of an art-gallery over the Museum, Albion Street. Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowlalley Lane, Hull.

HULL.—For erection of a saleroom for Messrs. Lewendon & Son. Messrs. Smith, Brodrick & Lowther, architects, York Chambers, 77 Lowgate, Hull.

IRELAND.—Aug. 29.—For erection of a Masonic hall, Millisle Road, Donaghadee. Messrs. J. J. Phillips & Son, architects, 61 Royal Avenue, Belfast.

IRELAND.—Aug. 30.—For erection of a schoolhouse in Killaughy, Millisle. Rev. S. J. Lyons, Millisle.

KENDAL.—Aug. 29.—For erection of a dwelling-house in Chapel Close. Mr. John Stalker, architect, Kendal.

KENDAL.—Aug. 29.—For erection of two large semi-detached villa residences in Chapel Close. Mr. John Stalker, architect.

KIDDERMINSTER.—For additions to the Park Wharf Carpet Manufactory, Park Lane. Mr. J. M. Gething, architect, Oxford Chambers, Kidderminster.

KILKENNY.—Sept. 1.—For erection of a new dormitory annexe and other works at the workhouse. Mr. Kieran Comerford, clerk.

LADYWELL.—Sept. 3.—For the formation of a new exit, alteration in existing doorways, and other works at the public baths. Mr. Edward H. Oxenham, clerk, Lewisham Town Hall, Catford, S.E.

LEEDS.—For alterations and additions to 115 and 117 Burley Road. Mr. Fred. Mitchell, architect, Safe Deposit Chambers, Albion Street, Leeds.

LEEDS.—For extension of Messrs. Harding, Richardson, Rhodes & Co.'s premises, including engine and boiler-houses, and covering 5,200 yards. Mr. William Bakewell, architect, 38 Park Square, Leeds.

LEEDS.—Aug. 29.—For erection of twenty-eight trough water-closets, with valve chambers and ash-places, and making good the walls of several cottages with brickwork; supplying about 1,600 square yards of concreting, and making good the walls of several cottages with cement stucco. City Engineer (Insanitary Areas Department), Municipal Buildings.

LEEDS.—Aug. 30.—For erection of a rescue house at Roundhay Park. City Engineer, Municipal Buildings.

LEEK.—Sept. 21.—For erection of municipal science and technical school and county silk school. Messrs. William Sugden & Sons, Leek.

LONDON.—Aug. 30.—For erection of a sorting office at Lee, S.E. Mr. Wager, H.M. Office of Works, Storey's Gate, Westminster, S.W.

LONDON.—Aug. 31.—For erection of the superstructure of Block 3 of the Parcel Depôt, Mount Pleasant, E.C. Mr. H.

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LONDON.—Sept. 2.—For alterations and additions to the bar and billiard-room, &c., Hatcham Liberal Club, Portland House, New Cross Road, S.E. Apply to the Steward.

LONDONDERRY.—Aug. 29.—For erection of two dwelling-houses in Northland Road. Mr. W. E. Pinkerton, architect, 8 Diamond, Londonderry.

MAYO.—Sept. 15.—For erection of lightkeepers' dwellings at Termoncarragh, co. Mayo, for Eagle Island Lighthouse. Mr. Owen Armstrong, secretary, Irish Lights Office, Dublin.

MENSTON.—Sept. 19.—For erection of a farm residence at the West Riding Asylum. Mr. J. Vickers Edwards, surveyor, County Hall, Wakefield.

NABURN.—For erection of a hall round the school playground. Apply to Tasker, Naburn.

NEW BROMPTON.—Sept. 1.—For additions, &c., to chapel, Canterbury Street, New Brompton. Messrs. J. W. Nash & Son, architects, High Street, Rochester.

NEW FOREST.—Aug. 29.—For alterations and repairs to the union workhouse, Lyndhurst Road. Mr. S. Kelway Pope, architect, 27 Portland Street, Southampton.

RATLEY.—Aug. 29.—For erecting classrooms, offices, &c., at the Ratley school. Mr. H. Hopkins, 28 Southam Road, Banbury.

RAMSGATE.—Sept. 10.—For erection of offices for the gas and water committee. Mr. William A. McIntosh Valon, engineer.

ROMFORD.—Sept. 1.—For erection of a cottage, stable, stall and cart-sheds at the town yard, Market Place. Surveyor, Market Place, Romford.

SCOTLAND.—Aug. 31.—For erection of dwelling-house near Saltcroft, Henderloch, Oban. Plans at the Railway Manager's office.

SHIPLEY.—Aug. 29.—For erection of 60 yards chimney at Dockfield. Messrs. Samuel Jackson & Son, architects, Tanfield Chambers, Bradford.

SHEFFIELD.—Aug. 29.—For erection of additional buildings at the destructor, Lumley Street, Attercliffe. Mr. Charles F. Wike, C.E., city surveyor, Town Hall, Sheffield.

SHEFFIELD.—Aug. 30.—For erection of a Congregational church in Abbeydale Road. Messrs. Hemsoll & Paterson, architects, 18 Norfolk Row, Sheffield.

SOUTHAMPTON.—Sept. 5.—For erection of a girls' school, offices and boundary walls, &c, at Ludlow Road, Woolston. Messrs. W. H. Mitchell, Son & Gutteridge, architects, 9 Portland Street, Southampton.

ST. AUSTELL.—Aug. 29.—For erection of a Baptist chapel, West Hill. Mr. F. C. Jury, architect, Alma Villas, Tregonissey Road, St. Austell.

STRATFORD.—Sept. 2.—For erection of a museum at The Green, Romford Road. Messrs. Gibson & Russell, architects, 11 Gray's Inn Square, London, W.C.

SWANSEA.—Sept. 19.—For erection of Manselton school, Mr. C. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

TENBURY.—Sept. 3.—For erection of a retaining wall, about 200 feet long by 12 feet deep, by the side of Kyre Brook. Mr. R. W. Jarvis, surveyor, Tenbury.

THORNABY-ON-TEES.—Aug. 29.—For erection of a Primitive Methodist church and school. Mr. T. W. T. Richardson, architect, Stockton-on-Tees.

TONBRIDGE.—Sept. 3.—For erection of proposed technical institute and free library. Mr. J. H. Phillips, St. John's Chambers, Cardiff.

TUNSTALL.—Aug. 30.—For erection of bank premises. Messrs. Wood & Hutchings, architects, Town Hall, Tunstall.

WAKEFIELD.—Sept. 6.—For erection of Wesleyan Sunday school, &c., at South Kirkby. Mr. George F. Pennington, architect, Central Chambers, Carlton Street, Castleford.

WALES.—Aug. 30.—For erection of a chapel for the Calvinistic Methodists, Senghenydd. Mr. W. Samuel, Rhadyr House, Senghenydd.

WALES.—Sept. 1.—For erection of a boiler-house and short chimney stack for an electric-light station. Secretary, Llandrindod Wells Electric Light Company, Limited.

WALES.—Sept. 1.—For erection of a classroom at Llechyfedach school, Llannon. Mr. W. Griffiths, architect, Llanelly.

WALES.—Sept. 1.—For alterations and additions to the Tylorstown Board schools, for the Ystradyfodwg School Board. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—For erection of eight houses at Troedyrhiw. Mr. C. M. Davies, architect, 112 High Street, Merthyr Tydfil.

WALLSEND-ON-TYNE.—Aug. 29.—For erection of the Richardson Dees schools, Board offices, boundary walls, &c.

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Mr. Benjamin F. Simpson, architect, 12 Grey Street, Newcastle-on-Tyne.

WALTHAMSTOW.—Sept. 13.—For erection of school buildings in Queen's Road. Mr. W. A. Longmore, architect, 7 Great Alie Street, E.

WATFORD.—Aug. 31.—For supply and delivery of electricity meters and main cut-outs, for twelve months from November 1, for the Urban District Council. Mr. W. C. C. Hawtayne, consulting engineer, Mansion House Chambers, 20 Bucklersbury, E.C.

WELLS.—Sept. 3.—For erection of a public hall and post-office buildings on the site of the present market hall. Mr. John Johnson, architect, 9 Queen Victoria Street, London, E.C.

WEST BROMPTON.—Oct. 12.—For erection of a laundry at the workhouse, Fulham Road. Mr. Edwin T. Hall, architect, 57 Moorgate Street, E.C.

WESTBURY-ON-SEVERN.—Oct. 3.—For erecting kitchen, stores, laundry, committee-room, tramp wards, receiving wards, porter's lodge, &c., at the workhouse. Mr. W. Fitzgerald Jones, architect, 21 George Street, Gloucester.

WESTON-SUPER-MARE.—Sept. 13.—For alterations and additions to the Knightstone Baths. Messrs. Price & Wilde, architects, 15 Waterloo Street, Weston-super-Mare.

WHALLEY AND READ.—Sept. 10.—For repair of Read old bridge, crossing the Sabden Brook. Mr. W. Harold Radford, county bridge-master, 19 Brazenose Street, Manchester.

WHITBY.—Sept. 10.—For erection of a pair of semi-detached villas on the Brook Park Estate, near Sleights station. Mr. John J. Milligan, architect, 77 Baxtergate, Whitby.

WIDNES.—Sept. 12.—For erection of relief offices and vaccination station. Mr. J. P. Fraser, architect, 4 Bold Street, Warrington.

THE Canterbury Town Council has asked the Local Government Board to sanction a loan of 70,000*l.* for the provision of a lunatic asylum, and the scheme is opposed by Earl Sondes, the Dean of Canterbury, and others. In the course of the Local Government Board inquiry, the medical superintendent of the Kent County Asylum at Chatham said that the increase of lunacy in Kent is about sixty cases a year, and it was also shown by statistics that in the country generally lunacy has increased nearly threefold in forty years.

TENDERS.

ABERGAVENNY.

For erection of a footbridge, with handrails and stone buttresses, and for making a culvert at the Old Mill, Cwmyoy Lower. Mr. JOHN GILL, surveyor, Hereford Road, Abergavenny.

E. Sheen	£16 0 0
J. Hughes	15 5 0
W. Williams	13 0 0
D. Jones	13 0 0
H. Phillips	12 17 6
W. WILLIAMS, Graig Dee, Llanthony (*accepted*)	12 10 0

ACCRINGTON.

For cleaning and painting the technical school. Mr. W. J. NEWTON, borough engineer.

S. FOSTER & SON, Accrington (*accepted*).

ANDOVER.

For painting the mile posts and direction posts within the district. Mr. JOHN WORMALD, surveyor, Winchester Road, Andover.

C. Grace & Sons	£32 10 0
J. S. Moreton	24 0 0
E. Godwin	21 5 0
W. Turner	17 5 6
S. BELL, Andover (*accepted*)	12 2 6

BLACKHILL.

For formation of a portion of streets at Blackhill. Mr. JOHN DIXON, surveyor.

W. & R. Walker	£95 5 2
G. CHRISTOPHER, The Hawthorns (*accepted*)	91 10 0

BARNSLEY.

For erection of two dwelling-houses in Longcar Lane. Messrs. WADE & TURNER, architects, 10 Pitt Street, Barnsley.

Accepted tenders.

R. Ruffles, builder	£411 0 0
W. Dyson, joiner	159 0 0
T. Marshall, plasterer	40 0 0
M. Fleming, Eastgate, slater	38 10 0
B. Denison, plumber and glazier	35 0 0
D. C. Bridge, painter	8 10 4

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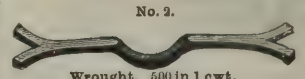
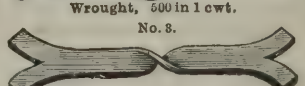
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For erection of a pair of semi-detached residences in Victoria Street. Messrs. WADE & TURNER, architects, 10 Pitt Street, Barnsley.

Accepted tenders.

Schofield, Son & Hampson, Shaw Lane, builder	£1,113	18	8
A. Hawley, Wellington Street, joiner	405	0	0
T. Lindley, Doncaster Road, plasterer	114	0	0
S. Rushforth, Eldon Street, plumber and glazier	178	6	6
M. Fleming, Eastgate, slater	68	0	0
Stephenson & Son, Peel Street, painter	22	14	0

BASFORD.

For pulling-down Beaufit Lane Bridge (near Pinxton M. R. station), over the river Erewash, in the parishes of Selston and Pinxton, and the erection of a new bridge in place thereof. Mr. G. W. HAWLEY, surveyor, York Chambers, King Street, Nottingham.

J. Tomlinson	£509	4	3
H. H. Barry	500	18	6
J. Tomlinson	432	12	0
ALLCOCK & SON, Eastwood (*accepted*)	415	15	0

BERMONDSEY.

For painting, whitewashing, &c., and the reconstruction of several water-closets at the baths and washhouses.

Painting, &c.

Stewart & Son	£87	0	0
W. Mills	72	0	0
E. Leaf & Co.	70	0	0
R. Athey	65	0	0
E. Mills	64	0	0
G. F. MORGAN, Dulwich (*accepted*)	44	10	0

Sanitary.

W. Mills	196	0	0
E. MILLS, Westcombe Park (*accepted*)	193	0	0

EWANRIGG (near MARYPORT).

For alterations and additions to farm buildings on the Ewanrigg Estate. Messrs. CASTIGLIONE & GIBBINGS, surveyors, 31 Lowther Street, Carlisle.

T. Mackenzie	£409	13	0
H. Archer	342	10	0
J. BELL, Maryport (*accepted*)	285	1	11

DUBLIN.

For new chancel, &c., St. Luke's Church. Mr. J. F. FULLER, architect, Brunswick Chambers, Dublin.

T. Hall & Son	£3,015	0	0
S. Bolton & Sons	2,420	0	0
R. Lidwell	2,310	0	0
J. Beckett	2,150	0	0
G. Crampton	2,219	0	0
W. Beckett	2,100	0	0

LANCHESTER.

For construction of sewerage and sewage-disposal works. Mr. J. E. PARKER, engineer, Post Office Chambers, Newcastle.

D. CHAMPNEY (*accepted*)	£255	0	0

LEEDS.

For alterations to the North Tavern, North Street. Mr. FRED MITCHELL, architect, Safe Deposit Chambers, Leeds.

Accepted tenders.

C. Myers, Woodhouse Street, mason and brickwork.
B. Mawson, Water Lane, joiner.
R. Branton & Co., Lovell Road, plasterer.
J. Stead, Alexander Street, Park Lane, plumber and glazier.
J. Robinson, Kirkgate, painter.
Total, £1,252 18*s.*

LEWISHAM.

For painting, &c., the infirmary, High Street. Mr. ROBERT WILLIAMS, architect, 20 Northbrook Road, Lee, S.E.

Marsh & Co.	£4,749	0	0
Leaf & Daughter	1,800	0	0
General Builders, Limited	1,420	0	0
E. Jones	1,390	2	0
E. Proctor	1,236	0	0
T. J. Barden	1,149	9	11
W. Vanstone	1,130	0	0
Folley	1,117	0	0
Batchelor	1,079	8	9
S. Penfold	1,059	5	7
E. Mills	1,026	4	11
F. Harris	1,020	0	0
INNS, Watford (*accepted provisionally*)	984	0	0
W. Mills	904	10	8
W. Beazley	806	17	3

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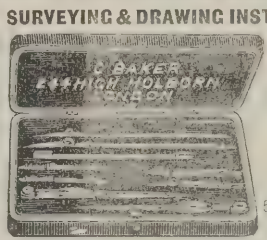
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For alterations and additions to the technical institute in Green Street. Mr. F. SMITH, architect, Bank Chambers, High Street, New Brompton.

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J. G. THOMAS, Nottingham (*accepted*)	4,420 0 0

PERTH.

For construction of outfall sewer for Eastern District. Mr. R. McKILLOP, surveyor.

R. C. Brebner	£3,927 0 0
J. Pollock	3,305 0 0
W. Kennedy	3,228 0 8
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A. Brunton & Son	2,846 4 8
L. & W. McDonald	2,668 13 0
P. GIRRITY, Dundee (*accepted*)	2,541 18 0

PERTH—*continued.*

For extending quay. Mr. R. McKILLOP, surveyor.

W. Kennedy	£939 5 0
J. Adams & Co.	939 0 0
J. Pollock	862 19 0
R. C. Brebner & Co.	796 15 4
L. & W. McDonald	703 18 6
P. GIRRITY, Dundee (*accepted*)	599 19 8

PENZANCE.

For laying between 500 and 600 super yards of Jarrahdale wood paving in St. Clare Street. Mr. GEORGE H. SMALL, surveyor.

W. H. STEPHENS, Penzance (*accepted*)	£499 9 0

ROCHESTER.

For additions and alterations to the Wainscott schools. Mr. G. E. BOND, architect, High Street, Rochester.

H. E. Phillips	£695 0 0
C. Roberts	588 0 0
G. West	576 0 0
G. Gates	575 0 0
A. Ruby	540 0 0
H. WYLES, Chatham (*accepted*)	539 0 0

ROMSEY.

For erection of a concrete retaining wall in the Abbey.

W. Roles & Sons	£79 12 6
W. H. Read, Broadwater, Romsey*	75 0 0

* Recommended for acceptance.

SELBY.

For repairs to Marsh and other bridges, and for supplying and fixing new clough doors, repairing brickwork, &c., at Carlton. Mr. THOMAS BRAITHWAITE, surveyor, 15 The Crescent, Selby.

R. Hinsley	£166 5 0
G. H. Stoker, Carlton, R.S.O.	63 2 0

Note.—The work to be done under the engineer to the Council.

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SOUTHWELL.

For erection of a house and buildings, Ropewalk. Mr. WALTER COTTAM, architect, Southwell.

G. Brown & Sons	£501 10 0
C. Crossland	449 0 0
W. Cottam	405 0 0
A. JENKINS, Westgate, Southwell (*accepted*)	386 10 0

SWANSEA.

For erection of a post office.

		A
Bennett Bros.	£29,091 11 3	—
Stephens, Bastow & Co., Limited	27,998 0 0	—
J. & T. Weaver	25,300 0 0	£1,300 0 0
H. Billings	24,750 0 0	150 0 0
T. Watkins & Co., Limited	24,429 14 7	250 0 0
Lloyd Bros.	24,000 0 0	300 0 0
D. JENKINS (*accepted*)	23,500 0 0	1,500 0 0

A. Old material.

THETFORD.

For erection of vestry at St. Cuthbert's Church. Mr. ARTHUR J. LACEY, architect, 6 Upper King Street, Norwich.

J. W. Bunning & Son	£313 9 0
W. Boughton & Sons	295 0 0
W. Curtis	280 0 0
S. HOLDEN, Thetford (*accepted*)	276 0 0

WESTMINSTER.

For cleansing, painting and other works at the Vestry Hall, St. James's.

Bywaters	£545 0 0
Faulkner	497 0 0
Shiers	495 0 0
Knight	495 0 0
Rowe	488 0 0
Johnson & Manners	469 10 0
Foxley	467 0 0
H. & E. Lea	445 0 0
S. & S. DUNN (*accepted*)	430 0 0

ELECTRIC NOTES.

THE construction of an electric light railway on the overhead system between Margate and Ramsgate, by way of Broadstairs, has finally been sanctioned by the Board of Trade. It is hoped that the railway will be completed before next summer.

AT a meeting of the lighting committee of the Liverpool City Council it was decided to extend the electric mains in Copperas Hill, School Lane and Victoria Street. The engineer's report showed that for the past month there had been an increase of 1,523 16 candle-power lamps connected with the supply mains, when compared with the number for the corresponding period of last year. In other respects the committee considered that satisfactory progress was being made.

PROFESSOR KENNEDY, in his report upon the lighting of Grimsby with electricity, presented at the last meeting of the lighting committee, stated that a well-conducted municipal electrical undertaking might now be considered as certain of success, both from the technical and financial points of view. This was the case even where it was only proposed to supply current for lighting purposes, whereas in Grimsby they also expected to be able to supply current to the tramway company for power, therefore success was still more certain. The estimated cost was put down at 35,000*l*, but in view of contingencies of slight alterations and extensions, it was advised that 40,000*l*. should be applied for as the probable capital expenditure. He recommended the use of a continuous current three-wire system, and as a site a quantity of land belonging to the Corporation to the north of the old cemetery. It was assumed that within a year or two of the opening of the station there would be a total of about 9,000 lamps of 8 candle-power or their equivalent connected to the mains, but of these not more than 5,000 would be alight at once. The total power of the plant to be put down in the station, including reserves, would be about 750 horse-power. Separate mains would be required for tram lines. A route was mapped out in the report for public lighting by electricity. Professor Kennedy did not consider it would be worth the while of the Corporation to supply electricity to the docks. The report of the sub-committee respecting the supplying of electrical power to the tramway company contained a number of important conditions. They state that the company, on making their line an electric traction, shall purchase the power from the Corporation at the rate of 1½*d*. per Board of Trade unit for the first 360,000 units used, and to guarantee to take a

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Also, Testimonials from Dr. Hassall, September 28, 1868; the late Dr. Letheby, February 15 1865, and December 1872.

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minimum of 360,000 units per annum; above 360,000 and up to 460,000 units, the charge to be at the rate of 1⅜*d.* per unit, and all above 460,000 units to be charged at the rate of 1¼*d.* per unit. The tramway company are to reconstruct the present lines, to double them from the depôt to the Old King's Head in Victoria Street, and to construct an additional loop line from the latter place, *viâ* George Street and Osborne Street, to the White Hart Hotel. The company are to run a 7½ minutes' service from April 1 to October 31, and a ten minutes' service during the remainder of the year, and to institute a system of universal penny fares within the borough. The committee eventually decided to adopt the report.

TRADE NOTES.

THE Atkinson Morley's Convalescent Home, Wimbledon, has recently been refitted with Berkefeld filters.

MR. W. P. BUTTERFIELD, of the Shipley Galvanising Tank and Cistern Works, gave his employés an outing to Southport on Saturday last, the 20th. Dinner was served at the Hoghton Arms Hotel, when about thirty sat down. After dinner the various places of interest were visited. Tea was served at six o'clock, after which a vote of thanks was proposed by Mr. Harry Brogden, foreman.

TOWNLEY'S HOSPITAL, Bolton, is being warmed and ventilated by means of Shorland's patent double-fronted Manchester stoves with descending smoke flues, patent Manchester grates and extract ventilators.

MESSRS. STEPHENS, whose name in connection with writing inks, gum, &c., has become a household word, and the high quality of whose manufactures is attested by the fact that they are the holders of no fewer than twenty medals gained at the various exhibitions at which their manufactures have been shown, and where they have in each case taken the highest award made, have sent us a booklet artistically illustrated with interior and external views of the new offices the rapid expansion of their business has rendered indispensable, and their manufactories and warehouses. The new office building is being erected in Aldersgate Street, and will occupy the site on which once stood the town house of the Earls of Lauderdale. The manufactory and warehouses are situated in the Holloway Road, where they cover about half an acre, and at Finsbury Park, where more recently an area of 1¾ acres has been utilised for the purpose, and it is not too much to say that these are the largest and best-equipped works for the production of writing-ink in the world. *Apropos* of the present heat, Messrs. Stephens inform us that in addition to the well-known inks and gums to which they owe their world-wide reputation, they have introduced a preparation which they call "Skeevit," which is said to prevent the bites of mosquitoes and other troublesome insects.

BUILDING AND BUILDERS.

IT is with much regret that we learn of the death of Mr. G. de Nyst Clark, one of the partners in the business of Messrs. Patman & Fotheringham, the well-known builders and contractors. The sad event occurred at Mundesley on the 10th inst. whilst bathing. The body was not recovered until Saturday last, having been washed ashore some three miles from the scene of the fatality. Mr. Clark was a man very much esteemed and liked in the City, and many will be sorry to hear of his death.

THE Wesleyans are building a church at Kirkhammerton, in the Knaresborough Circuit.

THE purchase of a site for the Llandudno county schools has now been completed, and the erection of the new buildings is to be proceeded with without delay.

THE Roman Catholic Bishop of Leeds recently laid the foundation-stones of a new Roman Catholic school in Harehills Road, Leeds. Ultimately it is intended to erect, in addition to the school, a church and a house for the clergy.

A MISSION hall in connection with Edrom Parish Church is being erected at a cost of about 300*l.* at Chirnside Bridge Paper Mills. The foundation-stone was laid on Saturday afternoon by Lady Houstoun Boswall of Blackadder.

THE whole of the work in connection with the erection and completion of the new church at Hessay, near York, has been entrusted to Mr. Anthony Lyons, contractor, of Norton, Malton. Mr. C. Hodgson Fowler, F.S.A., of Durham, is the architect.

AT a meeting of the buildings regulation committee of Glasgow Corporation last week it was agreed that a minute should be brought up at a meeting of the Town Council on Monday, providing that, as in London, the height of buildings in the city should not exceed 85 feet.

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THE committee of the proposed Church House for the diocese of Liverpool has just approved plans prepared by the diocesan surveyor, and building operations will shortly be begun on the site in South John Street and near Cable Street.

A PUBLIC-HOUSE at Reading, known as Dowsell's, in the course of demolition suddenly collapsed on Wednesday morning, and an overseer, named Ennetts, had his thigh broken. Several other workmen escaped marvellously.

THE directors of the North-Eastern Railway Company intend to erect thirty-six cottages for their employés near the railway station at Tweedmouth. Some time ago the men petitioned the directors of the company to build houses for them, in consequence of deficient accommodation in the town.

A DISASTROUS fire broke out on the docks at Milford Haven about a quarter-past eight on Wednesday morning. Hancock's sawmills and works, and premises on either sider, including a large ship-engineering workshop, were all burned to the ground. There was no wind, or the whole block of twenty workshops would have gone, as there is no fire-engine either in the town or on the docks.

THE surveyor having submitted a report as to the condition of the roof of the large ballroom at the Liverpool Town Hall, the chairman of the finance committee and the chairman of the financial sub-committee have been authorised to inspect the work and order, if necessary, the reconstruction of the roof and ceiling, to be carried out by Messrs. Brown & Backhouse, at a cost of not exceeding 3,000*l.*

THE Great Western Railway Company are about to rebuild Swindon Station. The new station will not be on a very large scale, since the fast trains between London and the west of England simply run through, and passenger traffic to and from Swindon is not very extensive, the place only bulking largely as being the headquarters of the locomotive, carriage-building and general engineering works of the Great Western.

A FIRE burst out half an hour before midnight on the 20th inst. at the Britannia Works, Kensal Road, W., of Messrs. S. Ransom, builders and contractors. A huge building of one, two and three floors, extending 50 yards in one direction and 20 in another, which was used by the firm as a manufactory, offices and stores, became ignited from some unknown cause. Several engines attended, but when it was seen that several private houses close by, many of them let out in tenements, were becoming involved, some extraordinary scenes of excitement, panic and confusion were witnessed. Twelve steamers and several hydrants were eventually got to work, and with an admirable supply of water the firemen succeeded in mastering the fire about an hour before daybreak.

THE foundation-stone of a college to be erected on land in the Filey Road, Scarborough, was laid on Wednesday last by Mr. George Lord Beeforth, an ex-mayor of the borough. The site commands magnificent views of both land and sea. The Scarborough College Company are the proprietors, and the work will necessitate an expenditure of about 10,600*l.* The dining-hall is to be capable of accommodating 100, and the schoolroom 200 boys, and it will be capable of extension.

SOON after six o'clock on the 24th inst. a fire occurred, which resulted in the destruction of the premises of Messrs. C. Read & Co., saw mill proprietors, 53 East Road, City Road, N. The property attacked consisted of a range of buildings, one and two floors in height, which extended about 50 yards in one direction and 30 in another. These were used as engine and boiler house, workshops and stores. The fire extended to the premises occupied by Messrs. B. Bridgwater & Co., engineers, which were also entirely destroyed, and unfortunately neither of the firms was insured.

THE strike of Shrewsbury bricklayers' labourers, which commenced some months ago, came to a conclusion on Saturday. At the onset the men demanded an increase in wages from 5*d.* to 5½*d.* per hour, and the masters agreed to give an advance of ¼*d.* conditionally on the men not turning out. This offer the men refused, the strike began and the masters withdrew their offer. At a meeting on Saturday afternoon between a deputation representing the men and the Master Builders' Association, the latter agreed to give the men ¼*d.* per hour advance on condition that Rule 2 of the Labourers' Society was altered to read as follows:—"That the ordinary rate of wages for efficient men shall be 5¼*d.* per hour, inferior men to be rated by the employer." This was accepted by the men.

THE North-Eastern Railway Company are making arrangements for the construction of a new high-level bridge over the Tyne. The project is to have four lines of rails, so that the new bridge will provide accommodation for a large volume of traffic. At present trains on their journey from north to south have to run into the station from the east, and then run out again in the same direction, it being thus necessary to transfer the locomotive from one end of the train to the other, or put on a new engine. With a new bridge in the position indicated

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PARTY WALL.

this inconvenience would be obviated, and trains would be enabled to proceed right through the station. In 1850 the total number of persons who travelled from Newcastle was comparatively small, but in 1886 it had reached 2,089,977, and ten years later this number had grown to some 2,750,000.

VARIETIES.

At Herne Bay property of all kinds has advanced very greatly in value, and one of the local auctioneers at a sale last week sold every house and plot of land offered at prices which constitute a record for Herne Bay.

The ceremony of opening the memorial in the Kremlin to Alexander II. will take place in a few days. Deputations and troops from all parts of Russia have arrived to take part in the ceremony.

The Beulah chapel, Bexhill-on-Sea, which has been recently erected, under the auspices of Mrs. Spurgeon, as a memorial to her husband, the late Rev. Charles Haddon Spurgeon, was opened last week.

Acton Church, Nantwich, which is one of the oldest edifices in the country, will shortly be reopened after undergoing extensive alterations. The nave of the church has been completely restored at a cost of nearly 6,000*l.*

Rushton Roman Catholic church was on the 22nd inst. reopened by the Bishop of Shrewsbury, after restoration and renovation. The church is one of the most ancient in Cheshire, the original foundation dating back about 600 years.

The will of the late Lady Shaftesbury, of Belfast Castle, has been proved, the gross value of the estate being 78,000*l.* Among her ladyship's bequests is one of 7,000*l.* towards the erection of a Protestant Cathedral at Belfast, the charities of which city will also benefit to the amount of about 40,000*l.*

Colonel Sir Francis Marindin, from the Board of Trade, accompanied by the Company's principal officials, inspected on the 19th inst. the alterations and increased accommodation which the North British Railway Company have completed at their Kelso station.

The Tong District Council new sewage disposal works, which have been constructed from plans by Mr. John Drake, of Queensbury, are rapidly approaching completion. The contractor is Mr. F. Robinson, of Thornton, and the clerk of works Mr. James Heseltine, who superintended the carrying out of similar works at Pontefract. The cost of the works will be over 7,000*l.*

The Sidmouth Council have completed its costly new sewerage scheme executed by Mr. James Mansergh, C.E., and Sidmouth has now been pronounced in the official report to the County Council as "ahead of all similar places in South Devon" in matters of sanitation.

The ancient church of Llantwit-major, in the Vale of Glamorgan, needs restoration, and by means of a bazaar recently held a sum of 450*l.* was procured. Its ancient associations, for it was here that an ancient British school of learning was located, give it an interest beyond the diocese.

Mr. R. Lakin, of Messrs. Greaves, Bull & Lakin, has intimated his willingness to present to the British Museum the great fossil reptile which was recently discovered on his property, the Cliff, Warwick. The Museum authorities are of opinion that the find will turn out to be of greatest interest and scientific value.

Insh (Kingussie) parish church, which ancient edifice has just undergone complete internal reconstruction, is now open for public worship. It is said that a church was founded on the site by Adamnan, and that worship has been carried on continuously for 1,000 years.

An area of brick paving, about 14 feet by 12 feet, in front of the shop of Mr. Bagshaw, fishmonger, Alcester Road, Moseley, fell into a cellar built under the footpath on the 19th inst. Fortunately there was no one entering or leaving the shop at the time. The cellar is 8 feet or 9 feet deep, and the fall is attributed to the supports being insufficient to bear the weight of the pavement.

At a meeting of the Dumfries Town Council a letter has been read from Mr. Andrew Carnegie offering 10,000*l.* for the erection of a library, provided the Free Libraries Act is adopted by Dumfries and Maxwelltown. Mr. and Miss M'Kie, of the Moat House, Dumfries, have given a free site for the purpose of the library building.

Lord Masham, accompanied by the Mayor and officials of the Bradford Corporation, visited Manningham Park on Wednesday afternoon with a view to consultation regarding the site of the proposed Cartwright Memorial Hall. His lordship expressed an opinion in favour of one with a frontage towards the principal entrance to the park on the site of the present



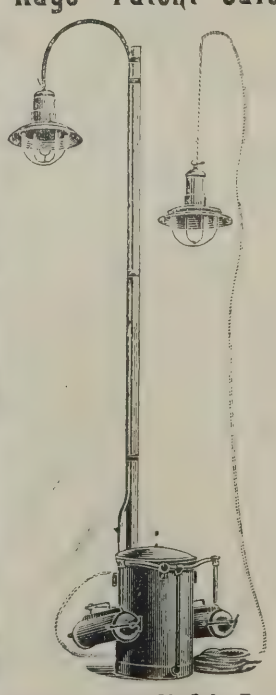
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hall, and it is anticipated that a decision will be arrived at accordingly.

At the Royal Botanic Society's Gardens, Regent's Park, a new public café has been erected, together with a private dining-hall 45 feet long by 30 feet wide, reading and reception-rooms and ladies and gentlemen's cloakrooms. There is a spacious hall lounge, entered from the main conservatory. With the exception of the café the building is intended for the exclusive use of fellows of the Society and their friends. The foundations and superstructure were carried out by Messrs. Huntley Bros., of Croydon; the decorations and furnishing by Messrs. Maple & Co., Limited, and the heating by the Thames Bank Iron Company. The architect is Mr. H. W. Hetherington Palmer, of the Outer Temple, W.C.

The Lords of the Committee of Council on Education have received a request on behalf of the Hungarian Government for a selection of works, for which awards have been made in the national competition of this year, to be sent on loan at the expense of the Hungarian Government for exhibition in the new industrial art museum at Buda Pesth, and their Lordships have promised to afford every facility. The schools of art are being asked to state in each case whether works may be sent.

The first prize of 35 guineas in the public competition for the best design for laying out the Appleton House estate as a public park has been awarded to Messrs. William Barron & Son, Elvaston Nurseries, Borrowash. The area of the park is about 36 acres, and in addition to the general plan of the park, which contains a lake, cricket and recreation grounds, lawn-tennis grounds, bowling green, gymnasium, &c., they also furnish three alternative plans for dealing with Appleton House and premises; also designs for entrance gates, bandstands, shelters, fountains, &c.

At the Guildhall, Oswestry, last week, in connection with the 500th anniversary of the first Royal charter granted to the town by Richard II., the mayor (Dr. Aylmer Lewis), supported by the recorder (Mr. Lloyd Kenyon), the vicar (the Rev. Norman Ogilvy), Colonel Lloyd (Aston), Capt. Wynne Corrie, Mr. Stanley Leighton, M.P., Mr. R. Venables (vice-chairman of the Salop County Council), presided over a large company, which included almost every member of the Corporation, when the freedom of the borough was conferred upon the town clerk (Mr. J. Parry Jones).

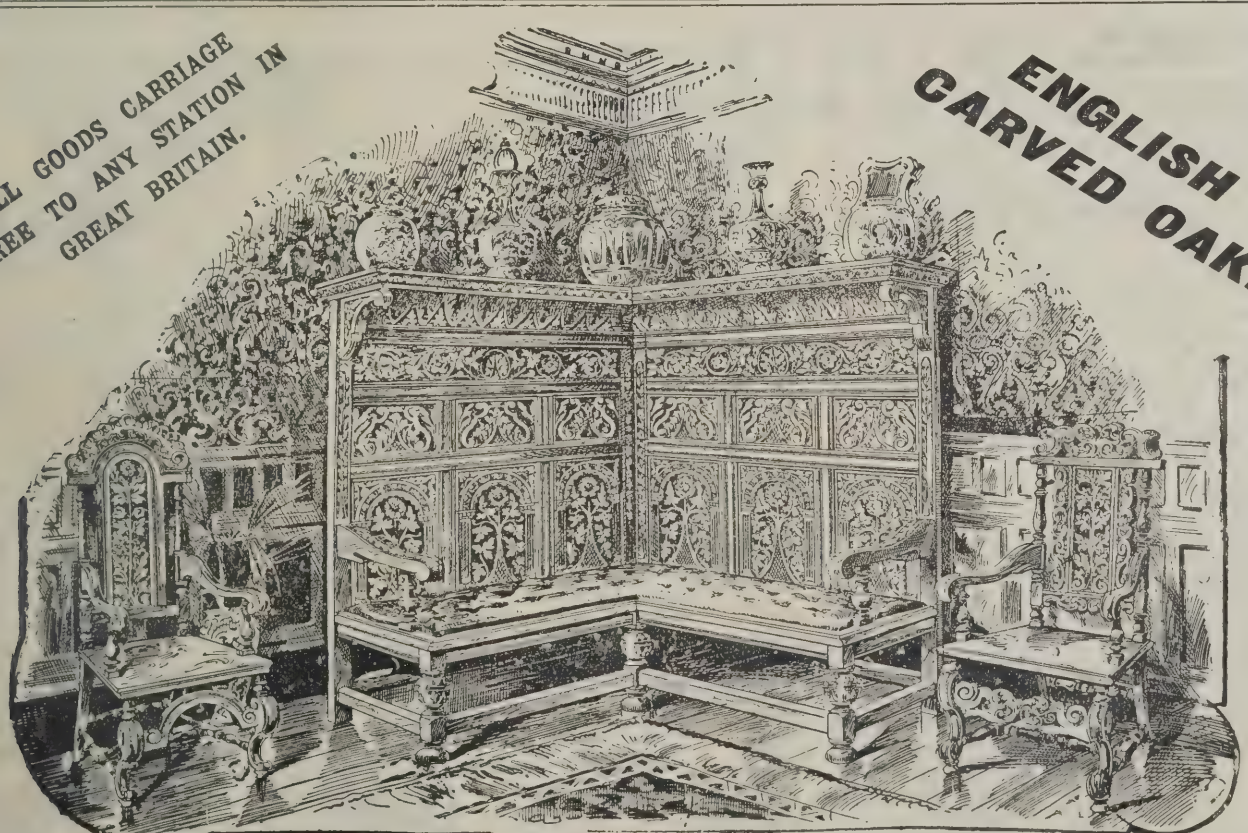
The preparations are well advanced for opening the new extension of the Hampstead workhouse, which has been erected by the Hampstead Guardians at the junction of Heath Street and North End, Hampstead. The new structure, which will accommodate an additional 100 inmates, will cost about 30,000*l.* The electric light will be installed throughout, and the accommodation, the great object of which is by means of classification to be able to make a distinction between the deserving and the undeserving poor, will be of the most modern description, while ample facilities are intended to be provided for recreation.

The District Council at Rhyl have nearly completed the first section of the Western Promenade extension. The work is being undertaken in front of the old Winter Gardens, which are now laid out for building sites. The work, which will cost several thousands of pounds, is undertaken by the Council without a contractor, Mr. Robert Hughes (town surveyor) being the engineer. The works consist of a sea-defence wall, with a promenade, carriage-way and parapet on the land side. At the completion of these works it is expected that the sea defences and erection of a promenade at the Marine Drive will be undertaken, and for which the Local Government Board have sanctioned a loan. A Birmingham firm have applied to the Council for permission to lay down an electric tramway from the Grand Pavilion along the sea front, a distance of four miles, to Prestatyn.

A United Methodist Free Church was opened on Wednesday last in the new and populous district of Leeds known as Harehills. Situated in Ashley Road, which is a continuation of Beckett Street, it is in the Lady Lane circuit. The structure is of a temporary character, being of corrugated iron upon a red brick base, and this will be used as a school and chapel until the progress of the cause in the district warrants the erection of a permanent building. As there is no

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other place of worship in the vicinity, it is anticipated that a considerable congregation will soon be obtained. So far sitting accommodation has been provided for 250. The site cost about 450*l.*, and the structure has entailed an expenditure of equal amount, making a total of about 900*l.*

THE new central sanitary depôt, upon which the Leeds Corporation are spending over 30,000*l.*, is nearing completion, and will be formally opened early next month. The site is in Dock Street, to the south of Leeds Bridge, where stabling accommodation is provided for 168 horses. Commodious offices, store-rooms and sheds for the many vehicles that are used in the scavenging and water-cleansing department are also being built. The land on which the new depôt is built has cost about 20,000*l.*, and the buildings will necessitate an expenditure of about 13,000*l.* The whole of the land, however, is not being used for the purposes of the depôt. About a thousand yards are being utilised to widen Dock Street and the other thoroughfares bounding the site.

REGISTRATION OF PLUMBERS.

A CONGRESS of plumbers has been held in Glasgow, when the subject of "Registration" was considered.

Mr. W. R. E. Coles, clerk to the Worshipful Company of Plumbers, said the whole fabric of the congress rested on the two broad facts that registration was actually one of the most elementary conditions of organisation, inasmuch as there could be no corporate body without it; and the necessity for registration of plumbers had been affirmed by common consent of the plumbing craft throughout the kingdom, the medical profession, the sanitary authorities, architects and others particularly acquainted with the subject, as well as by increased majorities in the House of Commons whenever the Plumbers' Registration Bill had been before Parliament. He pointed out that the necessity for plumbers' registration was first affirmed at a meeting held in London in 1884, and in the fourteen years which had since elapsed the proposition had been approved by public meetings in all the principal centres in England, Ireland, Scotland and Wales. The advantages of registration were primarily that it enabled members to legally combine for the common purpose of building up and maintaining their status, and the public to distinguish those who were qualified and responsible for the discharge of their duties. Indeed, registration was the final condition of legal qualification. Abuses could only be assaulted or met from some vantage ground or stable position such as a register afforded. The methods of registration adopted for the National Registration of Plumbers had stood the test of fourteen years' experience, and should be continued. He further urged that the necessity for registration should be impressed on the employers and workmen, on the sanitary authorities, on the educational authorities, and particularly on the architects, who were held primarily responsible for the efficiency of all the arrangements of the house built under their direction. He added that the necessity should also be pressed on the attention of Parliament and the public at large.

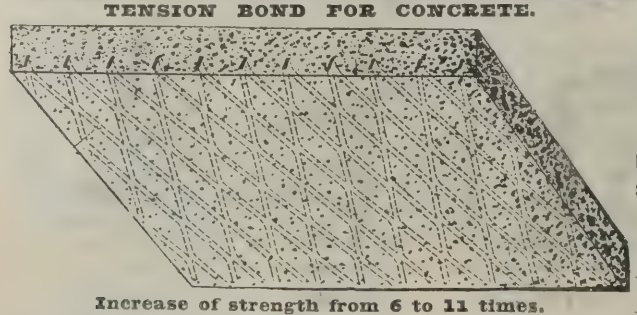
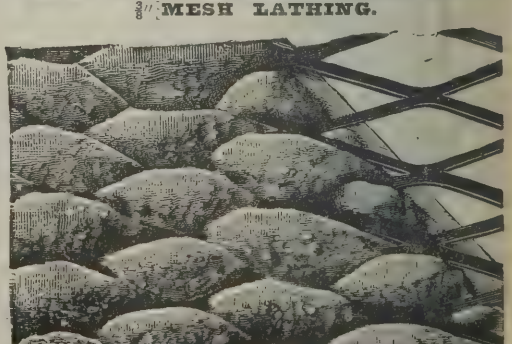
It was agreed to refer the subject to a committee composed of the secretaries of the six district councils.

The following resolution was also agreed to:—"That this ninth annual congress of the registered plumbers, local health authorities, medical men and educationalists in Scotland renews its approval of legislative sanction being given to the registration movement, and its desire that the Bill be reintroduced next Session of Parliament; recommends that a strenuous effort be made by the promoters of the Bill, by deputation or otherwise, to induce the Government to adopt the Bill; and calls upon the district councils of Scotland to take prompt and energetic action for the same object."

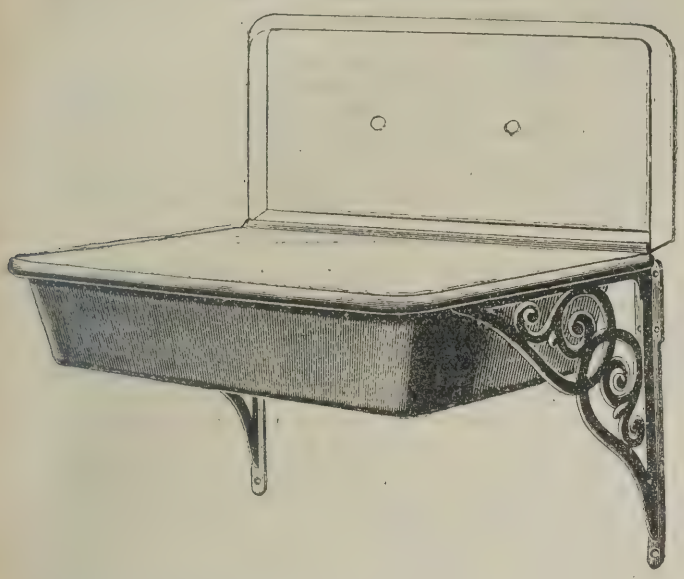
An exhibition, at which the following firms were represented, was held in connection with the Congress:—Evered & Co., Limited, T. B. Campbell & Sons, the Falkirk Iron Company, Robert Brown & Sons, J. & M. Craig, Limited, P. S. Brownlie & Co., the Shawsrigg Fireclay and Enamelling Company, Limited, the Glenboig Union Fireclay Company, Limited, W. Stevenson & Co., David King & Sons, James Milne & Son, Limited, McDowall, Steven & Co., W. B. Morrison & Sons, Smith & Saunders, J. L. Arnot, W. Ross & Sons, James Pyle & Co., Dugald McCallum, W. P. Buchan, R. Boyle & Son, Limited, Moses Speirs & Sons, the British Sanitary Co., Thomas Robertson & Co., Robertson & Co., J. Stott & Co., George Low, John Scott, Thomas Gardiner, A. B. Campbell and the British Illuminating Company.

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THE above illustration gives a clear idea of the new sink which is being placed on the English market by Messrs. Orme, Evans & Co., of Wolverhampton. It is made of wrought-iron, enamelled white inside and French grey outside, and the advantages claimed for it are lightness and cleanliness, as the bracket by which it is attached to the wall obviates the necessity of the supports in ordinary use, which provide ample accommodation and space for the accumulation of filth. This style of sink has attained great popularity in America, and no doubt it will succeed here equally well when adequately made known to English architects, especially as it is inexpensive.

HEALTH EXHIBITION, DUBLIN.

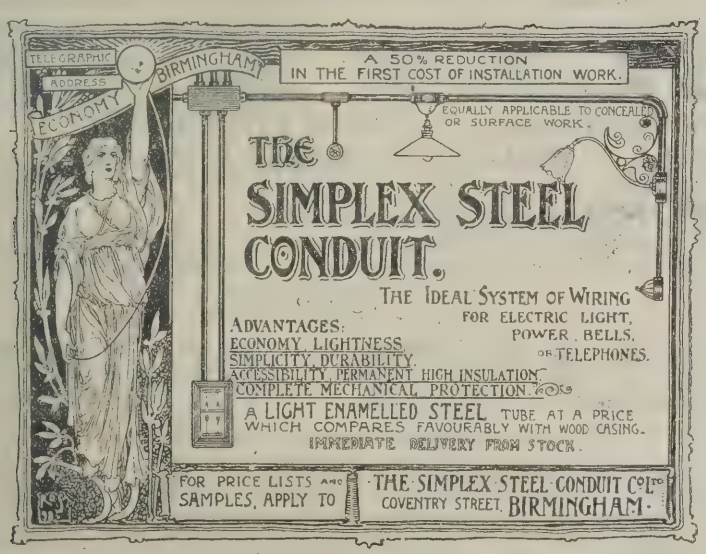
THE principal object of the exhibition which was held this week in Dublin in connection with the congress of the Institute of Public Health, was to give the public an approximate idea of the giant strides in sanitary matters which have been made during the fourteen years which have elapsed since the last show of a similar kind was held in that city. It was also intended to enable inventors and manufacturers to show by practical demonstration how they have kept time with the onward march of science, and to instruct the mass of the people in the most approved and scientifically conceived methods for promoting public health. The executive committee were fortunate in obtaining so suitable a building for their purpose as that which was placed at their disposal by the Senate of the Royal University. It is centrally and conveniently situated, and afforded ample room for the disposal of the exhibits.

The exhibits were arranged under well-defined heads. There were ninety stands set up in the grand entrance-hall, the main hall and the sanitary hall. There were about a hundred exhibitors, thirty-seven of whom were Irish, and the chief centres represented were Dublin, London, Birmingham, Kircaldy, Leeds, Limerick, Glasgow, Scarborough, Macclesfield, Cleckheaton, Blackpool, Belfast, Sheffield, Copenhagen, Exeter, Hull, Oldham, Hanley, Heckmondwike and Newcastle. Of these there were, of course, many in which our readers cannot be expected to feel any special interest. But among those exhibits which merited attention from a technical point of view were those of some well-known firms. The following may be mentioned :—

Messrs. Kerrill & Hunter's patent improvement in closets and cisterns, which has for its object the utilisation of the powers of pressure of water for ventilating purposes, without any waste of water other than will flush the cistern.

Messrs. Dobson & Curtis Bros. sent examples of electric cooking apparatus, electric medical apparatus, and improved sanitary mural decorations. Examples of tiled panels, stained glass, floor coverings, door furniture and artistic brass work were also shown.

Messrs. James Stott & Co. exhibited a model showing an improved system of warming and ventilating as applied to public buildings, such as asylums, hospitals, schools, theatres, &c.



"THE BANQUET."

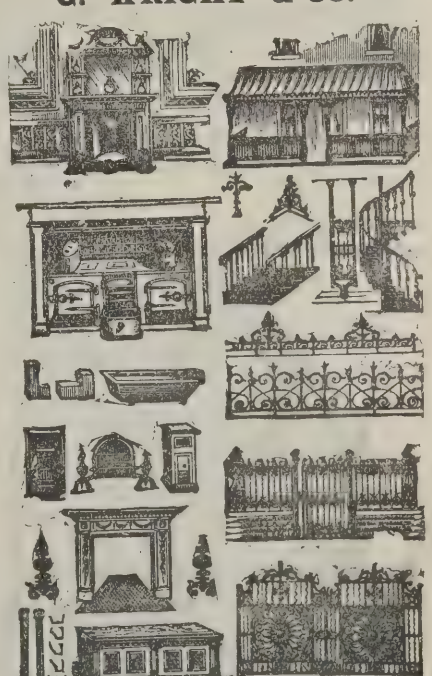
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With Lifting Fire.

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The British Acetylene Gas Generating Company showed generators for country houses, churches and all buildings requiring pure light.

The Eagle Range and Foundry Company showed a 5-foot double oven tiled Eagle range, with improvements, and others of different sizes.

Messrs. Boileau & Boyd had a display of sanitary paints (non-poisonous), specially manufactured from non-poisonous pigments and particularly adapted for the interior decoration of public halls, hospitals, asylums and private residences.

Messrs. William Martin, Son & Co. had on exhibition a choice collection of art sanitary wall-papers, decorations of British and Continental manufacture, stained glass work, encaustic tiling, ventilators, &c.

Messrs. Musgrave & Co., Belfast, had some good examples of Lanyon's patent cheerful ventilating stove in action. These stoves are devised to ventilate the rooms while they warm them. They draw the vitiated air from the room, passing it through the fire and replacing it with pure warm air in considerable volume.

The Oxygen Sewage Purification Company, Limited, of No. 1 Suffolk Street, showed a variety of drawings of works at Northallerton dealing with 100,000 gallons of sewage daily by the oxygen system of sewage purification, drawings of installation at the Dublin Metropolitan Police Barracks, Chapelizod, automatic working machine (patented) for distributing "oxynite," the precipitant used in the process of purification. This machine is automatically set in motion by the flow of sewage and enables a fixed quantity of precipitant per gallon to be added to the sewage as it enters the tank.

Mr. Thomas W. Little exhibited a very superior collection of high-class goods in sanitary construction and in steam and hot water cooking and heating appliances, hospital fittings, &c.

Mr. M'Donnell made an interesting exhibition at stand No. 63 of a number of articles necessary to the construction of sanitary works. They included a set of underhand wiped joints which showed the competent manner in which the work is performed by the exhibitor.

Mr. J. F. Keatinge had a bathroom in complete working order, a large parlour bath and lavatory, with nickel-plated *fin de siècle* fittings, &c.

Mr. Boulger, hydraulic gas and water engineer, exhibited baths, lavatory appliances, ventilating fixtures, cisterns, &c.

Messrs. J. Wright & Co., Limited, had gas cooking stoves on exhibition.

Messrs. Edmundson's Furnishing and Engineering Company, Limited, showed acetylene gas-burners and oil occulting light for beacons and buoys. In the grounds also they exhibited the Gimbal arrangement and Wigham's patent oil lamps, with reflector and occulting apparatus, to burn thirty days without attention.

The Sunlight Gas Company had at Stand No. 92 an acetylene gas apparatus and a generator and model apparatus.

The N. A. P. Window Company, Limited, had an interesting exhibit, consisting of sliding windows, with patent N. A. P. weightless frame fitted with sliding and revolving sashes, and also wood and metal casements opening both outwards and inwards, passable hopper cheeks, air-tight centres and concealed stays, &c.

WORKING-CLASS DWELLINGS IN DUBLIN.

In the course of his address as president of the Congress of the Institute of Public Health Sir Charles A. Cameron, medical officer of health for Dublin, gave the following information about the efforts which have been made in that city to improve the condition of dwellings for the working classes :—

The improvement in the viability of the working classes which has taken place within the last thirty years is to some extent due to the better dwellings provided for them. Owing to the benevolence of the late Mr. Peabody, Lord Iveagh and other philanthropists a considerable number of healthful dwellings have been built for artisans and labourers. A still larger number have been erected by companies, some of which have been founded on semi-philanthropic, semi-commercial lines. In this city and its suburbs the Dublin Artisans' Dwellings Company own dwellings occupied by 2,194 families, who pay from 1*s.* 9*d.* to 12*s.* per week. This company is now constructing 188 additional dwellings.

The City and Suburban Artisans' Dwellings Company have provided dwellings for 284 families, who pay from 2*s.* 6*d.* to 6*s.* per week ; the Industrial Tenement Company own a block of buildings in which there are forty-six separate tenements, let at from 2*s.* to 4*s.* per week. Many employers of labour, such as railway companies, brewers, distillers, &c., have erected improved dwellings for their employés.

Fourteen years ago I suggested to the Corporation the desirability of putting in force the provisions of the Housing of the Working Classes Acts. The suggestion was acted upon, and at the present time the Corporation have provided 375

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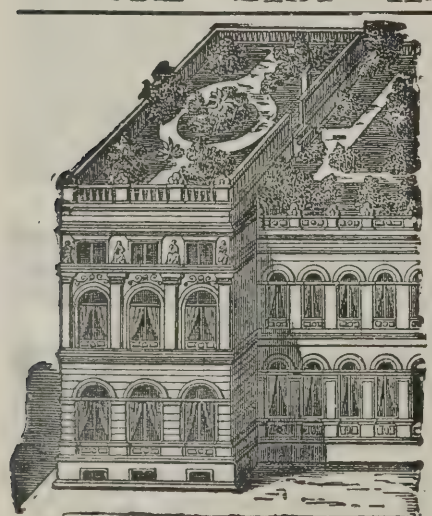
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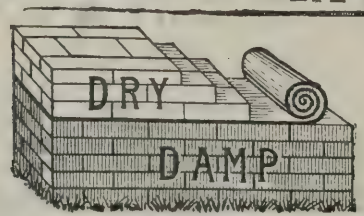
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separate dwellings, let at the following rents :—25 from 6*s.* 6*d.* to 10*s.* (with shops), 12 from 4*s.* 9*d.* to 5*s.* 6*d.*, 84 at 4*s.* 6*d.*, 98 from 3*s.* 6*d.* to 4*s.*, 98 from 2*s.* 6*d.* to 3*s.* 3*d.*, 47 at 2*s.*, 14 at 1*s.* 9*d.* and 23 at 1*s.* 6*d.*

Although so much has been done in providing improved dwellings for the working-classes, the vast majority of them are still lodged in wretched tenements. A few years ago I had a kind of census taken of the city, and found that 32,000 families were located in about 7,000 houses, affording one and a half room per family. On the other hand, the remaining 22,000 families of the city occupied 17,000 houses.

Whilst much has been accomplished in the way of providing proper dwellings for artisans and the better class of unskilled workers, practically nothing has been done to improve the miserable state of the homes of the very poor. In every large town there are, exclusive of beggars, thieves and vagrants, &c., many honest people whose precarious earnings barely suffice to keep body and soul together. Amongst this class are to be found small dealers, pedlars, hawkers, charwomen, rag-pickers, night watchmen, the inferior class of seamstresses, porters and labourers, the miserable creatures carrying placards termed "sandwich-men," and men and women engaged in many other poorly remunerative employments. Beside these there are the dull-witted and the physically feeble people, who are only capable of earning the merest pittance.

It is in the wretched homes of these poorest of the poor that the seeds of fever are developed as in a hotbed. Their dwellings are a peril to the whole community, for their inmates carry contagious matter into the streets, shops, factories and other places. The effluvia from them taint the atmosphere, in the purity of which all are interested. It is the dwellings of the very poor that demand nearly all the attention of the sanitary inspector. He finds it almost an impossibilty to get their owners—who are often nearly as poor as their tenants—to keep them in even moderately good condition.

Since 1879 more than 3,000 houses have been de-tenanted and closed in Dublin on account of their insanitary condition. Of these not one-half have been rebuilt or rendered fit for human occupation. The closing of insanitary houses and the clearing of unhealthy areas have, however, been of little benefit to the poorest of the poor. The people who lived on the unhealthy areas have not returned to occupy the neat dwellings which replaced their wretched tenements. The rents of the new dwellings were beyond their means. The unhealthy areas have been cleared, but the condition of the people who dwelt on them has remained unchanged. They have sought on other areas low-rented tenements as insanitary as those from which they had been ejected.

If all the lowest-rented and consequently least sanitary of the Dublin tenement houses were compulsorily closed, where, save in the workhouse, could their inmates obtain shelter?

I feel convinced that the ordinary landlords of tenement houses, the majority of whom are leaseholders only or yearly tenants, cannot provide proper dwellings at from 1*s.* to 2*s.* per week, the rent which the very poor can only afford. Dwellings so low rented can only be provided by the municipality, or by philanthropic societies and individuals. They will pay very little if any interest on the money expended on their erection and maintenance, but every unhealthy dwelling which they replace will be a distinct gain to the whole community. The replacement of unhealthy by healthy habitations means less illness, longer duration of life and diminished pauperism.

It may be said that if you give a dwelling to a man at less than its market value you pauperise him. To this it may be rejoined that children are not pauperised by receiving their education free; the students in the State-endowed colleges and universities are not pauperised by acquiring not merely a general education but money-making professions chiefly at the cost of the taxpayers. We already give the poor medical advice and medicine gratis; let us go a step further and provide the most dependent of them with dwellings in which they can live under reasonably healthy conditions.

An attempt is now being made to raise a sum of money sufficient to erect a block of tenements, which it is proposed to let at from 1*s.* 6*d.* to 2*s.* per week. It is to be hoped that generous support will be given to those who are engaged in this meritorious project.

The borrowing powers of municipal authorities are limited to a sum equivalent to two years' valuation of the town for rateable purposes. Thus, if a town were valued at a million of pounds its governing body would be empowered to borrow two millions. When this restriction was placed upon civic authorities the money borrowed by them was expended nearly, if not altogether, on what might be termed unproductive works, such as the paving, sewering and lighting of the thoroughfares, &c. It seems to me to be unreasonable that the money expended by urban authorities in providing artisans' dwellings, baths and washhouses, abattoirs and markets, from which revenues are derived, should be included in the amount authorised to be borrowed. Mortgages on these buildings as well as the security

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of the rates are required by the Treasury for loans granted in connection with them. It is evident that as the loans for the erection of artisans' dwellings are to be placed in the same category as loans for sewers and other non-revenue producing works, the power of municipal authorities to provide dwellings for the working classes must be extremely limited. It is to be hoped that this disability will soon be removed.

The market value of the artisans' dwellings in the possession of the sanitary authorities should be ascertained and the sum found added to the amount allowed to be borrowed on the two years' rateable valuation system. Thus, if a corporation could borrow a million for unproductive purposes, and it possessed artisans' dwellings valued at 100,000*l.*, then its borrowing powers should be extended to 1,100,000*l.*

In the abatement of nuisances, involving structural alterations in a dwelling, the expense has frequently to be defrayed by persons having little or no interest in the benefits derived from the structural alterations. In order to prevent this injustice, as it may be termed, an amendment of the Public Health Acts of both England and Ireland is necessary. The cost of private sanitary improvements insisted on by the sanitary authority is borne by the person who receives the rack-rent of the premises. The definition of rack-rent in the English Public Health Act of 1875 is not so simple as that of the Irish Act, which defines it to be two-thirds of the rateable valuation of the premises. Thus, if a landlord lets a house for 60*l.* a year which is valued at 40*l.* he receives a rack-rent, and must pay for the cost of sanitary improvements, although he may have let the premises on lease for 999 years. In such a case as this surely it is the leaseholder who ought to pay for the improvements, as he alone enjoys them.

A curious point in connection with private improvement expenses is the liability of the person who receives rent from the occupier for the cost of the improvements, although he himself may pay a rack-rent. He is termed the "immediate" rack-renter. I know of a case where a person who paid 80*l.* a year for a house valued at 75*l.* was obliged to sublet it for 60*l.* in consequence of depreciation of house property in the street. Although losing 20*l.* a year by the house, he was obliged to pay nearly 50*l.* in providing it with improved drainage and sanitary arrangements, whilst the landlord, who received 80*l.*, was by law exempt from contributing to the expense of the improvements. It seems only fair that every person having a beneficiary interest, present, proximate, or remote, in a house, should be obliged to contribute to the expense of its improved sanitation, the proportion to be determined by the magistrate who makes the order for carrying out the improvement.

EMPLOYERS' LIABILITY.

In the City of London Court, before Mr. Commissioner Kerr and a jury, the case of Mabey *v.* Colls came on for hearing. It was an action brought under the Employers' Liability Act by Thomas Mabey, a carpenter and joiner, against his former employers, Messrs. Colls & Sons, builders, of Coleman Street, E.C., to recover 350*l.* damages for personal injuries sustained in consequence of the defendants' alleged negligence. It appeared that the plaintiff was one of a number of workmen employed by the defendants, on March 8 last, to effect certain alterations at a house known as 10 Brook Street, Grosvenor Square. His case was that, while he was cutting away a joist in a room on the ground-floor in accordance with instructions received from the acting foreman, a plank of wood fell upon him from a scaffold above and caused injuries which, according to the medical evidence, were likely to be of a permanent character, and to prevent him following his occupation in the future. The negligence complained of was that the scaffolding was improperly constructed, and expert evidence was called to show that it was impossible for a board to fall, as this one had done, from a properly constructed scaffold. The defendants denied all knowledge of the accident, and said that the only scaffold of the height described by the plaintiff was in the hall, and that was properly constructed and "close boarded." The jury, however, found for the plaintiff, and awarded him 50*l.* damages. Judgment was entered accordingly, with costs.

CONCILIATION COUNCILS IN MILAN.

The Conseils de Prud'hommes form one of the most useful of French institutions. They consist of elected members such as manufacturers, merchants, managers, foremen and workmen, and endeavour to effect arrangements in trade disputes. According to the British Consul an effort has been made to acclimatise the prud'hommes in Italy. He writes:—

An experiment of a system for the settlement of disputes between employers and employed is now being made in the province of Milan, and as all questions affecting the relations

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between capital and labour must have an interest for the United Kingdom, I make no apologies for giving a detailed description of the scheme.

In 1893 a law was passed authorising the creation of colleges of probiviri or prud'hommes in the industrial districts of the kingdom. I must use the word "probiviri," for, as will be seen, the functions of these persons are not limited to arbitration, and consequently the term "boards of arbitration" would not be sufficiently comprehensive.

The law, as regards the Government, is permissive in its character, inasmuch as the time when and the place or places where it shall be applied, are left to the discretion of the Minister of Commerce. It was not until 1897 that it was decided to give it a practical application on a large scale, and the province of Milan was chosen as the field for the experiment. In the autumn of last year a Royal decree was issued creating seventeen districts in this province, and ordering that the elections should take place last December.

The districts formed represent all the most important industries and trades, and are made up as follows :—(1) Metallurgical, mineral and mechanical industries ; (2) chemical industries; (3) building and other industries connected therewith; (4) brick, cement, lime and glass-making industries; (5) industries and trades connected with the manufacture and sale of articles of food; (6) tanning and leather industries; (7) industries connected with gold and silversmiths and hardware manufacturers; (8) graphic and paper arts and industries; (9) carrying trade and everything connected with it; (10) hat and cap manufacturing industry; (11 and 12) cabinet-making and carpentering industries; (13 to 17) textile industries.

A centre of each particular industry or trade is chosen as the headquarters of the electoral district, and different sections are grouped round it in which the electors may record their votes. Districts 1 to 9, 11, 16 and 17 have their headquarters at Milan, 10 and 12 at Monza, 13 at Abbiategrasso, 14 at Busto Arsizio and 15 at Gallarate. The elections are by ballot, and must all take place upon the same day ; the returning officers in each section must be either a magistrate or a municipal councillor. The communal authorities in each section are required to prepare the electoral lists of the respective industries, and these lists must be two in number, one composed of employers, directors and managers, and the other of operatives. To be inscribed as an elector it is only necessary to be an Italian subject of full age (twenty-one years), in the full enjoyment of civil rights. In the case of the operatives it is required that they shall have exercised their special industry or art for at least a year, and that they shall have resided in the district for a period of not less than six months. Women enjoy the same electoral rights as men.

Every qualified elector is also eligible for election, provided he be twenty-five years of age and can read and write. The electoral lists must be revised every year in March.

Each college of probiviri must consist of not less than ten and not more than twenty members, one-half of whom are elected by the employers from among themselves, and the other half by the operatives from among their own number.

In addition to the elected members each college is provided with a president, and, if necessary, a vice-president or a deputy-president, who are appointed by the Government, and who must be already in office when the elections take place.

The presidents and deputy-presidents are required, on assuming office, to take the oath which is administered to ordinary magistrates, and the elected members are required individually to make to them a solemn declaration that they will honestly and fearlessly exercise the functions entrusted to them. None of the members of the college of probiviri receive any remuneration or indemnity. On the assembling of the probiviri their first business is to elect two vice-chairmen. These are chosen by ballot, the one representing the employers being chosen by the operatives and the one representing the operatives by the employers. When the college is thus legally constituted, it must elect from among its own body a committee of conciliation consisting of at least two members, one representing each party. This committee, in the absence of the president or deputy-president, may be presided over by one of the vice-chairmen in turn. A jury consisting of four members, two from each side, must then be chosen. The jury can only exercise its functions under the presidency of the president or deputy-president.

The duties of secretary are to be discharged either by the municipal secretary or by some other employé of the municipality in which the college has its headquarters.

All questions arising under the following heads are to be submitted to the committee of conciliation.

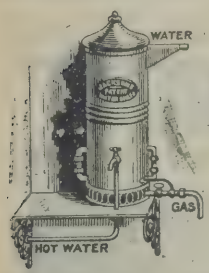
(*a*) Wages disputes.

(*b*) Disputes as to pay due either for work already executed or in actual process of execution.

(*c*) Disputes respecting hours of labour.

(*d*) Special conditions of work.

(*e*) Work imperfectly executed.



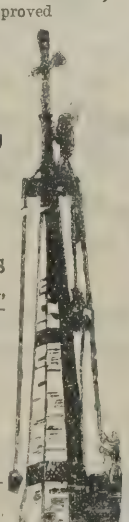
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(*f*) Compensation to be allowed for changes made in the quality of the raw material supplied or in the mode of working.

(*g*) Questions relating to damage done to plant or machinery by operatives, and injuries sustained by operatives owing to the fault of the employers.

(*h*) Questions relating to compensation due by an operative for leaving his work, or by an employer for dismissing an operative without sufficient notice or before the completion of a job.

(*i*) Questions relating to the breaking of contracts of work or apprenticeship, and in general all controversies arising out of contracts between employers and operatives, or between skilled workmen and apprentices.

The law establishes that no case referring to any of the above matters can be taken before any tribunal unless it has previously been submitted to the committee of conciliation of the particular trade or industry with which the parties are connected.

When the efforts of the committee of conciliation have failed to bring about a settlement, then the intervention of the jury or that of the ordinary tribunals may be sought, but either of the parties has the right to require that the procès-verbal of the proceedings before the committee of conciliation, together with an expression of opinion on the part of the committee itself, be laid before such other tribunal.

In cases in which an operative has accepted the solution proposed by the committee of conciliation, and has been compelled, by the refusal of the employer to accept the same, to go to law, the operative is entitled to be provided with legal assistance gratuitously.

All cases which have been before the committee without a settlement being arrived at may, if they are contemplated by the preceding articles (*a*), (*b*), (*d*), (*e*), (*f*), (*g*), (*h*), and (*i*), and if the amount of money involved does not exceed 8*l*., be submitted to the jury. The decisions of the jury have the force of law, and can only be appealed against on the ground either that the case was not within the competence of the jury, or that the jury had exceeded its powers. Exceeding its powers is laid down to mean either that it has pronounced itself on a matter which had not been submitted to its judgment, or that it has granted more than was asked of it.

The jury has power to summon witnesses and examine them on oath, and in certain cases to indemnify them for their expenses.

The losing litigant is called upon to pay the costs, which, are, however, on such a very limited scale that practically justice may be said to be administered free by the probiviri, and the State renounces its claim to the stamp with which ordinary legal proceedings are burdened.

The costs, such as they are, are handed over to the Chamber of Commerce of the district, while the said chamber, on the other hand, has to bear all expenses connected with the elections and the working of the colleges of probiviri. As Chambers of Commerce in Italy are, to a certain extent, Government institutions, and are allowed to levy a tax on all persons engaged in commerce or trade, they have ample means wherewith to meet the charge thus thrown upon them.

Suitable accommodation for the meetings of the probiviri must be provided by the different municipal or communal authorities, in buildings belonging to them.

The elections took place at the end of December; the number of voters was relatively very small.

The new institution is regarded, if not with enthusiasm, at least without hostility by the employers, and will no doubt be warmly supported by the operatives when they come to realise all that it means for them. The Socialist leaders have already taken the matter up, and quite recently they held a public conference for the purpose of explaining the working and the advantages of the new law. I was present at the conference, and from the questions put to the lecturer at the close of his lecture by many operatives, I was able to judge of the intelligent interest they are already taking in the measure. All the criticisms were made in a very benevolent spirit.

The new law is not applicable to persons engaged in Government dockyards, arsenals, factories, &c.

Although the law has only been in operation for a very short time, I hear that several disputes have already been satisfactorily arranged.

BIRMINGHAM SANITARY CONGRESS.

THE programme of the local arrangements for the forthcoming congress at Birmingham of the Sanitary Institute has now been definitely settled. For the convenience of visitors attending the congress the general reception-room will be in the Town Hall. The conferences and sections will be held in the Mason University College, and the lecture to congress and the closing general meeting will also take place within the same building.

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The President's inaugural address and the popular lecture will be delivered in the large lecture theatre of the Birmingham and Midland Institute, and the Council Chamber will be used for the reception of members of the congress. The formal reception by the Lord Mayor of the members will be made at half-past twelve o'clock on Tuesday, September 27. For an hour later a public luncheon has been arranged at the Grand Hotel; and in the afternoon the president (Sir Joseph Fayrer, Bart.) will deliver his inaugural address. In the evening there will be a large attendance at Bingley Hall, when the Lord Mayor will open the Health Exhibition. On the following day the members will settle down to business, and devote six hours to conference work. One section, over which the Lady Mayoress will preside, will deal with the important subject of "Domestic Hygiene." This conference is open to all ladies interested in the work. In the evening the Lord Mayor will give a conversazione and reception in the Council House. The sectional meetings (three in number) commence in Mason College on the Thursday. The first will be devoted to the study of "Sanitary Science and Preventive Medicine," and will be presided over by Dr. Alfred Hill (city medical officer). "Engineering and Architecture" is the title of the subject in Section II., at which Mr. W. Henman will preside, and in the third section discussions will take place having relation to "Physics, Chemistry and Biology." This meeting will be held in the Biology Theatre, and the chair occupied by Dr. G. Sims Woodhead. In the afternoon the whole of the members will reassemble and attend, at the invitation of the chairman (Alderman Cook) and members of the health committee of the City Corporation, a garden party at the Botanical Gardens, Edgbaston. The same night Dr. Christopher Childs (lecturer on bacteriology in relation to hygiene at University College, London) will deliver a lecture to the congress. Friday, which concludes the practical part of the congress, will perhaps be the busiest day. The papers and discussions opened in the sections on the previous day will be continued. In the afternoon excursions will be made to Dudley Castle and the Wren's Nest, the Whitacre pumping station and filter beds, and Shustoke reservoirs and the Saltley sewage farm. At the respective places tea will be provided by the Earl of Dudley in the courtyard of the castle, Alderman Lawley Parker (chairman of the water committee), and Alderman Baker (chairman of the Tame and Rea district drainage board). The closing general meeting of the congress is arranged for five o'clock, and at half-past eight Dr. Alec Hill (master of Downing College and vice-chancellor of Cambridge University) will deliver a popular lecture. The chair is to be taken by the Lord Mayor. Saturday, on which day the congress terminates, will doubtless be interesting and enjoyable, excursions having been arranged for Stratford-on-Avon and Warwick, Malvern and the Croft Granite, Brick and Concrete Company, Leicester. At Stratford-on-Avon various places of public interest will be visited, including Shakespeare's birthplace and the Shakespeare Memorial buildings. The journey will then be continued to Warwick, where at the Court House in the afternoon the members will partake of the hospitality of the mayor (Councillor Glover). His worship will act as conductor of the party at Warwick Castle. The visitors to Malvern will inspect the Abbey, British camp, sewage farm and waterworks. At the invitation of Earl Beauchamp and other residents, the members will take tea at the Imperial Hotel. Similar refreshment will also be provided at the Croft works by the directors of the company.

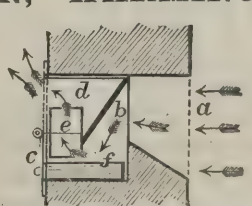
The local general committee, of which the Lord Mayor is the chairman, have made arrangements that members may visit the public institutions of the city and a number of manufactories. The latter include Messrs. S. Allcock & Co., Redditch (manufacturers of fish-hooks, tackle, &c.); the Birmingham Small Arms Company (gunmaking), the Birmingham Electric Supply Company (power station), Messrs. Brinton, Kidderminster (worsted-spinning and carpet-making); Messrs. Cochrane & Co., Dudley (bridge and engineering work); Messrs. J. Cartland & Co. (brass-foundry and art-metal work), Birmingham Sewage Interception Department, Windsor Street Gasworks, the Dalton Street power station of the water department, the Central Fire Station, the Bradford Street Meat Market, Messrs. A. R. Dean (furnishers and decorators), Messrs. Elkington & Co. (electro-plate and art work), Messrs. J. Gillott & Sons (steel pen making), Messrs. F. & C. Osler (glass blowing and cutting), Messrs. Osmund (cycle-works), Messrs. Perry & Co. (pen-making), the Webley & Scott Revolver and Arms Company, the Guardians of the Birmingham Proof-house (testing of guns and all parts of small-arms), Messrs. J. Hardman & Co. (stained-glass painting), Messrs. A. Hickman, Limited, Bilston (pig-iron and steel making by the basic process); Messrs. Icke & Sharp, Limited (manufacture of confections); Messrs. Middlemore & Lamplugh (curriers' work, &c.).

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agreed upon by the railway companies for the conveyance of visitors within fifty miles of Birmingham. As will be observed, no effort has been spared by the local committee to make the visit to Birmingham a thoroughly successful one, and there seems no reason why this result may not be confidently expected.

ALHAMBRA THEATRE, BLACKPOOL, AND ANCIENT LIGHTS.

At a vacation sitting in Liverpool, on the 23rd inst., of the Chancery Court of Lancashire, the deputy vice-chancellor, Mr. W. F. Taylor, had before him an application in connection with a new theatre which is being erected at Blackpool. The plaintiffs were Messrs. William Rhodes & Sons and Messrs. Young & Rhodes, and they asked for an interim injunction restraining the defendants, the Alhambra (Blackpool), Limited, from erecting their theatre to such a height as to interfere with the plaintiffs' ancient lights. Mr. Mansfield and Mr. Cunliffe were counsel for the plaintiffs, and Mr. Roby appeared for the defendant company.

Mr. Mansfield said the plaintiffs asked that the defendants be restrained from continuing the erection of the building further than what it was at the date of the writ. The plaintiffs were lessees of premises in Bank Hey Street, which was a very narrow thoroughfare. The defendants were erecting a new theatre called the Alhambra, and the back of the building ran into Bank Hey Street opposite the shop occupied by the plaintiffs. Prior to the erection of the theatre the site was occupied by the Prince of Wales Baths, and these only went to a height of about 44 feet, but the new building had been already carried to a height of about 77 feet, and interfered materially with the plaintiffs' light. The plaintiffs could not interfere with the building so far as it had gone, but the defendants were increasing the height, and the theatre was apparently to go very much higher. At one part a sort of dome was to be erected, and when that was put up there would be absolutely no sky to be seen from the plaintiffs' shop windows, either from the bottom or first floor.

The Deputy Vice-Chancellor: The defendants say they have finished the wall.

Mr. Mansfield: They say so, but we say they have not. So far as the building had gone at the present time he could not, on an interim injunction, ask that it come down, but he asked for an order to prevent the defendant company carrying the building any higher than it was now until the trial of the action.

Mr. Roby said the only possible object the plaintiffs could have in commencing this action the day after the beginning of the long vacation was to make the defendants come to terms with them at once, or otherwise an injunction might be granted which would prevent them putting the roof on and save this costly building from being entirely destroyed. It seemed perfectly hopeless that this action could succeed. Counsel read an affidavit from Mr. Oswald K. Wilson, the architect, stating that so far as the height was concerned the building was virtually finished.

The Deputy Vice-Chancellor said he would make an order that the motion stand over till the trial of the action, when everything would be open to both parties. Anything done between now and the trial would be done by the defendants at their own risk.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

17140. Theophil Pfister, for "An improved manufacture of mosaics, tiles, bricks and the like."

17141. Theophil Pfister, for "Improvements in cloisonné work and mosaics."

17280. Sigmund Bergmann, for "Improvements in electrically driven fans or ventilating devices."

17339. William Longmore, for "Draughtless automatic ventilator."

17344. Max Holyer, for "Improvements in artificial fountain apparatus."

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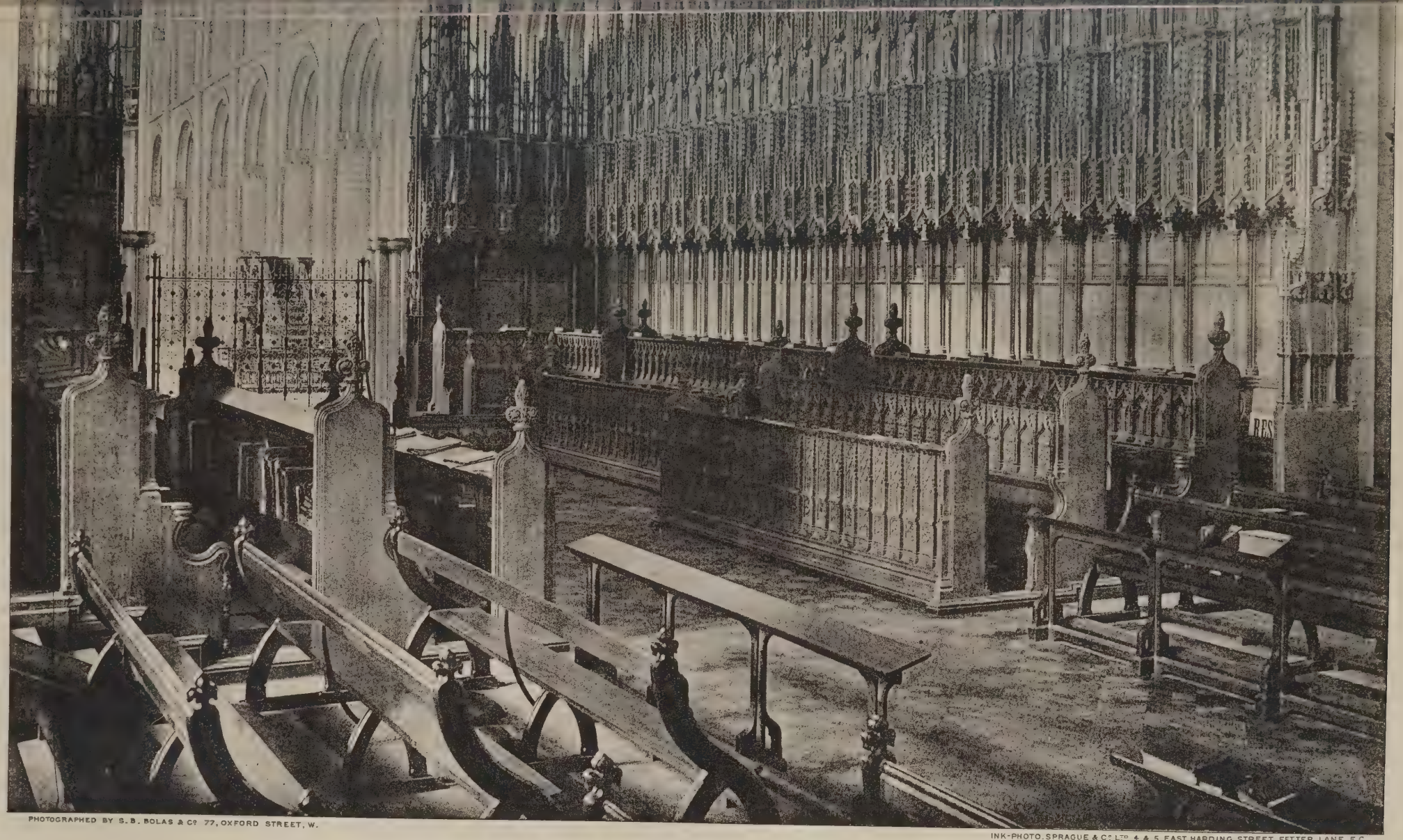
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CATHEDRAL SERIES, NO. 161.—PETERBOROUGH: CHOIR AND NAVE, LOOKING NORTH-WEST.





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APARTMENT BUILDINGS. RUE VERNET. PARIS.

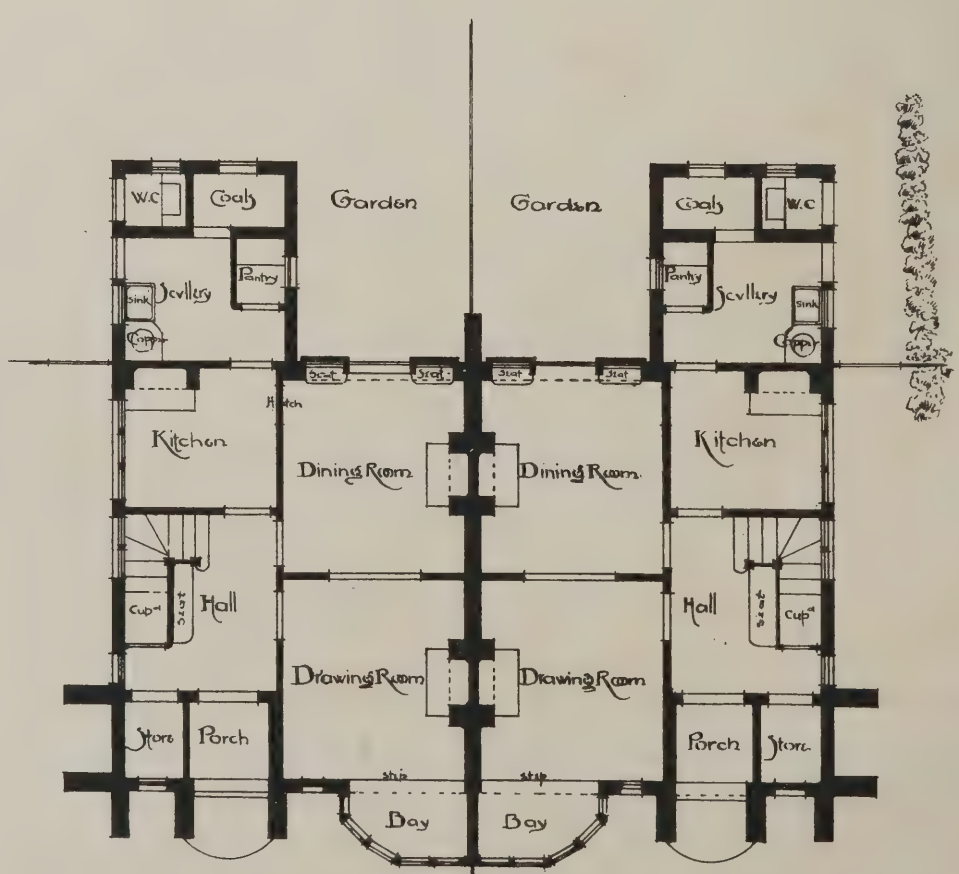
P. SEDILLE, Architect.



Front Elevation

* Sketch for [illegible]
* Small [illegible]
at Whitto[illegible]
Middle[illegible]

Cobb and Bottrill
Architects
Trafalgar Buildings
Northumber[illegible]



Plan



Back Elevation



Side Elevation

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The Architect.

THE WEEK.

THERE is no firm in the iron trade better known and respected than that of NEWTON, CHAMBERS & Co., LIMITED. It is with regret we learn of the almost sudden death of the managing director, Mr. ARTHUR MARSHALL CHAMBERS, at Scarborough on Monday morning. To his business qualities much of the success of the company was owing, and the title of it is familiar throughout the land. There can be no doubt that his end was hastened by the harassing work which fell on him a few years ago when he acted as chairman of the employers' federation in the coal strike. The duties he discharged became more onerous because he could not be assured with all his striving of any hope of victory. But he earned the respect of those who were best able to judge of his energy, courage and devotion to principle. The calls on him as managing director of so important a firm were more than enough to occupy his time, but in the district of Chapelton, where he was engaged, and the neighbouring Sheffield, he took upon himself many public duties, and his death leaves a void which will not easily be filled. Mr. CHAMBERS was in his fifty-fifth year.

COMBINATIONS of words which at one time are offensive, at another time can be taken as flattering. All depends on the spirit which inspired them. The late Mr. AYRTON, who was considered by his leaders to be an ideal Commissioner of Works, caused much irritation by classing artists with market-gardeners. A few days ago Lord KELVIN did the same, but those who heard or read the words were pleased. The occasion was a flower show, which his lordship treated as an exhibition of works of art. Lord KELVIN admitted that some of the visitors present might not quite approve of his calling the exhibits works of art, but he felt it was as much of that nature as an exhibition of pictures in the Royal Academies of London or Edinburgh, or the Art Galleries of Glasgow. If they walked over mountains or places never touched by the hand of man, in tropical jungles or in their native land, they would see works of design, called works of nature, but which all knew to be works of creation. An exhibition of pictures showed the faculty for creative work entrusted to man—man's work lay in producing objects that were called works of art. There was design in art, and there was design in nature, and all designs had one origin. That was not the place to enter into a disquisition as to the meaning of art. Painters and gardeners both were engaged in developing nature. SHAKESPEARE hit that feeling on the head in "The Winter's Tale" as "an art which does mend nature: change it rather, but the art itself is nature." Nature and art met in the brilliant display of colour and beauty they had in flowers. The identifying of art with nature is the more remarkable as coming from a physicist like Lord KELVIN, who is so exact in language, he would if he could employ only mathematical formulæ to express thoughts.

THE Commissioners for the Exhibition of 1851 have been granting during the last five years science research scholarships of the value of 150*l.* a year. Generally they are held for two years, but some are renewed for a third year if it is expected that the result will have scientific importance. The governing bodies of the universities and certain colleges can recommend candidates who are known to have studied some subject scientifically for a period of three years. During the five years seventy-nine scholars were appointed. It appears that thirty-nine of them are engaged in the teaching of science, twenty-six have obtained engagements with manufacturers or in public departments, or are following a professional career; the remainder are nearly all still engaged in study or in private research. In some cases the students' reports on the work they have performed have not satisfied experts, but the Commissioners cannot believe that in such cases the scholarships have been devoid of results. In order to obtain a further test the Commissioners have written letters to the manufacturers where the scholars were employed, and to the governing bodies of the institutions where the researches were carried on, asking them whether the services of the scholars have been increased to an extent corresponding with the opportunities of improvement afforded. As a rule the answers received have recognised the great benefits which scientific education has derived from the scheme. Accordingly, it has been decided to invite the following institutions to recommend science scholars for 1899:—University of Edinburgh; University of Glasgow; University of St. Andrews; Mason University College, Birmingham; University College, Bristol; Yorkshire College, Leeds; University College, Liverpool; University College, London; Owens College, Manchester; Durham College of Science, Newcastle; University College, Nottingham; University College, Sheffield; University College of Wales, Aberystwyth; University College of North Wales, Bangor; Queen's College, Belfast; McGill University, Montreal; Queen's University, Kingston, Ontario; University of Sydney, and University of Melbourne.

THE allusions to architecture in the works of some of the poets formed the subject of several articles by the late E. W. GODWIN and other writers in early volumes of *The Architect*. The aim was to derive from what was said in verse more or less evidence on archæological subjects. It was understood that from not possessing or from a fear of using technical terms the descriptions of a poet must be vague. Law givers like BOILEAU and ADDISON had expressed the well-established doctrine of critics when they condemned the use of words which recalled the workshop or the studio. Consequently poets cannot help being vague when they have to employ several words to do the office of a single technical term. Then when they are ambitious and try to pose as learned they are likely to hold by theories which appeal to their imagination alone. SCOTT, for example, believed that Sir JAMES HALL had discovered the secret of Gothic in the twisting of willows by chairmakers and cradle-makers. WILLIAM MORRIS could claim to have experience of architecture, but as became "a craftsman," his thoughts were with the things he could produce or supply rather than with the architectural whole. BROWNING lived long among Renaissance works, but his weakness for representing the world and all that is in it as topsy-turveydom was fatal to all attempts to describe buildings in which Greek principles are directly or indirectly exemplified. As for TENNYSON and his "clear-walled cities," we must remember it was his duty to sing about exhibition buildings in which glass was the principal material. English poets will be wise to imitate SHAKESPEARE, and avoid architecture as they would mathematics. The art is too austere to raise those emotions which are their province. Mr. STATHAM'S "Architecture among the Poets" (B. T. BATSFORD) probably arose out of a conviction of that kind. At any rate, there is enough in it to serve as a warning to all who with "their scrannel pipes of wretched straw" would attempt to express the melody, the "frozen music," which every great building suggests.

WHEN a special committee was lately appointed by the Gas Commission of Perth to investigate a claim for 112*l.* made by Mr. G. P. K. YOUNG, architect, for fees in connection with the new gas works, it was concluded that some revelations would follow. But their report is altogether in favour of Mr. YOUNG. The committee have considered that the manager was remiss in not ascertaining what Mr. YOUNG'S charge would be for the work, and in not submitting the whole matter in a very complete and careful manner to the convener of the works committee, for instruction before actually employing Mr. YOUNG. They considered that Mr. YOUNG'S conduct in the whole matter had been perfectly straightforward and business like, and the gas commissioners having adopted his plans and specifications, and carried out the work according to them, they could not resist the conclusion that Mr. YOUNG'S account must be paid by the commissioners. They were of opinion that both the convener and manager had acted in a careless, negligent and unbusiness-like way, that they should be censured by the commissioners, and, further, that the manager be cautioned that in the event of his being guilty of similar laxity, or showing want of attention in the performance of his duty as manager, he should be asked to resign. After a long discussion on Monday, the gas commissioners agreed by a large majority to adopt the report.

THE STONE IN OLD BOW CHURCH.

By Harold F. Hills, F.C.S.

MUCH difference of opinion has recently been expressed as to the nature and source of the stone used in the construction of the oldest existing portion of Bow Church (1480-90 A.D.), that Mediæval building in East London which since 1896 has remained closed on account of its dangerous condition, and is now about to be restored.

With a view to gaining, if possible, some conclusive information on the subject, the writer has subjected some pieces of the stone to careful chemical analysis, in order that the composition of a specimen might be compared with the published analyses of the building stones from the various English quarries.

A difficulty has, however, been encountered owing to the fact that even our most modern text-books publish only a few analyses made sixty years ago for the Royal Commission on the Selection of Stone for the Houses of Parliament, and the solitary analysis of Kentish ragstone and hassock made by Phillips for Whichcord's paper on "Ragstone" in 1846.

Careful search through the literature dealing with building stones during the last half-century reveals very few additional analyses, and the comparison cannot therefore be as complete as might be desired.

Nevertheless, the results are interesting, and indicate very strongly that the stone is in all probability Kentish ragstone, as will be seen by the following figures.

Sample.	Weight of a Cubic Foot.	Per cent. bulk of Water absorbed as compared with bulk of Stone.	Silicious Matter.	Carbonate of Lime.	Lime present in other Forms.	Carbonate of Magnesia.	Oxides of Iron and Aluminium.	Water of Combinations and Volatile Matter.	Moisture.	Sulphuric Anhydride (SO_3).
Bow Church, north chancel wall . .	165·8	6·4	7·50	88·75	0·10	1 05	1·80	0·05	0 60	trace
Bow Church, base of tower	168·3	5·0	6·70	86 07	0·40	0·44	2 20	1 60	0·42	0 20
Kentish rag (Whichcord)	166	1·3	6·5	—	92·6	—	0·5	0·4	—	—

No other published analysis compares so closely with the composition of the Bow Church stone as that of Kentish rag quoted by Whichcord, and although the percentage amount of water absorbed by Kentish rag (taken from Rivington's "Notes") appears to be less, this is accounted for by the fact that the Bow Church stone showed signs of decay, and as a limestone decays it becomes more porous.

The Effect of London Air.

In order to ascertain whether the composition of the surface of the stone had been affected by the East London atmosphere, some surface scrapings were taken from the same spot in the chancel wall as the sample of stone previously analysed, and it was found the sulphuric anhydride had risen from a mere trace to 7·78 per cent., while the amount of "volatile matter and combine of water" had risen from ·05 to 2·24 per cent.

These results corroborate those of Dr. Voelcker, who in 1864 showed that house soot contains sulphate of ammonia, and that this sulphate of ammonia converts limestone (carbonate of lime) into sulphate of lime, and stated that in the presence of moisture the sulphate of lime "takes up water of crystallisation, and thereby leads to exfoliation of the stone."

THE BIRTHPLACE OF RICHELIEU.

By J. A. Randolph.

THE town of Richelieu, twelve miles south of Chinon, though possessing railway communication with the main line, is practically unknown to tourists, owing to its position, except by name; but with some who have ransacked the haunts of the Red Eminence, it is known on account of its historical associations as well. Probably those who have visited the place can be counted on one's fingers.

From Chinon, except in the immediate neighbourhood of that delightfully picturesque spot, the country is very uninteresting to the lover of landscape, but an imposing church is to be seen at Champigny, on the way to Richelieu town. Till some years ago it was not certain whether the Cardinal was born in this town or at Paris; and, strange to relate, the "Grand Dictionnaire du XIX^e^ Siècle," by Larousse, in two separate articles, one on Richelieu himself and one on Paris, describes him to have been born in both places. He was, however, born in Touraine, and a town has sprung up alongside the beautiful grounds which contained the château in which he saw the light. That town is unique in several ways. It is entirely planned and designed by one man, Jacques Lemercier, the cardinal's architect, and is, in its entirety, a *monument historique*.

When Richelieu was born in the picturesque château which he afterwards pulled down, with the exception of the room where he was born (in order to preserve it for the admiration of future generations), the place was only a straggling settlement, spiritually directed by the priest of Braye, a village about eight miles to the south-east. In 1631 Richelieu took it into his head that the hamlet was unworthy of his greatness, and obtained the king's permission to carry out great improvements there. He gave instructions to Lemercier to design a small town with all the then latest sanitary arrangements, for erecting at the gates of the family property, whereon he was then engaged in building the château that has been so admirably portrayed by Marot and by Israël Sylvestre. The room in which he was born was still being publicly shown in 1835, when the ruins of the castle just alluded to were pulled down.

The streets of the town were built at right angles to each other, and the main thoroughfares were defended by gates at the extremity of the town, which was surrounded by walls and entrenchments. The king, to encourage people to come and live there, repealed all rates and taxes till one hundred houses were built, from which time onward the taxes were very low—only 200 "livres tournois" for the whole town. Four fairs, each lasting a week, were to be held every year, and bi-weekly markets. The salt tax was repealed—in fact, Louis XIII. did all he could to make things encouraging to the inhabitants to stay there and for strangers to come.

Richelieu, too, bought and exchanged many lands and properties and incorporated them with the town, both materially and financially. He also erected the church and the covered market, a presbytery, the local academy and the town hall, and gave the ground free of all encumbrance, on condition that the houses erected thereon should be according to Lemercier's designs and the surveyor's instructions.

When the town was nearly completed he erected it into a "Duché-Pairie," and secured the privileges attached to the title for his town. Soon after he took the peer's oath in Parliament on behalf of his *protégés*. The King's "Acte" starting this litle town is dated May 1631.

To-day four of the six gates remain standing; one of them is blocked up. The rest of the town is practically as Lemercier left it, only a few modifications of the houses here and there for the insertion of shop-fronts having taken place and the arcading round the square having disappeared. Traces of the arcading against several of the house-fronts of the square can still be discerned.

One of the twin spires of the church was blown down some years ago in a great gale and the other was taken down, presumably to match; but we were informed on our visit there some four years ago, that they were shortly to be restored according to their old design, which is still preserved in the town archives. Twin spires are rare in the seventeenth century, and Jacques Lemercier has made some happy hits in his variations from a cut-and-dried routine of design, thus asserting a wholesome independence.

The town hall has now become a mairie, with a police-court and cells on the ground-floor. It has a mediocre portrait of the Cardinal, two handsome carved and painted doors, and a third door of the same design, much battered and not painted. The ceilings are beamed, and there is a fine stone balustrading to the staircase leading to the municipal offices on the first floor.

In the main street, the Rue de Chinon, from the gate of that name to the Grand' Place there are portes-cochères to every group of two houses, and inside them is a courtyard, on the doorways leading to which, as well as on the inner

arches of the main entrances, are carved inscriptions from the Psalms, in Latin, with number and verse.

The castle grounds are very extensive and well laid out, only a kitchen pavilion of the old château of LEMERCIER standing isolated on the lawn. The moat contains water flowing from the river Mable, and encircles the island on which the main part of the château stood, the shape of which is small, but perfectly distinct, the moat walls of the château foundations being kept clear and level with the ground. The space enclosed thereby is thickly planted with shrubs, growing freely, and beautiful flowers.

The parish of RICHELIEU was St. VINCENT OF PAUL'S first mission. He is alluded to, in contemporary literature, as "Monsieur VINCENT."

Our hotel was the Faisan, in a corner of the Grand' Place, close to the Post Office and diagonally opposite the church. The internal arrangements of the hotel are old-fashioned, the staircase to our room being steep, dark and narrow, and the doorways low. The ceiling is beamed and none too high, while the floor is tiled and undulating. For all that, the hospitality of the hotel proprietor was most cordial, and the creature comforts exceptionally good. The Place formerly had trees planted on it, adding greatly to its picturesqueness. These had disappeared when we were there.

The town also boasts of a band—a military one—which we had the unexpected pleasure of hearing, and which was not only excellent, both in execution and *répertoire*, but deservedly popular.

Our only regret was that the time at our disposal was short, as we had to visit Luçon before returning to London; but we are not without the hope of renewing our acquaintance with the delightful *monument historique* before the end of the century.

PETERBOROUGH CATHEDRAL: WEST FRONT.

By the REV. T. GARBETT.

THERE was, perhaps, little or no interval between the completion of the nave in the circular style of architecture and the erection of the north-west tower in the lancet or first style of the pointed. The original plan of the front, like that of Lincoln, comprised, no doubt, two towers rising at the western extremity of the side aisles of the nave, having a Norman base with circular lights, and an additional transept projecting north and south beyond the line of the side aisles. But before this design could be carried into execution architecture itself had undergone a change; pointed arches were substituted for circular ones, and slender isolated columns for the clustered shaft or solid cylinder. Hence the difference in style of the tower just referred to, the string-moulding at the base of it, together with the superstructure and the pinnacles and pediment which surmount the adjacent transept, being all of a later order than the work of the nave, and hence also the union of both styles in the transept itself, its lofty arches parallel to the side walls being highly pointed, but with the zigzag ornament, and resting on Norman shafts, and the doorways of the front having circular heads, in accommodation to the arches of the nave, but with pointed mouldings and pillars.

The tower, towards the south, appears never to have been finished, although unquestionably included in the architect's design. The present base above the transept is of comparatively modern date, and altogether inferior to the work of the north-west tower. In the progress of great undertakings it not unfrequently happens that fresh objects present themselves to the mind, which at first were not thought of. Such appears to have been the case in respect to this cathedral, the architect of which, while completing the front, seems to have caught a new idea—that of erecting two lofty turrets beyond the outer angles of the transept, towards the west, and of converting the intermediate space into a sort of piazza, by arches constructed in front of the nave and closed in above by a vaulted roof. This idea, so unique and at the same time so splendid, he was enabled to realise; and posterity, at the distance of six centuries, beholds with ineffable delight and admiration a composition, the outlines and details of which, for their beauty and variety, render it one of the noblest façades in existence. Towards the north and south are two lofty turrets, flanked at the angles by clustered shafts, rising from a projecting base and crowned with spires, the height of which from the ground makes a square with the breadth of the front. The space between these turrets is occupied by three pointed arches, reaching the whole height of the upper walls of the nave and resting on triangular piers, which are faced with clustered shafts like those of the turrets, and terminate in octangular pinnacles, resting each upon a square basement, and divided by a moulding into two stages, the upper one of which is perforated with narrow lights, edged with the dog-toothed quatrefoil. The sides of the piers are lined with isolated columns in channelled recesses, each column sustaining a ribbed moulding of the arch above, and the whole series being finished with interlaced and foliated capitals.

The centre arch is narrower than the outer ones, the reason of which will appear when we look at the situation of the doorways opening into the side aisles of the nave. Had the architect designed the three arches of equal breadth the piers which sustain the centre arch must have stood immediately in front of these doorways, or the outer arches must have been so contracted as to bring the turrets within the line of the transept, and thereby conceal, in part at least, the towers behind.

This circumstance of itself shows that the turrets, piers and arches, as they now exist, formed no part of the original plan. The interstices between the pillars which sustain the centre arch differ from those of the outer arches, in that they are chequered at regular distances with clumps of foliage, as if exuberance of ornament were designed to compensate for inequality in other respects. This inequality has been since still further obviated by the erection of a porch, which, after a minute inspection, appears to have been inserted by way of support to the central piers, both of which had previously swerved from the perpendicular, as may still be seen. Over each arch rises a lofty pediment, bounded by the wave and billet ornaments, and surmounted by a perforated cross. The spandrels formed by the base of the pediments and the arches beneath severally contain, first, a deeply-recessed quatrefoil, above this two trefoil arches, and still higher two pointed arches resting on slender pillars and filled with statues, and also a hexagon, the featherings of which clasp a human head.

The pediments contain each a large circular light, with other apertures and niches. The circle of the central pediment is divided by mullions into eight lights, under trefoil arches radiating from an orb. Those on the sides are divided into six lights, the featherings of which are very beautiful. The mullions, or radii, are all faced with small pillars and capitals, and lined with the dog-toothed quatrefoil. The outer moulding of the central circle is composed of closely compacted trefoils, that of the others has the wave ornament. At the base of each circle is a series of trefoil arches, resting on isolated columns, four of which admit light into an apartment above the vaulting, and three contain statues. The intermediate spaces, formed by the circle and the pediment, contain two niches, one on each side and another above, all filled with statues. The niche in the apex of the central pediment contains a statue, apparently of St. Peter, to whom the church is dedicated, representing the apostle with the mitre, pall, keys and other insignia of the Bishop of Rome.

The turrets, before mentioned, are divided by the round moulding and string-courses into six stages, which are empanelled in front with arches of different forms and dimensions. In the first stage from the ground and rising from a channelled base, are two lofty pointed arches resting on slender pillars. In the second stage are four trefoil arches similarly supported; this range is continued round the facings of the inner wall immediately over the doorways and forms the base of the windows. The third stage contains one pointed arch, intersected by a pillar in the centre, with curved mouldings, forming two lesser arches; which last are again subdivided by pillars, sustaining one circular arch in the centre and segments of arches on the sides.

The interstices above contain two trefoil arches, with brackets at the base for figures. The mouldings of the outer arch, with the sides of the pillars and all the subdivisions, are studded with the dog-toothed quatrefoil. In the fourth stage are two deeply recessed pointed arches, resting on clustered pillars; immediately over these is a string-course of stemmated trefoils, which is continued round the front, the transepts and the base of the north-west tower, together with the more modern base towards the south. In the fifth stage are four trefoil arches, like those of the second stage: these lie parallel with those at the base of the pediments already described, and with those also of the side transepts. The sixth stage contains four long and narrow pointed arches, having corbels in the space above, and resting, like the whole series of arches below, on slender isolated columns with prominent foliated capitals; above these is a string-course of rosettes, forming the base of the parapet. Thus far the two turrets are strictly uniform, but in the parapets by which they are surmounted, and in the pinnacles which terminate the clustered shafts, there is a marked difference.

The parapet of the north turret consists of the wave ornament, with double featherings and intersections; the pinnacles at the angles are hexagonal, corbelled at the base of the pyramid with human heads, and finished above with crockets and finials.

The parapet of the south turret contains a series of quatrefoils, while the pinnacles at the angles are beautifully blended

with the clustered shafts so as to form a regular and continuous course and termination; the mouldings are carried up in high pointed pediments, and from these a cinquefoil arch at each angle, surmounted also by a pediment with a quatrefoil in the spandrel, connects them with the spire in the centre, and sustains a lofty triangular pinnacle, which, like the pediments below, is decorated with crockets and a finial. In this respect the south spire differs from the other, which has no connection with the side pinnacles. Both are pierced with pointed windows in two ranges, four in each range, divided by mullions, and crowned with crocketted pediments, and the apex of each is terminated by a finial and cross, included in the extensive repairs carried on by the present Dean and Chapter.

The style of these spires, with the parapets and pinnacles, marks them out as a later work than the turrets beneath, and we may infer from the similarity of their details to those of the porch that they formed a part of the repairs and alterations which the whole front appears to have undergone when that appendage was inserted, and when the central window of the nave was enlarged, and that and the others which now enliven the inner wall were filled with Perpendicular tracery. The porch is vaulted with stone, and is entered by an obtuse arch, over which is an elliptical window, divided by mullions into six lights under cinquefoil arches, which are again subdivided in the head into lesser arches.

The spandrels formed by the curve of the arch and the base of the window are enriched with circles, clasping shields of arms, and rosettes with other devices. The arch and window are bounded by buttresses, which are broken by offsets and empanelled with niches. Besides these the porch is flanked with staircases, one on each side, forming three parts of an octagon, and leading to an apartment now used as a library. The summit is closed in with an embattled parapet, having a pediment at each end and one in the centre. The surface of the walls is enriched with canopied niches, pilasters, brackets, panel-work and string-courses in all the wildness and profusion which distinguish the last stage of Gothic architecture.

Besides the arch before mentioned, the porch has two smaller arches, north and south, parallel with the piazza formed by the great arches and piers of the front, and keeping up the communication with its opposite extremities. Over these also are mullioned windows, with blank interstices.

The great window of the nave, the outer arch of which is obviously an alteration from the original design, is divided by mullions into five lights—those of the side aisles into three lights, both under cinquefoil arches—and the lancet window of the transept into two lights under trefoil arches: these windows are parted, each by an embattled transom into an upper and lower range of lights, and the heads filled with subordinate tracery.

The doorways beneath are exceedingly rich, and in point of execution and delicacy of detail, perhaps the finest portions of the front. The central doorway is divided by a pillar, rising from a carved cylindrical base into two smaller arches; but the whole design and finish cannot be made out in consequence of the introduction of the porch, the foundations and butments of which are built against it.

The arches of the side doorways are lined with isolated columns, receding in the manner of perspective; the ribbed mouldings between these columns, the interlaced and pendent foliage of the capitals and the multiplied mouldings of which the arches above are composed cannot be too closely examined or too much admired. This is that peculiar style of Gothic architecture in which the beauty of the pointed arch, with its accompaniments, is best discerned, and therefore it is that judges are wont to give it the preference over all subsequent alterations and refinements. The spaces between these doorways, like those of the windows over them, are empanelled with pointed arches, subdivided by smaller arches and resting on slender pillars.

From the brief description thus given of this stately front, the reader will perceive that it was begun in one age and finished, as we now behold it, in another. Some discrepancies of style may therefore be expected to present themselves, but these are so eclipsed by the grandeur of its leading features that the eye takes in the whole as a single conception, and overlooks, in its contemplation of such a magnificent association of objects, the marks of difference that exist between the efforts of earlier and later genius.

The School of Art Wood-Carving has been removed to the Imperial Institute. It will be reopened after the usual summer vacation on Monday, September 5. Free studentships are maintained by means of funds supplied by the City and Guilds Institute for the advancement of technical education, and by the Drapers' Company. Some of these studentships are at present vacant, and forms of application for them may be obtained by letter addressed to the manager.

COWDRAY HOUSE AND ITS OWNERS.*

PROBABLY in the south of England no remains possess greater interest than the stately ruins of Cowdray House, and in three respects these crumbling walls are especially attractive—first, as regards the beauty of the site occupied by them, and of the charming country adjacent; secondly, the magnificence still prominent in the mansion itself; and thirdly and lastly, the interest attaching to the history of the family who built and who owned Cowdray for so many generations.

The plan of the mansion was a quadrangle, the form which our ancestors delighted to use down to the times of the Tudors, and one they inherited from the Romans. By this four-sided arrangement the various parts of a house are most readily connected with one another, but in modern times it has been but little used, as other plans are more accessible to air and light. The area was 122 feet by 110 feet; the chief front faced the west, and the loftiness of the building was remarkable.

The entrance gateway displays a large panel bearing the arms of the Montagues with the sixteen quarterings required by heraldry to make a family truly noble. Two wolves form the supports, and under the shield is the motto "Suivez Raison," or "Follow the Right." The groining of the lower storey is a curious mixture of styles, and on it will be seen the badges of a trefoil and of an anchor, the latter device probably used as an allusion to the fact that the first who erected Cowdray, Sir William Fitzwilliam, was an admiral, and commanded the fleet which escorted Henry VIII. across the Channel in 1520, when that monarch attended the meeting known as that of the Cloth of Gold.

In the outer courtyard there was a fountain, which, at the destruction of the house by fire, was removed to Woolbeding.

Conspicuous in the inner court are the three windows and great bay window of the great hall, and the latter is in all probability the grandest and noblest example of a bay window now existing, with its six lights crossed by no less than five transoms. Formerly the roof of this fine hall had a lofty louvre or spiral of three stages surrounded by a multitude of pinnacles with gilded vanes, whilst an elaborate ridge crest of lead-work ran from end to end of the roof, the end gables of which were also pinnacled.

The inside dimensions of the great hall were 60 feet in length by 28 feet in breadth, and the roof was an oaken one said to have been removed from Battle Abbey refectory, which, however, was 36 feet wide, so that it must have been much cut down from its original dimensions.

The fondness of our ancestors for the chase is shown by the fact that this room was called the Buck Hall, and that round the walls were placed life-sized figures of bucks either in repose or standing. The walls beneath the windows were panelled, and had in the upper part full length pictures of the twelve apostles. There were also paintings of Actæon and of Diana with her nymphs. I would here observe that the planning and arrangement of a Tudor dining-hall were perfect—the windows, set high up, did not dazzle the eyes of the guests seated at table by cross lights or the rays of the setting sun, and at the end of the room was a bay window from which to look out, and the recess itself served for a place to retire for private conversation. Cavendish in his life of Wolsey often mentions this use of the bay window at the Cardinal's palace at Hampton Court.

In early times the hall was used as the dining-room of the greater part of the household, but later on the owner of the mansion and his family dined apart from his retinue in a room adjacent to the great hall, as was the case here, and this room was embellished with wall-paintings of the military exploits of the first Sir Anthony Browne. These perished in the lamentable fire, but the Society of Antiquaries fortunately possesses copies of them. Traditionally these pictures were by Holbein, but with greater probability were the work of Bernardi, the artist who did so much work at Chichester Cathedral.

Behind the hall was the grand staircase. It was a wooden one, the ascent being by remarkably easy steps. Traces of the plugs to which the side wainscotting was fixed still remain. The walls above were painted by Pellegrini.

Till quite recently the chapel for domestic worship formed an essential adjunct to every house of any importance. In the Middle Ages it was a separate and conspicuous addition, but in the latter half of the fifteenth century it began to be merged into the general design, as was the case at Hurstmonceaux Castle and here. In both cases the chapels end in three-sided apses; here the walls were much older that the decorations on them, and, as at Hurstmonceaux, there was a western gallery communicating with the chamber floor, so that the members of the family could attend service without mingling with their domestics in the body of the chapel. The walls were wainscotted with mahogany to the height of 8 or 10 feet, a most costly embellishment, as the wood was then a most expensive one. The altar was covered by a baldachin or open canopy

* A paper read by Mr. J. L. André at the annual excursion of the Horsham Museum Society to Midhurst.

reaching to the roof, and the altar-piece was a painting by Annigoni of the Resurrection. This was fortunately rescued from the flames. Life-sized figures in plaster, probably of Saints Peter and Paul, were on either side of the sanctuary, of which fragments still survive, whilst elegant arabesque panel-work ornamented the walls and the sides of the windows.

The kitchen was formerly open to the roof, as in many old mansions and monasteries. The present dividing floor is of modern date. Scattered over the house, beside the numerous pictures already mentioned, were others brought from the dissolved abbey of Battle and many family portraits, some being by Holbein.

In the Middle Ages most first-class buildings were covered with lead, which was laid on at about 10 lbs. to the foot, a thickness not dreamed of now. Here the roofs were heeled with this costly material, which was also the case at Hurst-monceaux, where it occasioned the ruin of that fine building, as a former owner, a certain Lord Dacre, stripped off the lead to pay a gaming debt.

Besides the costly decorations described, the walls were in some parts covered with ornamental tiles in various colours, and where only plastered the plaster was of the best kind, only a quarter of an inch thick, with plenty of hair in its composition, and very superior to the modern coarse mixture of lime and sand laid on an inch thick.

Having now described this beautiful and once elegantly decorated house, a few words may be devoted to the builders and former owners of it.

Once upon a time, that is to say in the days of Henry VIII., there lived a courtier of that king named Anthony Browne. He appears to have been a man of considerable abilities, and employed them with so much tact that he became one of the most intimate favourites of the monarch, and accompanied him in many of his warlike expeditions, was made the royal standard bearer, and as his epitaph says "Master of the Kyng's Majesties horcys." Moreover, at the dissolution of the monasteries Henry bestowed upon him the rich abbey of Battle with all its extensive possessions. Besides the ample fortune thus obtained, he in 1543 acquired the lands at Cowdray on which the house now stands, with the park adjacent. These domains fell to his lot by the decease of his maternal brother Sir William Fitzwilliam, Earl of Southampton. In 1548, to use one of old Anthony Wood's quaint expressions, "he surrendered up his last breathings," and was buried beneath a sumptuous monument, still to be seen in Battle Church. His family, it may be mentioned, also owned Betchworth Castle in Surrey, the ruins of which we inspected in one of our excursions.

Before the acquisition of the Midhurst property by the Brownes, the former possessor, the Earl of Southampton, had begun the erection of a magnificent building, part of which is incorporated in the present mansion, but it was left to the son and successor of Sir Anthony Browne to complete it. Like his father, he was named Anthony, and in 1554 he was created Viscount Montague. From him proceeded seven viscounts in unbroken succession, the last of these being drowned in 1793, and leaving no issue, the Cowdray estates passed to the Poyntz family, and in 1843 into the hands of the Earls of Egmont. Two royal visits were made to the newly-erected house of the Montagues. The first of these was that of Edward VI. in 1547, and a letter of the youthful king says that here he was "marvellously, yea rather excessively banketted." In 1591 occurred the second visit of royalty, when Queen Elizabeth spent several days here, and was most sumptuously entertained by the first viscount. In accordance with the customs of the age, pageants of wonderful elaborateness were exhibited for her amusement. At her arrival, for instance, she was confronted by a man in armour, who told her there was a prophecy that the walls of Cowdray House would shake and the roof totter until "the wisest, fairest and the most fortunate of all creatures should arrive." The queen, of course, was this happy and unique being, and henceforth the house would be immovable and sound. At another time sixteen bucks were slaughtered before the queen, who viewed the butchery from a turret of the house, and at the last evening of her visit there was a grand "daunce," as our ancestors termed it, and at which, to their great delight, the neighbouring peasantry were invited to behold. The splendid reception given to Elizabeth was not the first occasion on which the first Viscount Montague had shown his loyalty to the throne, for in 1588 at the time of the Spanish Armada he was one of the most zealous defenders of his country, and came in person before the queen with a band of horsemen, nearly 200 in number, and which he placed at her disposal. In the same year as the royal visit this venerable man passed to his rest, and Baker in his "Chronicles' says that Queen Elizabeth always loved him, and in his sickness went to visit him. A splendid monument was erected to his memory in Midhurst Church, but which was afterwards removed to Easebourne.

Almost regal state was kept by the Viscounts Montague at Cowdray, and in 1595 the second viscount drew up an elaborate code for the regulation of his extensive household, the officers and chief male servants, thirty-seven in number, having each his allotted duties minutely described, and the record furnishes an excellent example of the elaborate etiquette of an Elizabethan noble's retinue. To the second viscount the people of Battle are indebted for the change of their weekly market from Sunday to Thursday. He died in 1629, and was succeeded by Francis, the third viscount, who suffered much as a royalist in the time of Charles I., his goods being confiscated in 1644 by order of the Commons. During the lifetime of the fourth lord in 1703 the great storm of that year blew down several chimneys at Cowdray, and which, falling on the roof, did great damage. Finally, the last viscount, George Samuel Browne, met his death by drowning at the Schaffhausen falls on the Rhine in 1793 whilst trying to shoot the rapids, a foolhardy attempt which also cost the life of his companion, Charles Sedley Burdett. This sad event happened in September, and in October of the same year a conflagration took place at Cowdray entirely consuming this noble house.

Claims to the title of Viscount Montague have since the last lord's death been made by various persons, and in the Reliquary for 1888 it is said that "it is by no means impossible that the true claimant to this title is still living in very humble circumstances in Derbyshire." What grounds there may be for this assertion I know not.

ANCIENT BOOKBINDING.*

THE covers, boxes or bindings in which manuscripts or printed books have been preserved have, as a general rule, had some analogy in outward form to the inner shapes of the written or printed pages they cover.

After the rock inscriptions, which from their nature required no covering, probably came something resembling the impressed inscriptions in clay which still exist. The rock inscriptions were marked in outline on the stone by scribes or priests, and actually cut by workmen ignorant of the sense of the characters they were producing. In the case of the cuneiform inscriptions cut in stone, they were most likely written out by the wise men by means of short and long lines differently placed, the stonecutter producing the wedge-shaped form. In a country, however, where the use of sun-dried clay was well understood, it may easily be imagined that impressions made in soft clay were sometimes given to the stonecutters to copy from, and the transition from this auxiliary use to the actual preferential use of the baked tablet is easy. On the tablet of clay the "writing" has not undergone a second operation by another hand, but is impressed by the scribe himself.

A large collection of fragments of clay-bearing cuneiform inscriptions has been found by various explorers on the site of Nineveh, being the remains of the royal libraries of Sennacherib and Ashur-bani-Bal, the earliest being about the third century B.C. The majority of these "bricks" have no sort of covering, but among the later specimens are several which are enclosed in outer shells of the same clay. These curious instances of ancient "bindings" are usually impressed with a duplicate inscription, but sometimes this is shortened, so that it may indeed be considered a title of the work inside. This form of covering has not helped us in any way to our present form of book, but can only be considered as a curiosity of bygone times.

Another form that has been in use for a very long time and yet has equally not affected our present shape is that found to the present day in India, China and the East generally. It consists now as formerly in the shape of two long rectangular pieces of wood, ivory or metal, variously ornamented, enclosing separate leaves of the same shape in which the writing is done. These inner leaves are usually strips of palm-leaf, but they are variously found of gold, silver, ivory and lacquer, and are kept together by ornamental cords run right through, or metal pins. The outer pieces are ornamented in all kinds of ways; carvings, paintings, metals, *repoussé* and chased, and inlays in lacquer-work are often found, some specimens being of great beauty. In the case of sacred writings the upper cover is often found covered with small pieces of red pigment put on by worshippers, the earliest instances I think when bindings of books have come in for a share in religious ceremonies.

As well as these writings on palm-leaves, which are after all only of a limited range, manuscripts were made at a very early period on papyrus. This consists of the flattened-out fibres of a reed which grew plentifully in Egypt; the fibres were laid double, at right angles to each other, pressed, hammered and dried. The old manuscripts on papyrus are now very brittle, and often they have to be preserved between sheets of glass. The roll was the usual form for these writings, and from the Latin word *volvo*, "I roll," is derived our word for a book—"volume;" and although our books are not now rolled up,

* From the Cantor Lecture by Cyril Davenport, published in the *Journal of the Society of Arts*.

they are distinctly derived from the roll by a simple evolutionary process.

The fact that papyrus was not a very satisfactory material for writings was discovered as early as the second century, B.C., when for some reason Eumenes II., King of Pergamum, found considerable difficulty in obtaining enough of it, and he is said to have first used vellum for writing upon. Vellum is the skin of the calf or goat specially prepared with lime, and is the finest of all known materials for the reception of manuscript. It also was first used in the form of rolls. Paper was doubtless first made in China and other parts of the East, and does not appear to have been made in the Western countries until about the tenth century.

The forms in which the writings were made on these three materials are of three chief kinds, and from one of them comes our present shape of book. In the case of the prayers written upon the long strips of paper enclosed in the Buddhist "prayer-wheels," the writing is in very long lines written each of them the whole length of the roll. In the case of innumerable manuscripts on papyrus and vellum the writing is across the breadth of the roll continuously from beginning to end. In the case of later MSS. the writing is arranged in page-form, lengthwise as regards the roll, but only in short lines, and this form is the immediate ancestor of our modern page, and consequently the shape of its binding.

The rolls of papyrus were kept together by tapes wound round them, also of papyrus, and often sealed with mud seals. The rolls were sometimes kept in wooden cases in hollows cut for them, and sometimes in the bases of small statuettes of "Ptah-Socharis-Osiris;" but they do not seem to have had any special form of covering. The vellum rolls were kept in boxes, also cylindrical in shape, called "scrinia," and had frequently title-pieces attached to their ends; the wrappings used for the sacred manuscripts in the Jewish synagogues are often very rich and ornamental, as also are the ends of the rollers.

The page form of writing upon a roll was found to be the most convenient at a very early date by the Chinese, Japanese and Coreans; they also were the first to find out that if the rolls were simply folded backwards and forwards between the "pages" of writing or printing, the whole book became easier to read, and this form, known as "Orihon," is used in those countries to the present day. The leaves are apparently double and the outer edges, instead of being clean cut as with us, are only a fold, the inner sides of each double page being of course blank. The paper used in these books is usually very thin, so that no practical inconvenience is felt in reading them.

The same idea of folding the roll occurred also in the West, but was carried a step further, inasmuch as the outer fold was cut through, and so both sides of the material came into use. This of course necessitated some form of sewing or keeping together the inner folds, and the earliest form of this was equivalent to what we should now call "stabbing"—that is to say, two or more holes were pierced near the inner edge right through all the leaves, and through these holes were threaded cords of some kind, afterwards laced together in various ways. This stabbed work can be well seen on almost any modern Chinese book; the chief objections to it are that it absorbs an undue share of the inner edge and does not open very well, but for thin books not of much value it is very useful. Although this stabbed work was used for papyrus and paper, I have not found traces of it on vellum, but when the vellum rolls were cut up into leaves, as sometimes happened, and it was found necessary to fix their inner edges together, another method was adopted; this was also a very simple and obvious one, and better than the "stabbed" method, inasmuch as it took up none of the inner margin. A thread was passed through the inner fold—at first only one fold—and drawn round a strip of leather or vellum beyond: this process being repeated as often as necessary, produced at last a sewn book resembling in all material points one made at the present day. It was soon found that two or more of these doubled sheets of vellum would fit inside each other, and that one "sewing" would fix several of them, so "quiring" evolved itself.

The subsequent covering up of these exposed bands and threads at the back of the book, in order to protect them, laid the foundation of the large number of ornamental bindings which have been since produced.

It is curious that the earliest Latin manuscript existing is written upon neither of the materials hitherto mentioned, but is upon wax. In 1875 at Pompeii were discovered a collection of several small tablets of wood hollowed on one side and filled with a shallow layer of wax bearing inscriptions. One of these is the record of a payment to Umbricia Januaria, and is dated A.D. 55—the earliest Latin MS. existing. The "pugillaria" or "diptychs" usually consist of two leaves, but sometimes there are more, and in shape they are like our modern books; they are held together at the back by either leather thongs or rings, and many of them have small hollows for keeping the stilus in. These stiles were made of ivory, wood or bronze, and are generally pointed at one end and flat at the other for making erasures. Later on the diptychs became more ornamental and were made of richly-carved ivory; indeed from the third to the sixth centuries the Roman consular diptychs reached a very high degree of artistic beauty, and are especially interesting because they often have upon them portraits of the consuls who issued them, and are actually the first instances of decorative binding.

The most usual material for the bands and threads used in the sewing of books is, I think, hemp, or some vegetable fibre, but no doubt strips of vellum and leather were much used in early times; indeed, among the Hebrews the sacred writings were always sewn with some kind of animal tissue—sinew or gut. This was done in accordance with the Mosaical law as laid down in Leviticus and Deuteronomy, forbidding the use of "shaatnez," *i.e.* a material composed of woollen and linen threads mixed. So that for fear of infringing this law the animal tissues were used, and they are often so in other cases; our own Roger Payne unconsciously carrying out the tradition by always sewing his books with silk.

From the time when manuscripts on papyrus or vellum came to be cut into pages, somewhere about the fifth century A.D., the outer bindings have been used as obvious fields for the decorative artist, and some of the Byzantine and Mediæval work of this kind is almost fine enough to be considered among the finest existing specimens of this school of art. Although the so-called "Byzantine" art is not the finest school, in many ways it had immense influence, especially in the western direction, one development being especially interesting to us, namely, the beautiful Celtic work made under its inspiration.

The earliest decorative bookbinding existing, the manuscript for which is unfortunately gone, is probably a cover now kept in the cathedral at Milan. It consists of pieces of ivory carved with representations of Biblical scenes in low relief, and in the centre is a lamb within a wreath; this lamb is *cloisonné*, that is to say, a piece of metal in which flat wire is soldered edgewise in patterns enclosing small spaces, and in these spaces it is said that vitreous enamels exist. I have seen this binding, but unfortunately some time ago, and took the statement as to the enamels without question; but since then I have found that so many of these early so-called enamels are in fact small inlays of coloured stones, that I cannot possibly say whether these are truly enamels or not.

The Byzantine workmen are credited with having kept the secrets of enamelling on metal until about the second half of the eleventh century, and until this time they are supposed to have retained the monopoly of the art, which, it found in foreign countries, is supposed to have been done by Byzantine workmen who had emigrated.

At Monza, a town near Milan, is preserved a still finer and more interesting binding. It still encloses the copy of the Gospels for which it was originally made, and was sent, bound, to Theodelenda, Queen of the Lombards, by Pope Gregory the Great, in the seventh century. The letter mentioning the gift calls it "lectionem S. evang. *theca persica inclusam.*" The binding is wood covered with plates of gold, the decoration being alike on both sides.

A large straight cross occupies the place of honour, extending to the edges, and in low relief, the cross is outlined with a line of small cloisons enclosing rectangular flat pieces of garnet, sapphire and emerald. The inner part of the cross is thickly set with jewels cut *en cabochon*, that is to say rounded, not having facets, and some pearls; and at the slightly expanded extremity of each arm is a remarkable oblong jewel of greenish colour, having in the centre a yellow disc on which is a small red flower. These are usually described as enamels, but I think they are not such, being, I believe, all cut from a thick glass rod made in the same manner as the *millefiori* glass of Murano. Although I do not think they are enamels, no doubt great skill in glassworking is shown in their production. The spaces between the arms of the cross are each ornamented with a Γ (Gamma) and a cameo, the Gammas and the outer border being beautifully ornamented with cut jewels, flat, enclosed within small gold cloisons. Across the sides are added bars of gold on which is an inscription, "De donis Dei offerit Theodelenda reg. gloriosissima sancto Joanni Baptiste in basilica quam ipsa fundavit in Modicia prope palatium suum."

A similar design, a cross by itself, is found on the earlier side of the binding of the Gospels which originally belonged to the abbey of the Noble Canonesses, founded A.D. 834 by the Emperor Lewis the Pious at Lindau, on the Lake of Constance. The cross here is not so simple, but is curved in outline, resembling an elongated Maltese cross. There is no doubt that here are genuine enamels of great interest and beauty, both champlevé and cloisonné, enclosing which are lines of cloisons set with small flat garnets. The work appears to be Celtic under Byzantine influence, the spaces between the arms of the cross being filled with chiselled work in bronze of interlacing lacertine forms of pure Celtic character.

The work has been much altered and added to at various times, but the alterations have been well done and are obvious. It is suggested that probably it was originally made by Irish monks in a South German monastery. It is certainly one of

the finest bindings in existence, and now belongs to the Earl of Ashburnham. It was exhibited at the Burlington Fine Arts Club Exhibition of Bookbindings in 1891. The other side of this remarkable book is somewhat later, very ornate, having a crucifixion in gold and all thickly encrusted with jewels.

Among carved ivories, in which numerous Mediæval books were bound, one which is now in the British Museum stands prominently forward both for the beauty of its design and the wonderful skill with which the carving is executed. It covers a psalter written and illuminated for Melissenda, daughter of Baldwin II., King of Jerusalem in the twelfth century, and wife of Fulk, King of Jerusalem after him. It is bound in wooden covers in which are fine Byzantine ivories, measuring 8 inches by 6, exquisitely carved with scenes from Bible history. There are fillets interlacing with six circles in each side, in each of which a separate incident is shown, the remaining spaces being filled with scrolls and conventional figures, birds and beasts, and enclosing the whole is a beautiful border of scroll and leaf design. At the top of the under side is the name "Herodius"—doubtless that of the carver—and points are marked all over with small gems, turquoises, emeralds and rubies, the eyes of the persons and animals being extremely minute, some of them not bigger than the eye of an ordinary needle, so that it is likely some of the jewels in this binding are the smallest existing cut gems.

On the upper side are six scenes from the life of David, and between them figures showing the triumph of virtues over vices, all of these having little labels with words engraved upon them run in with red pigment. On the other side the six circles contain scenes representing works of mercy, and between them figures of birds and beasts.

In the South Kensington Museum is a splendid specimen of a Mediæval Textus, a copy of the Gospels of the tenth century, bound in oak, covered with gold, enamels and gems. The binding in its present state is much restored, but parts are undoubtedly very old and of a Celtic character. It was used at the abbey church of St. Maurice d'Agaune, from which it was stolen in the fourteenth century. Then it was kept at Sion, in the Rhone valley, and was eventually purchased at the Spitzer sale for the South Kensington Museum. In the centre is a seated figure of our Lord in *repoussé* and chased gold, round this are two hexameter lines in *cloisonné* enamels of white and green, much restored :—

"MATHEVS ET MARCUS LVCAS SCSQ JOHANE
VOX HORV QVATVOR REBOAT TE XPE REDEMPTOR."

The outer border is very broad and is ornamented alternately with rectangular *cloisonné* enamels and gold plates, jewelled. Of these the four side enamels are original, and so are some of the gold plates, in which is curious superimposed work in gold of curves terminating in heads holding pearls in their mouths. I think probably these few gold plates with the work on them are the only pieces of the binding left which are contemporary with the manuscript ; but it is likely enough that the general original design has been to a great extent preserved.

The under side of this book is probably in its original state ; it is covered in strong, red leather, studded with nails in the shape of a cross. These books were used as altar books, one at each end, and the upper cover only was usually made very ornamental. They used to be carried round the churches to receive the kiss of peace—a function which, in the western church, was transferred to the "Pax" somewhere about the twelfth century ; but in the eastern church the ornamented Textus is still solemnly kissed on State occasions.

There are several beautiful examples of Mediæval bindings in the various church or cathedral treasuries on the Continent, and some few specimens are shown in our great libraries in England ; the majority, however, are not with the manuscript they originally covered. In Russia there are some few ancient and fine examples. One of these, at Moscow, has most interesting enamels of the tenth century ; in another, also at Moscow, a copy of the Gospels in Sclavonic is the earliest dated binding I have come across ; an inscription in Russian round the edge begins, being translated, with the words "In the month of March, 1392, this copy of the Gospels was published by the order of Theodore Andreevitch."

In the Royal Irish Academy at Dublin are several fine examples of cases or covers for books adorned with metal-work and gems in a similar way to actual binding, with charming Celtic designs in bronze and silver. In England there is an absence of any specimens of this kind of work ; if any existed, as it probably did, it was destroyed because of the intrinsic value of the materials used ; much of this destruction doubtless took place under the early Tudors. Such books as now remain of English work are always simply bound in leather. The best known examples of this early work are perhaps the Winchester Domesday Book of the twelfth century, goat-skin ornamented with small impressions in blind, now in the library of the Society of Antiquaries ; the Gospel of St. John, written probably in the seventh century, but bound possibly about the tenth century, in red leather repoussé and "chased" with a little colour, now at Stonyhurst College, and the Latin Psalter of the twelfth century on which our sovereigns, from Henry I. to Henry VII., appear to have taken the coronation oath. This curious book is bound in thick oaken boards covered probably with deer-skin, and in the lower cover is a brass figure of our Lord in the attitude of the crucifixion. It is now in the British Museum.

From the twelfth to the fifteenth century, roughly, many enamelled bindings were made at Limoges in France. They are generally of the kind known as champlevé, and the same designs are often used over and over again. The later enamelled bindings from Limoges mark the beginning of the end of this kind of decorative work on books, because in the fifteenth century came the introduction of printing into Europe, which very soon caused books to become much commoner, much smaller and, as a rule, bound in a far cheaper and simpler manner.

Mr. W. H. James Weale, until lately art librarian at the South Kensington Museum, has made extensive researches on the subject of blind-tooled binding in Europe from the twelfth century onwards, and he is of opinion that the English school is pre-eminent for its work in this manner. From London, Winchester and Durham we still possess fine specimens, the various arrangements of the small dies used being most interesting and curious. In most of the English bindings of this kind oval or drop-shaped dies are found ; these combine charmingly with circles and parts of circles, a fashion carried on by Thomas Berthelet and also at Little Gidding. In France the arrangement of the small dies was often in perpendicular lines, and the designs were frequently heraldic. The stamps used on German bindings were often used in combination with beautiful cut-work on calf, and when on pigskin were also frequently tinted with colour, as they are sometimes in the bindings of John Richenbach of Gyslingen, who signed and dated many of his bindings, one existing as early as 1467. Larger and more elaborate stamps were introduced by various German binders in the fifteenth century, particularly Johannes Fogel and Anthony Koburger.

The blind stamps on early Italian books are usually of an Oriental character, Arabic knots and "basket" work. In the Netherlands the large panel stamps seem to have been first used probably during the fourteenth century ; and in the succeeding century these large stamps are plentifully found on French and English bindings. Many of them are signed with the name of the binder, *e.g.* "Ob laudem Christi hunc librum recte ligavit Johannes Bollcaert." The subjects of the panels are nearly always Biblical. In English panel stamps heraldic ornamentation is often found as well, and rarely floral designs. Saints are commonly represented on stamps of later date—St. George, St. Barbara, St. Anthony and numerous others—and in German books Lucretia is a favourite personage, Justice and other virtues also finding a place.

So that with the use of leather for binding books new methods of decoration came in play ; the earliest leather bindings both in the East and in the West are simply ornamented with plain impressions from small metal stamps, as we have seen, but after a short time a metal leaf was used as well. The earliest example of this "gold tooling" which I have been able to find exists on a copy of a part of the "Canon of Avicenna," written in Arabic in the twelfth century and bound in brown calf. The decoration is a beautiful arabesque, part of which is darkened by heat, and the outlines are marked in gold. It is in a bad state and has been rebound. There are other Arabic bindings in goat or calf, ornamented with delicate designs in blind, supplemented with small gilded rings and points. These rings are afterwards found in Italian work of the fifteenth century, copied no doubt from the earlier Oriental work, and it is supposed that from this source the beautiful art of gold tooling on leather took its rise. The gold used both on the Oriental and Italian books up to the fifteenth century is much thicker than what we use now.

The gold tooling introduced into Italy from the East rapidly grew into favour in France and England, but in Germany it did not find so congenial ground. The German work of the fifteenth century is notable, however, for the skilful cut leather, usually calf, sometimes used alone, sometimes in combination with stamped work in blind, and sometimes with colour or stain. The use of pig-skin stamped curiously and delicately is also characteristic of German work ; a celebrated binder—Jean Richenbach—not only designed his bindings but also often dated them, adding, moreover, a little delicate colour here and there on his white pig-skin.

In Persia there was a considerable output of bindings very deeply impressed with large engraved stamps having arabesque patterns upon them. These bindings are usually of paper boards covered thinly with inferior leather, and are often stamped with coloured metal leaf on which is hand colouring in places. This fashion of large coloured stamp became a favourite in Egypt and in the East generally ; the centre ornament is always an elongated oval with more or less elaboration around it. Many fine Italian bindings of the fifteenth century are copied very exactly from these Persian originals.

NOTES AND COMMENTS.

IT is no longer considered that ugliness and orthodoxy must be inseparable in a Scottish church. Tron Church, Glasgow, where Dr. CHALMERS once ministered, now belongs to the Corporation, and from time to time suggestions arise about the advantage of utilising the site for a secular building. It was reopened on Sunday after undergoing a course of repairs. One of the clergymen who officiated was frank in condemning the building :—"I cannot say," he remarked, "that the reopening of the church here gives me unfeigned joy. I would rather it had been elsewhere. It has served its day. No patching or painting will ever make it a beautiful edifice or useful in the midst of railway stations and warehouses. The taking-down of the buildings in front has revealed its black and gloomy exterior, and the little pendicles built against it seem to mock the venerable walls. It is a thing of ugliness and an eyesore for ever. It is not creditable to our administrative capacity that a building like this should stand in the very forefront of our city." The church is not remarkable as a work of architecture, but it has some historic interest. On the site was the first of the Reformed churches erected in Glasgow, and it derived its name from the tron or weighing beam which stood in front. That building was destroyed by fire in 1792. The existing building dates from that time.

THE type alone would reveal that the book on "The Decoration of Houses," by EDITH WHARTON and OGDEN CODMAN, jun. (B. T. BATSFORD), comes from America. Printing and illustrating are creditable. But the American origin is further seen in the first paragraph, which says that in Paris "it is impossible to take even a short walk without finding inspiration in those admirable buildings, public and private, religious and secular, that bear the stamp of the most refined taste the world has known since the decline of the arts in Italy." The words are, we suppose, to be interpreted in the same way as the common statement about trees being visible from every street in London. Paris has quarters which are as dreary as Pimlico. We have no wish to be hypercritical; all we wish to suggest is that the sentence about Paris resembles much else in the volume. There is no restraint on the admiration of old European work. The author's theory is that such examples should not be slavishly imitated. The spirit which inspired the decorators and cabinet-makers is to be sought after, and if attained it is to be employed to produce work that will be adapted to modern American requirements. There is a risk, however, that the effect of the book will be to enhance the importance of what is found in the mansions of English and continental grandees, and to make slavish imitations of furniture the vogue.

As a referee on all questions connected with the employment of electric power, Dr. JOHN HOPKINSON occupied a position that was almost unique. His melancholy death in the Alps on Saturday is, therefore, a public loss. Three of his children were killed at the same time. For professional success it is now necessary to possess physical strength, and no one could blame Dr. JOHN HOPKINSON as an expert mountaineer for resolving to ascend the Dents de Viesivi without other guide than his experience. He was to have returned next day to his duties in London. Dr. HOPKINSON belonged to a well-known family in Manchester, and was born in 1849. His father was Mayor; his brother is Principal of Owens College. After studying in Owens College he went up to Cambridge, where he became Senior Wrangler and first Smith's prizeman. He first applied himself to the improvement of lighthouse machinery, and was engaged by a Birmingham firm as engineer. Then he took up electricity and became an exponent of its power. His skill in mechanics served him, and he was regarded by corporations, companies and fellow engineers as a sound adviser. Dr. HOPKINSON had arranged to start for America on September 28, as representative of a syndicate of English ironmasters and engineers, to report upon the latest developments of Mr. EDISON'S new scheme for revolutionising iron mining by introducing the use of the electro-magnet—a scheme for which the syndicate has secured the European patent rights.

DURING the past year New South Wales has expended a quarter of a million on public buildings. The largest amount, 13,985*l.*, was on a court-house at Parramatta. It is constructed of brick with stone dressings, with an elaborate and handsome stone portico. The court-house contains full accommodation for all the legal business likely to be transacted at Parramatta, and extensive ranges of police buildings are attached in the rear. These comprise general lock-up, inspector and sergeant's quarters, barracks for constables and a range of stabling for mounted troopers, the whole forming probably the most complete establishment of the kind in the colony. The design, both externally and internally, is based on less stereotyped lines than is usually the case. The additions to the Supreme Court in Sydney have cost 13,244*l.*, and a court-house at West Maitland 12,157*l.* It was necessary to construct a new roof at a cost of 1,277*l.* over the central building of the Museum in Sydney, owing to the ravages of white ants, which found their way from the streets up through the interstices of the stone wall to the roof and rendered it unsafe. The new roof is mostly in iron with copper covering, while every effort has been made to eradicate the expensive and dangerous pest. Money has to be doled out in the colony, and owing to the want of attention many buildings have fallen into a state of dilapidation. No sooner is a year's vote available than nearly the whole of it is at once appropriated for requisitions brought on from previous years. Mr. VERNON, the Government architect, considers that if 50,000*l.* were granted for four succeeding years, it would be possible to place every building in a fair state of repair, and to arrange future periodical works according to a table, giving attention by rotation to all the buildings. It was proposed to hold an exhibition in Sydney in 1899, and plans were prepared for buildings to cost 183,000*l.*, but the project has been "indefinitely postponed." A similar fate has pursued Mr. VERNON'S designs for a new Parliament House in Sydney, which was to cost 500,000*l.* In 1860 there was a competition for a like building which also was as fruitless. Part of the present buildings has been in use since 1829, and taken as a whole, the building is unsuitable for present requirements, is a constant source of heavy expense for repairs, and owing to the greater portion of it being constructed of wood, is subject every day to the imminent risk of destruction by fire. By an outlay of 15,000*l.* it is considered the Houses of Parliament will be rendered less dangerous, and apparently the colony is not rich enough to erect a substitute.

THE Panthéon of Paris at present exemplifies French skill in wall decoration. Reproductions of nearly all the works have appeared in this Journal, but the building is also to demonstrate the power of French sculptors. Against the four piers of the dome will be groups to typify Mediæval France, Renaissance France, France in the seventeenth century, France in the eighteenth century. Prominent in the nave will be a group representing the French Revolution. On the right of it will be a statue or group which will be a memorial of VOLTAIRE, and on the left one of ROUSSEAU. Nearer the cupola will be a group devoted to DESCARTES, the father of French philosophy. At the entrance to the transept on one side will be M. RODIN'S group of VICTOR HUGO, and on the opposite side the MIRABEAU of M. INJALBERT. A great many busts of French celebrities will also be introduced.

THE French painters are discontented with the proposed Palace of Art which is in course of erection in the Champs-Elysées. They find that the lines for hanging are about 1,000 metres less than was anticipated. It is also asserted that the majority of the salles will be too small and that some of them will be circular, a form that is not adapted for the exhibition of pictures. If any hospitality is shown to foreigners it is concluded that French artists must suffer. Although the rival societies have debated the subject no official remonstrance from them has been sent to the authorities of the exhibition.

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: WEST FRONT.—WEST FRONT IN 1827.—WEST FRONT, PLAN AND SECTION.

FEW attempts at restoration have given rise to more controversy than that of the west front of Peterborough Cathedral. We have considered it would be interesting hereafter to have a record of the front as it appeared while Messrs. THOMPSON were at work, for the character of the scaffolding will indicate that no wholesale destruction of ancient work was undertaken. Whatever was done in the course of the restoration was dictated by necessity, and the front could not be made secure with a less amount of labour. The authorities of the cathedral as well as the architect could not be indifferent to so remarkable an example of Early English work, for every inch of the masonry was a relic that was worth preservation. In a way the west front was as daring an innovation as INIGO JONES's portico to Old St. Paul's. At the beginning of the thirteenth century it was, however, probably accepted as a development that was inevitable. But it is manifest that the designer gave more attention to the front as an independent composition than to its relation with the plan of the cathedral. There are, no doubt, three bays corresponding with the nave and aisles, but the centre line of either of the aisles, if produced, does not coincide with the axis of the lateral bays of the front, and there is of course a more marked difference in the positions of the side doors. The late Mr. F. A. PALEY was of opinion that "a singular geometrical law seems to have determined the apparently anomalous place of these doorways." He assumed the whole space within the portico to be 38½ yards, which was divided into seven equal parts of 5½ yards each. Two of these, he said, are occupied by the doorway and its wall-space beyond at each side, and the three intervening parts (containing 16½ yards) are again unequally subdivided into a central doorway 2 feet wider than the others, and wall-spaces (arcaded like those at the end, in compartments resembling blank doorways), each 1 foot narrower than the end wall spaces. Internally, the west wall is divided according to a different law. The spaces are made by the vaulting piers, viz. 4½ yards at each end of the transept, 8 yards under each of the towers and 16 yards the interval between, in the middle of which the great doorway stands.

THE GUARDIAN ANGELS' CHURCH, MILE END, E.

WE published a few weeks back a view of the interior of this church, showing the contemplated decoration and alteration. We now illustrate the principal front as altered according to Mr. EASTWOOD's design.

OFFICE, COLLEGE OF ARMS.

ARUNDEL CASTLE.

THE Society of Estate Clerks of Works having visited Arundel had the satisfaction of hearing from Mr. G. Heveningham, clerk of the works at the castle, an account of the recent alterations at the Duke of Norfolk's historic home, embodying for the first time in a complete form a description of the great extensions which have been going on at the castle for a number of years.

In his introductory remarks Mr. Heveningham observed that there was a general impression among those who knew nothing about it that the rooms at the castle were highly ornamented, but as a matter of fact simplicity was their great feature and their great charm.

After briefly sketching the ancient history of the castle Mr. Heveningham dealt with the modern improvements. As to the Norman gatehouse, built by Roger Montgomery, it is interesting (says the *West Sussex Gazette*) to note that the portcullis, which was on the outer side, is about to be renewed. The buildings forming the modern castle occupy three sides of an irregular square, with courtyard between. Close to the Norman gatehouse is the chapel, which consists of nave and chancel, with apsidal end, 77 feet by 18 feet, one aisle on the west side 58 feet by 6 feet, and a small chantry 22 feet by 10 feet, a tribune at the south end, and a sacristy at the rear of the chancel. The division of nave and aisle is formed by an arcade of equilateral richly moulded arches, resting upon circular columns of alternate Purbeck marble and Painswick stone. The roof is groined with moulded ribs, chale cells and stone bands. The nave is lighted by five lancet windows, which are to be filled in with stained-glass; the chancel is similarly lighted, and two eyelets on the west side lend additional light to the aisle. The external doorway is at the south-east corner under vaulting of tribune, and an internal door at the end of the aisle gives communication to the castle. Altogether the chapel is a beautiful specimen of the Early English style. The great circular tower forms a striking feature in the west elevation. This tower, which for boldness of conception, sturdiness of outline and massive construction has probably no rival in the country, rises to the height of 100 feet to the top of the parapet, which is embattled. By far the largest and finest room in the castle is the great hall, which in length measures 133 feet and in width 38 feet, its height to ridge of roof 57 feet. It has a massive oak hammer-beam roof open throughout, with which it is covered. Over the fine screen at the north end is the minstrel gallery; there is a smaller gallery at the opposite end. The fine two light windows and the great bay window with their Geometrical glazing and armorial bearings are most effective.

Leaving the hall the main gallery of the south front is entered. This gallery is in the centre of the block, and runs from east to west throughout its entire length. It is 197 feet long, 11 feet wide, and has an arched and groined ceiling. At the south-west angle is another fine tower. From the ground to top of parapet it measures 138 feet, and when finished, unlike its neighbour, it will have a bold machicolated overhanging embattled parapet. The first room of importance on the south side, traversing the gallery eastward, is the new dining-room, which, again, is unfinished; in length it is 60 feet, in width 23 feet, with a height of 34 feet to the highest point of the semi-octagonal ceiling. It is divided into seven bays, the ceiling being of panelled oak with moulded ribs. Underneath is a smoking-room, with lavatory adjoining, and above are bedrooms. Opposite the dining-room is the grand staircase, which occupies a space of about 24 feet square; the stairs are 6 feet in width, and run round three sides of the square, carrying a richly moulded marble handrail in newel posts, surmounted by shields and supporters. The roof is groined with moulded ribs and chalk. On the west side is a beautiful niche for a statue, and above, in the centre bay of groining, are life-size statues of St. Henry and St. Flora. The staircase is lighted by lancet windows; the height to springing of groin is 33 feet and 46½ feet to point of same, and the staircase is flanked externally on the two angles projecting into court by a turret with stairs from ground floor to roof. Next in order comes the large drawing-room, 54¾ feet by 24½ feet, and 19 feet 9 inches high. It is lighted from the south by three deeply recessed two-light cusped and transomed windows, in a wall 7 feet in thickness. The ceiling is flat and of panelled and carved oak, and the massive oak cornice is richly embellished with shields and armorial quarterings of the Duke of Norfolk and the Earldoms of Arundel and Surrey; the smaller drawing-room adjoining is similar to the room just described.

There is a marked difference internally as regards the style of architecture in the east wing of the castle. The ante-room of the library is 27 feet by 22 feet and 15 feet high, the ceiling being of plaster of the Tudor period. The library measures 117 feet in length and 21 feet wide; it has a gallery running all round, and contains perhaps one of the largest private collections in the country. The whole of the internal fittings are of mahogany, and mahogany columns divide it into bays, each bay having a three-light window above the gallery on both the east and west sides, with the addition on the latter of a fine oriel window the whole height of the room. Next to the library is the billiard-room, which is lighted by fine lancet windows, and the ceiling is of oak. The breakfast-room adjoining is finished in a style corresponding with that of the billiard-room. The north drawing-room is a fine room, 50 feet by 23 feet 3 inches, lighted on the east side by lancet windows and by a fine bay window at the north; the ceiling is of oak. At the north-east angle is a tower, 19 feet square and 66 feet high, dating probably back to the sixteenth century. At the opposite or north-west angle is an octagonal turret, with spiral staircase, giving access to a small terrace garden, from which a flight of stone steps leads to the flower garden, which was probably the old tilting-ground of the castle. The space is enclosed on three sides by a curtain wall with rampart wall, having embattled parapet and small towers on the south-west, and within a short distance of the keep stands "Bevis's Tower," which, together with the curtain wall, has been carefully restored.

The Fitzalan Chapel, founded by Richard Fitzalan, Earl of Arundel, about 1375, has lately been most carefully restored, and is full of interest, containing the tombs of many Earls of Arundel for the last five centuries. The chapel suffered much wanton destruction during the siege of Arundel by Waller's army in 1643. On the south side is a small mortuary chapel, scarcely yet complete, and erected by the present Duke in memory of his father, Henry Granville.

The Bishop of St. Asaph has resigned the office of vice-president of the Cambrian Archæological Association, and has also withdrawn his name as a member.

HAIGH HALL LIBRARY.

THE members of the Library Association were invited to Haigh Hall, Wigan, the Lancashire seat of their president, the Earl of Crawford. The magnificent library was examined with great interest. The chief features of the unique collection of which the Earl of Crawford is the possessor are the manuscripts, early printed books and examples of metal and ivory bindings. In view of the visit of the Association a special catalogue had been printed.

After the luncheon the Earl said it might be appropriate that he should give them a short summary of the history of the Haigh Library. Practically the library was commenced by Mr. John Lindsay, who was one of the Octavians of Scotland, about 1580. When he had retired from the active part of his life (he was, as one of the Octavians, one of the eight rulers of Scotland in the time of the minority of James the Sixth of Scotland and First of England) he went into the kingdom of Fife, and bought a small place near Cupar. Ever since that time everybody in Scotland had a small place near Cupar; the phrase across the border was well known. He had a certain number of books which he brought to the old place, and also a very large number of manuscripts of distinguished men of Europe with whom he had had to do in his official capacity. He was succeeded in due time by his eldest son, Sir David Lindsay, of Balcarres, who was greatly devoted to book collecting. He amassed a very large number of books, of which they had seen specimens in the billiard-room of the hall that day. He was practically the last book collector of the family. So the library went on, and in 1680, or thereabouts, it was considered one of the greatest libraries in that part of the country. Sibbald, in his "History of Fife," mentioned the Lindsay Library as the great "bibliotheca" in Scotland. Drummond, of Hawthornden, sent the first copy of his "Flowers of Zion" to Lord Balcarres, with the hope that "he would receive it and allow it to stand upon the shelves at Balcarres—no unworthy place—the place where he had been so well received, and where he had seen so many old books." Things went on and succeeding Earls of Balcarres were soldiers and spent the greater part of their time abroad. The Rebellion came and passed. The growth, again, of the Stewart feeling in Scotland arose and culminated about 1715. It found his ancestors arrayed on the side of the Stewarts. Casting about as to what would be the best thing to do in order to save somewhat in case there was a wreck of his political prospects, the then head of the house gathered his most valuable papers and letters, and, making a parcel of them, went with them in his arms to the Advocates' Library in Edinburgh. He made them over to that library, and as the Balcarres papers they might still be seen there. There was no doubt whatever that had they been in his own library they would have provided an unrivalled field for the autograph collector, for they included, for instance, sixty or seventy letters of Mary Queen of Scots, all addressed to members of the family. The period of 1715 was a bad time for Scottish nobles who kept with the rightful sovereign. Afterwards, what between fines, the breaking down of commerce of every description and the poorness of the country, everybody was very low, and, still worse, there was a new outbreak a few years later in 1745. It was a fortunate thing for the family that the representative at that time was a minor, and consequently they were able to tide over without further disaster. That earl was afterwards a soldier, and spent the greater part of his life in foreign service fighting against the Turks in the Austrian and Polish forces, and founding a career for himself as a general. Towards the end of the last century, or rather before that, James Earl of Balcarres married at a very late period of his life and had a large family. Amongst them was the Lady Ann Lindsay, who subsequently became Lady Ann Barnard, whose picture they had seen, but who had better claim for their recognition as the authoress of the ballad "Auld Robin Gray." Her elder brother, Earl Alexander, again a soldier, a leader in politics and a governor in foreign parts, passed most of his time abroad, and during the time he was away he regretted to say that his mother, the old Countess of Balcarres, practically allowed the whole of the great library at Balcarres to be dispersed, broken up and given to the buttermen, who used the books for packing, &c. The result, he believed, was that there were not more than sixty volumes of the old collection in existence. The books had the arms upon them, and those present could imagine that whenever any of them happened to come into the market he made a struggle to get them. His grandfather, Earl Alexander, when he came to Haigh, had about 3,000 books which came to him by his wife. They were brought there, and practically formed the nucleus of the collection which the members of the Association had been able to see that morning. His father commenced collecting books at an early age. He prepared lists of what was desirable to collect and organised arrangements all over the Continent whereby he was enabled to get the books he was looking for. The library, as they would have seen, had a little of everything in it. His father desired to lay the foundation of a library practically of universal knowledge, so that any person wishing to acquire any information upon any subject might be able to go to its shelves and find the foundation of that subject. In a great public library such as that in the British Museum, and in others worthy of the name, they not only obtained the foundation of a subject, but they could follow it through all its ramifications. He held that the beginning of a big private library should be of such a character that they could obtain guidance upon any subject, leaving it to the individual who came after to develop special points which he desired to make his own. Acting on that principle, his father spread his net very widely, and he acquired anything he could find as a foundation, leaving it to his successor to fill out and develop it on such especial lines as he desired. It was of course a great advantage to any library that there should be two possessors of it consecutively who took the same interest in it. He was proud to think that he had been allowed to follow in the steps of his father, and still more proud was he to think that his eldest son would follow in his steps. They would have seen a fine collection of Oriental manuscripts in one of the rooms. They were there for the reason that a knowledge of the literature and learning of the East could only be found in manuscript. At the time the books were collected, and indeed at the present time, they could number the Oriental presses on their fingers, and fifty years ago there were but two Oriental presses in the world. At that period even the books were prepared by a process of lithography. Since then there had been a great advance in the reprinting of Oriental works, brought about by the Asiatic Society of England and of other nations of Europe. Still, however, as he had said, the vast proportion of knowledge of the literature of the East could only be found in manuscript, and therefore they had done their best to keep up the literary side so far as Orientalism was concerned in its original form, in manuscript. Again, a great portion of the library was in far-off languages, such as Chinese and Japanese. He believed he was right in saying that, so far as private individuals were concerned, his Chinese library was the largest in existence. If they were to speak of it as a Chinaman would, they would be able to say it consisted of 120,000 volumes, but, according to our more modest western diction, he might tell them that it contained about 12,000 volumes. With regard to manuscripts, his father, in his collection of manuscripts, contented himself with very few; he did not desire to go in for many Occidental manuscripts. There was, he thought, no necessity to go to those manuscripts in order to find learning, because probably all of them, whether in the Latin, Greek or other civilised language, would be found somewhere in print. He (Lord Crawford) took a rather different view of the matter. He felt great interest in palæography—in the history of writing and illumination—and he looked out for good specimens of handwriting from the earliest times, in all languages and all characters. Another matter he was interested in was what he called broadsides—things that were printed to-day, stuck on the walls in the afternoon, and torn down the next day and lost. There was no doubt that there were more materials to be found for the history of a country in the small things printed—little pamphlets, broadsides, &c.—than in other directions. They first became an item of local news, then they got into papers and pamphlets, and then into the county history, but the county history did not give the authority. He had found the greatest pleasure in going into byways, small shops, paper factories and such places and finding these things. He had thus become possessed of a large collection of proclamations, including seven proclamations that were issued in connection with the Gunpowder Plot. There was also in the library a large collection of Papal Bulls, amongst them one by Pius IV., in 1580, excommunicating Queen Elizabeth. That Bull was absolutely denied by historians at the time. An idea got abroad in this country that Queen Elizabeth had been excommunicated when she came to the throne, but it was strenuously denied by Rome at the time because she did not feel powerful enough to issue it. However, there it was at the present time. He had also in his own way developed the history of the French Revolution, and he possessed thirty or forty proclamations relative to the wars of Napoleon, printed in the language of the particular country and in the language of France in parallel columns.

Mr. Alderman Rawson proposed the health of the Earl of Crawford. He said the present was a very remarkable year in the history of the Library Association. It was remarkable for three things. First, it completed its twenty-first year. Secondly, it had been able to secure a charter of incorporation; and thirdly, they had as their president the noble lord who had entertained them so munificently that day. They had to thank him for many kindnesses, intellectual and physical, and in their name he tendered to his lordship their warmest acknowledgments.

The Earl of Crawford replied, and the company adjourned to the grounds, where a photograph of the party was taken.

CUMBERLAND AND WESTMORLAND ARCHÆOLOGICAL SOCIETY.

ON Wednesday, August 24, the Cumberland and Westmorland Antiquarian and Archæological Society visited Warwick, Wetheral and Corby.

Warwick Church.

When the party had reached Warwick Church by the picturesque walk under the trees, says the *Carlisle Journal*, the Rev. W. Blake gave a short account of the edifice, after which Mr. C. J. Ferguson read the following paper :—

The interesting church of Warwick is remarkable in more characteristics than one. It is remarkable in England to find a church of so completely developed type of primitive plan finished with an apse or circular east end in the Italian manner. It is remarkable to find a church of its simple plan laid out on so large a scale. It is remarkable to find a country church with a western arch of Norman type of such great size on so large a scale and completely encased in stone. It is remarkable to find a country church with a battered or sloping plinth after the manner of a castle. As regards its plan. It is generally accepted that the plans of our churches came to us from two sources : from the early Celtic Church in Ireland, where they built in stone and wood, and naturally adopted rectangular forms, and from the influence of the great Roman civilisation where they built in concrete a monolithic form construction with roofs of like construction, which took the form of semicircular vaults, domes and semi-domes, so that in ancient Rome after the time of the Republic, whenever a place of honour was to be formed beyond the main lines of the building, it took the form of a semicircular projection roofed with a semi-dome or half-saucer of concrete. Many of the primitive buildings of the Celtic church still remain in Ireland and Scotland :—1st, a rectangular building of one chamber only ; 2, a similar chamber with the addition of a sanctuary to it ; 3, a similar chamber with the addition of an enclosed space between the nave and sanctuary for a choir. The Celtic manner of building eventually prevailed in England. After the close of the missionary period which followed the mission of St. Augustine no churches were built on the Italian plan, but the Italian influence still showed itself in the occasional use of the apse, the wider sanctuary, the wider arch. At the earlier churches of Reculver, St. Pancras, Canterbury, St. Martin's, Canterbury, the apses have no chancel between them and the nave, neither had the greater apses of the monastic church of Carlisle. As regards the great scale on which it is laid out and its magnificent western arch, I have here a couple of dozen plans of ancient churches of the diocese—small churches like Over Denton and Cliburn and Crosby, great churches like Brough in Westmorland, Hawkshead. Only one, the great church of Hawkshead, exceeds this church in the width of its nave. Warwick Church is 21 feet 6 inches wide ; the monastic church of Carlisle 22 feet 6 inches. Hawkshead is 23 feet ; whilst of the smaller ones Newton Arlosh is 12 feet wide, Wastdale is 13 feet 6 inches wide, Over Denton 15 feet wide. We all know the process of development, how first the chancel was lengthened, then a north, a south aisle, a clerestory, a lengthening of the nave, a western tower, and so forth, but none of these things happened to Warwick Church. It was laid out on what you may call the largest scale of the primitive churches of the district, but after the twelfth century it made no increase. I take it, therefore, that Warwick was an important place in the twelfth century and earlier, and was outrivalled later on. As regards the great western arch, if you look at the sizes of the chancel arches of the smaller churches of the diocese of the twelfth century, though sufficient for such churches, you find that they vary from about 4 feet 6 inches at Isell, Kirkbampton, and Gilcrux, which are respectively 7 feet, 5 feet and 4 feet 6 inches wide. We find at Warwick an arch of 9 feet in width and 4 feet thick. At the less important position at the west end its existence can, I think, only be accounted for on the supposition that it was intended to convert the church at Warwick into a great church, with a great west tower, and aisles and arcades along its sides—a project that was never accomplished, but that later on they found it necessary to curtail the scheme and to rebuild the nave with no further additions to it. Not only so, but they found it necessary to make those walls defensible with few and narrow windows, with a battered base and with parapets. The church is dedicated to St. Leonard, the patron saint of prisoners and slaves. The only other churches dedicated to this saint in the diocese are the churches of Cleator and Crosby Ravensworth, the latter being rather doubtful. The introduction of the cultus of this distinctly Gaulish saint must, in the opinion of the late Canon Venables, be ascribed to Norman influence. A point to be further noticed is that on the face of the buttress on the south side of the church is to be found the rebus of Will Thornton, some time prior of Wetheral, and afterwards, I think in 530, abbot of St. Mary's, York.

Wetheral Church.

The party drove by the Plains Road to Wetheral Church. Mr. C. J. Ferguson read the following paper :—

Wetheral Church is thoroughly English. In no other country than England, as far as I know, is a building like this to be found, not even in the sister kingdom of Scotland, for after the fourteenth century the practical side of the English character developed a method of building in stone peculiarly fitted for stone construction which, from the mechanical arrangement of its piers, has been called Perpendicular. In this no other nation followed us, and although I do not propose to claim for Wetheral that it is an example of that particular phase of Gothic, it goes a step further, and at a time when other nations had with the revival of learning adopted a Renaissance of Classical architecture, England still stood to its guns, and created that charmingly domestic style of building a further development of Gothic architecture which we call Tudor, the last phase of Gothic—the term that gave us Hampton Court, that gave us Tamworth Hall, that under the influence of Thomas, Lord Dacre, converted Naworth Castle from a fortress into a domestic hall. Here then we find it as a church, and although at first sight we might imagine that with the exception of certain modern additions to it Wetheral Church had been built anew under the influence of Abbot Thornton, this is not the case, for if we examine carefully its plan we find that its walls are of different thicknesses which imply a difference in date, and if we compare it with other plans of the ancient churches of the diocese, which I again exhibit here, we find that Wetheral had another English characteristic. It attained its present size and completeness by a process of growth and development. It began probably as a church of two chambers only, much like to Upper Denton Church, and the first addition to it would be the lengthening of the chancel, when it became like Kirkbampton church in plan ; it then had a north aisle added to it, when it became like the great church of Brough-under-Stainmore. It then had a south aisle added to it, when it became like Irthington in plan. I take it that then it had attained to very much of its present plan without the modern additions since made to it—that from its great width and the absence of a clerestory it was dark and gloomy, and much repaired and patched up, and that under the influence of Abbot Thornton, whose name we find writ in full on the south door of the chancel, the chancel was rebuilt, a clerestory was added, new windows were inserted in the aisle walls and the aisle walls were refaced. Later on a poor little tower was built at the west end, poorer than any of the towers of the ancient churches of which I have a record.

Canon Bower next gave a full description of the recumbent effigies of Sir Richard Salkeld and Dame Jane his wife, only child and heir of Roland Vaux, of Tryermain, about the year 1500, which are in the church.

St. Constantine's Cells.

After having thoroughly inspected the church and the Nollekens statue therein the party proceeded on foot to Wetheral Abbey and on through the woods to St. Constantine's Cells. When the party had reached the cells, Mr. Hesketh Hodgson contributed the following paper on the subject :—

Little is known of the construction or early history of these caves. They are not mentioned in the register of Wetheral, and it is hardly to be expected that they would be. They are, however, as you see, excavated by the hand of man, being hewn out of the rock, and are clearly not natural caves. A letter from Mr. Milbourne, of Armathwaite Castle, then Recorder of Carlisle, which is printed in "Archæologia," vol. i., and in Hutchinson's "Cumberland," vol. i. pp. 160-62, was read before the Society of Antiquaries in London on April 17, 1755, in which he says that "Mr. Camden says that 'here (*i.e.* near Wetheral) you see a sort of houses dug out of a rock, that seem to have been designed for an absconding place.'" To which his annotator and editor, Dr. Gibson, Bishop of London, adds, "If not for some hermit to lodge in, being near the monastery." It is clear, however, that Camden had not seen the cells, and was misinformed about them, as he writes of them as consisting of two rooms, one within the other, whereas there are, as you see, three rooms, each having an independent entrance from the gallery in front. Mr. Milbourne says that they were generally called St. Constantine's Cells (Wetheral Priory being, according to Denton, dedicated to St. Constantine), or, by the country people, Wetheral Safe-gaard, which he thinks confirmatory of Camden's opinion. Dr. Prescott in his edition of the Register of Wetheral also thinks that their position "points to their occupation as a place of concealment and safety." When Milbourne wrote they were, as he says, "difficult of access, the only way to come at them being by a steep descent of several yards along a narrow and difficult path." They are approached by a gallery formed by a wall which is built before the cells, which Mr. St. John Hope, the assistant secretary to the Society of Antiquaries, considers to be probably of the fourteenth century. There were three windows and a chimney in it; probably the space between it

and the rock was covered by a roof, which would render the cells a tolerably comfortable dwelling. It is likely that these cells may be as old as the time of the Romans, who probably quarried the rock here, and that they have subsequently been improved by the monks. There are marks of bolts which show that the cells had doors. A little to the south of the caves, and about 12 feet above the river, there is a Latin inscription which Dr. Bruce read ("Lepidarium Septentrionale," p. 233, No. 468) as

MAXIMVS SCRI(P)SIT
and
LEG XX VVCODICIVS SIVS

which he interprets in part as Legio Vicesima Valens Victrix, but he gives the rest up. The Corpus Inscriptionum suggests CONDRAVSIVS. In Milbourne's time the inscription was followed by a rude figure of a buck or stag. He thought that the first line, MAXIMVS SCRI(P)SIT, was modern, and observes that "it is a yard distant from the rest of the inscription." In July, 1868, the *Carlisle Journal* published an interesting collection of the names and dates inscribed on the rock, which had been made by a gentleman (Mr. Wake of Cockermouth) then residing at Wetheral. They begin in 1573, and are continued by the collector to 1796. Among them occur many names which are still familiar to us; for instance, Salkeld, Skelton, Sibson, Brisco, Maxwell, Dixon, Railton, Dobinson and others still known in the neighbourhood.

Subsequently the members retraced their steps and crossed the river Eden to view the Dovecote at Corby Castle.

Excursion to Borcovicus.

The programme for the second day's proceedings had been arranged to include a visit to Borcovicus (Housesteads), on the invitation of the Society of Antiquaries of Newcastle, to meet the members of that Society and of the Durham and Northumberland Archæological Society, for the purpose of inspecting the excavations which have been made during the past two months under the superintendence of Mr. R. C. Bosanquet, of Rock, by the Society of Antiquaries of Newcastle. Borcovicus is in a better state of preservation than any of the other military stations that were built to defend the line of the great wall of Hadrian. It covers an area of about 5 acres, and has all its walls standing to a considerable height. The station is in the form of a parallelogram, with the corners rounded, and has a fortified entrance situated midway along each wall. There are numerous remains of foundations of buildings both inside the station and on the ground lying to the south, while chiselled stones and broken columns lie scattered about. Borcovicus was garrisoned by the First Cohort of the Tungrians. The modern name of the station is Housesteads, and it lies about 30 miles west of Newcastle-on-Tyne, near the main road to Carlisle.

The excavations were carefully inspected, and a visit was paid to the Roman wall itself, which at this place seems to be in a perfect state of preservation so far as the eye can see over the ridge. Subsequently the party met in the prætorium, where Dr. Hodgkin described the camp. He said that at one time there were a great many statues at that place, and the museums in Newcastle, and no doubt Carlisle as well, had been enriched by the things found lying ready to hand about 100 years ago. Unfortunately the excavators of that period did not go to work scientifically. They thought they had discovered the prætorium at this camp during the excavations of the past two months. The work had been superintended by Mr. Bosanquet, who had had much experience in the Greek island of Melos. It so happened, however, that the camp was the site of the richest pasture on the whole farm, and naturally the tenant did not want to see all the best pasture taken from him. Mr. Bosanquet had also had the assistance of Mr. Dickie, a Scotchman, who had done the excellent plans of the camp which they saw before them.

Mr. R. C. Bosanquet next described the excavations. He said there was a Roman well east of the camp, and with regard to the so-called amphitheatre to the north-east, they had run a trench through it which showed that originally it was a free-stone quarry. It had been used, however, as it contained a fair amount of Roman pottery. There was the usual mile-castle, a third of a mile to the west of the camp, and there was the old cave which was opened at the beginning of the century and robbed of its altars. They had now obtained a plan of it and had secured some antiquities which the original explorers missed, viz. three figures and two altars. They had also attempted to pump out the largest Roman well in the valley, and by cutting a trench had discovered parts of Roman oak piles and Roman oak floorings. In the camp itself most of the streets ran east and west. The prætorium corresponded closely with the forum at Chester. The official building, the headquarters—the orderly room, as they might call it—was always in the middle of these camps. They had found a sculptured door head with a design representing two birds and two snakes, which had not yet been properly interpreted. They had also come upon a granary, at one side of which an oven had apparently been constructed at some time or other. There also appeared to be another granary and a block of buildings composed of small rooms. In some other camps an underground strong room had been found, but at Borcovicus there had apparently been no attempt to construct one. The columns in the prætorium found here were unique on the Roman Wall. No two bases were exactly alike. Among the antiquities they had found in the prætorium were a silver brooch, a bracelet and some coins, which helped them to date parts of the building. In one corner of the building they had found the whole floor of the north-western room strewn with arrows. They had already counted over 1,100, and probably there would be about 1,200. Most of them had a small portion of wood adhering to them, and they were of various sizes. An astonishing quantity of nails were found with the arrows, and it seemed as if during some siege an arrow-smith had been engaged converting scrap iron into arrows. It was certain that after the chamber fell in it could never have been again regularly occupied. Two small inscriptions had been found, one having two names at right angles, while the other, a small altar not more than 8 inches high, had an inscription which had still to be deciphered.

After Mr. Bosanquet had described the excavations the antiquarians dispersed.

THE SANITARY WORK OF THE ROMANS IN LINCOLN.*

FROM the numerous Roman remains which have come under my observation during my residence in Lincoln, I have arrived at the conclusion that the old masters of the world had good and sound ideas on sanitary matters. I therefore venture to lay a few facts to show my reasons for this opinion before the learned members of the Royal Institute of Public Health. Although Julius Cæsar invaded Britain 55 B.C., the Romans had not penetrated into Lincolnshire until about the year 70 of this era, but no sooner had they settled down after subduing the country than, with their usual skill and energy, they began to build stations and houses, to till the soil, to raise sea-banks, to make roads and to cut dykes and canals. Many of the towns and villages built by the Romans in Lincolnshire remain to the present day, and several of their great works are used for the purposes for which they were made. The Roman dykes and drains, such as the Great Carr Dyke which ran from Lincoln to Peterborough, forty miles, parts of which are still in use, and the Foss Dyke that connects Lincoln with the river Trent, were not only works of the greatest utility, but were also land cuttings of vast sanitary importance, and must have immensely improved the health of the people through whose districts they were engineered, by drawing off stagnant and decomposing water. As makers of roads the Romans were hardly ever surpassed, and many of their old highways remain notable examples of their skill in the art. They generally laid the foundations with large stone slabs or concrete, which in a great measure prevent the road rutting deeply. Even in the construction of roads the Romans in their day rendered good services towards the advancement of the sanitation of the country. These old world highways are still the best we have, and are much used, especially by bicyclists.

Of the numerous towns built by the Romans Lindum Colonia was one of the most important. In these days Lincoln is divided into uphill and downhill, but in the time of the Roman occupation it was altogether uphill, and from its elevated position looked down southward on the valley below and the river Witham flowing tranquilly towards the sea. The form of Lindum Colonia was that of a parallelogram divided into four equal parts by two streets which crossed each other at right angles. At the extremity of each street there was a massive gate, one of which still remains at the north end of Bailgate. Bailgate is the northern of the four original streets, and is one of the oldest streets in England. It was the Sackville Street of Lindum Colonia, for in it were most of the principal buildings, the great basilica among the rest. The station was encompassed by an embattled wall, about 12 feet in thickness and from 20 to 25 feet in height. On three sides there was a deep ditch, but on the southern side the steepness of the hill rendered a fosse unnecessary. In the course of time the Romans advanced the southern wall as far as the present Stonebow. Roman Lindum possessed two of the ingredients necessary for perfect sanitation, namely, a good drainage and an abundant supply of fine water. The drainage, indeed, seems to have been perfect, if we may judge from the number of sewers that are found wherever deep diggings are made. The large sewers were constructed of bricks and cement, and the smaller drains of glazed earthenware pipes of about 2 feet in length, joined together by rings of cement placed outside. Standing, as Lindum did then, for the most part on the top of a hill, it was advantageously placed for the escape of sewerage into the river below, which probably was a tidal river at the

* A paper read at the Congress of the Royal Institute of Public Health by William O'Neill, M.D., of Lincoln.

time of the Roman occupation. Water was conveyed into Lindum by conduit pipes from springs on the high grounds in the neighbourhood. I had an opportunity, a few days ago, of examining some of these conduit pipes. They are made of dense well glazed red pottery of a superior kind. The pipes are about 4 feet in length, 8 inches in diameter, and are united by joints similar to those of a flute. Watercourses constructed of pipes like these could hardly, I think, be surpassed in a sanitary point of view. One of the springs which was utilised by the Romans is two and a half miles from the city. The water is splendid, and the engineering skill displayed to raise the precious fluid a sufficient height to force it through the pipes is most remarkable, and can even now be appreciated. Several large cisterns have been discovered for the storing of water, and I am inclined to think that water was even laid on in some of the principal houses.

Lindum Colonia had its vast granaries against the time of need, its hypocausts for heating and warming purposes, and its sudatories or Turkish baths. Two of these latter have been found, one of which had been a grand place. It had its stone pillars, its plastered walls painted red, blue and other colours, and its floorings decorated with white tesseræ worked into various patterns. The Roman youths of Lindum, and perhaps some of the British young men also, engaged a good deal in out-of-door healthful and invigorating exercises. They indulged in chariot-racing and foot-racing on the Carholme, where at the present time sportsmen hold the great horse races. The Roman youths were also given to the sport of hunting wild animals, and of coursing the hare. I have a vase of Roman ware, made at Upchurch, in our country, on which is represented in relief two greyhounds in pursuit of a hare. The Romans did all they could to preserve the health, as well as the olfactory nerves of the people who had to come in contact with the dead. It would appear, however, that there was some diversity of opinion as regards the merits and demerits of burying and burning. Cremation was practised by the Romans in Lincoln and so was burial, for stone coffins have frequently been dug up, and some of them have been lettered and dated in the Latin language, almost similar to the way tombstones are engraved at the present day. The Romans seem to have been firm believers in disinfectants, and especially in lime and charcoal, for they used them in great abundance in coffins and other places where disagreeable smells and decomposition were likely to take place. I have observed that several coffins discovered in Lincoln, although very massive, were generally too short for the bodies deposited in them, but to obviate the difficulties arising from this, the bodies were laid prone or sideways with the legs bent on the thighs.

In 1884 an interesting discovery of Roman remains was made about 100 yards north of the cathedral. Workmen, whilst clearing out the foundations of an old house for the purpose of rebuilding it, laid bare a crematory furnace, near the door of which lay a quantity of charcoal ready for use. The charcoal looked as fresh as if it had only been made the day before. About 8 feet distant from the furnace, but on a lower plane, the men next brought into view a small chamber or sarcophagus 6 feet long, 4 feet broad and 5 feet deep. It was built of stone, and had a heavy stone lid. When the lid was raised there were found underneath a layer of fine sand 14 inches thick, under this a layer of pulverised charcoal, and under the charcoal a layer of lime, embedded in which were ten one-handled vessels, in shape somewhat like a water-jug or coffee-pot. They were in an upright position excepting one, and all contained charred bones and ashes of the dead. The vessels were in various colours, but none of them in the slightest degree approached in form the conventional shaped cinerary urn. Eight or 10 feet north of the sarcophagus the workmen next laid bare an arched stone doorway 6 feet high and 2 feet wide that opened into a small room in which were found five or six very large handsomely shaped urns. They also contained charred bones and ashes, and were of a dark colour, and some of them had ornamental designs impressed on the pottery. The vessels were embedded in lime, and the contents were covered over with powdered charcoal firmly pressed down. On closely examining one of the urns I came to the conclusion that it had been twice fired. It was, therefore, probable that after the body had been cremated in the ordinary way, the remains were collected and placed in this large urn, and it, with its contents, again subjected to the fire of the furnace.

Of the sanitary arrangements of the private house of a country gentleman I am happy to be able to give a few particulars which I gathered from having inspected the remains of a fine villa that was discovered a few years ago in the Greetwell Fields, about a mile east of Lincoln. The villa was situated on a hill and looked southward, and the main body of the buildings formed a square, each side of which measured 40 yards. The remains were 2 or 3 feet below the surface of the ground, and consisted of little more than the floors of the basement apartments. The southern or front of the house was composed of four apartments of about 30 feet each in length. But the front was extended by a corridor (south corridor) 10 feet broad, which ran 40 yards eastward. In the back or north of the front rooms there were several others, all the floors of which were beautifully inlaid with white, red and blue tesseræ, in carpet-like patterns, no two being alike. There was one large square room, I should say a business room, that was floored with red tiles, 15 inches by 10½ inches. These tiles bore a checkered impressed pattern, and were similar to those mentioned by Pliny. It was difficult to ascertain the kind of material that formed some of the partition-walls of the inner rooms owing to decay, but I think that they were constructed of wood and plastered with cement. From one of the front apartments I have endeavoured to describe, three or four neat stone steps led down to a bath-room, a room which was considered of importance by the Romans, who frequently received visitors whilst in the bath. This room was the most advanced structure of the villa, and faced southward. From east to west the room measured 15 feet, and from north to south 10 feet. From the east end of the north wall the bath extended 7 feet southward along the east wall. The bath was 3 feet 6 inches in breadth, and its sides rose about 2 feet from the floor. The floor of this handsome little room was made of white china clay tesseræ of about 1½ inch square, and which were firmly set in concrete. Similar tesseræ were extended up the sides of the walls to form a dado, and tesseræ were also placed on the outside of the bath, but the surface of the inner side was quite smooth. Two or three feet north of the bath-room was a very deep well 7 feet in diameter; the water of this well no doubt was used in the bath-room, and from the bath-room a well-constructed drain pipe carried off the waste water. I have seen the same sanitary contrivance in the basement room of a Roman house that was laid bare in Exchequer Gate, Lincoln, near the west front of the cathedral. The walls of the bath-room in the Greetwell villa were painted a creamy white, and the decorations were executed in reds, yellows, blues, greens and black. Another bath and well were found on the premises, but these I did not see. The most peculiar features of this beautiful residence were the apartments designated by the late Precentor Venables "corridors." There were four corridors, which extended from the main buildings. One of them ran east and the others extended north for a distance of 50 or 60 yards. In breadth they averaged 10 feet, and their tesselated pavements were beautifully executed. The tesselated pavement of the east corridor showed high artistic skill, and was the finest piece of work of the kind I have ever seen. It is difficult to say for what purpose these corridors were built, but most probably they were intended for healthful exercise and recreation. Men and women coming from sunny Italy must have felt the variable climate of Britain most trying to their constitutions, but in corridors like these they could take their constitutionals in defiance of cold fogs and rain, without much risk of catching what is now called a "chill.' This villa must have been the house of a Roman gentleman of taste and opulence. He built it in a good situation on a bed of concrete, in some places 3 feet thick, roofed it with the finest tiles and made the drainage of the premises, as skilled workmen said, "perfect."

TERRA-COTTA IN ARCHITECTURE.*

IN speaking of the treatment of terra-cotta in architecture I would commence by using the remark of one who has said, "One of the most essential functions of architecture is expression, and all architecture should be, as far as possible, expressive of two things—its purpose and its construction. The question of purpose affects the general design of a building; the question of construction affects the special uses of the several materials composing it," and terra-cotta really demands a special treatment at the hands of architects in order to produce the most satisfactory results. The uses to which terra-cotta can, with more or less propriety, be applied are so many and so various that it is somewhat difficult to define where its application should commence and where it should cease. The plasticity of the material, whilst it gives great liberty and freedom to the designer and modeller, and as to artistic execution is capable of almost endless variety of treatment, yet from the nature of the manufacture it would, looking at it from the most successful and economical point of view, demand a limit as to the size of the individual blocks themselves. Terra-cotta should not be made in too large pieces, as the larger the piece the more difficult it is to handle in the manufacture and the greater the risk in the burning, and although I have seen some extraordinarily large columns and other work made by the North-Western Terra-Cotta Company and other companies, and which, as special pieces to suit a special purpose, were very good, they must have cost much

* From a paper read before the Cincinnati Chapter of Architects by Mr. J. Joiner.

labour and trouble and time in producing. I would not advocate pieces that would cube up more than 6 feet or 7 feet, unless it is absolutely imperative for the sake of construction, and as much under this as possible, and the more readily and more easily a terra-cotta block can be handled in the manufacture the better the result, and I think the architect would be much helped in making his design and application of terra-cotta work generally by paying an occasional visit to terra-cotta factories and becoming acquainted in some measure with the manufacture, if only on the score of the old adage that "Ignorance is expensive, but knowledge is power." The most pleasing effects from the use of terra-cotta will most surely come from those buildings that have been especially designed for terra-cotta, because much can be done by the architect in studying his design to counteract and allow for any little irregularity of shape and outline contiguous to the material, for whilst it would be very difficult to design anything in terra-cotta that could not be built in stone, yet a building could be designed for stone which could not be reproduced in terra-cotta in the same way, and right here is where the co-operation of the manufacturer would be of much assistance to the architect. The matter of design and the manner of treating terra-cotta are subjects for much thought, and require not only artistic ideas but the exercise of good judgment, for if terra-cotta is made to imitate stone it immediately becomes a counterfeit; it is a deception, hence it is an error, and one of the greatest pleasures which arise from the use of terra-cotta in architecture is the satisfaction engendered by the simple merit of the material.

Relation to Brick and Stone.

In speaking of terra-cotta in combination with brick and stone, or in comparison with either one or the other, I would say that terra-cotta has in itself more the nature of brick than stone. It can be used very successfully in combination with either one or the other or both, according to the scope of the design, but its effect is often marred by the attempt to make it an imitation. Mr. Wagner, of the North-Western Terra-Cotta Company, says:—"The great difference between terra-cotta and stone is that stone is ready for its designation after receiving the finishing touch by the carver or mason, whereas terra-cotta, when it leaves the hands of the modeller or presser, has yet to be dried and burnt, and this is a slow process, and one that is not always crowned with success, as a piece of terra-cotta will sometimes warp and twist and crack and be off colour. When stone is in the building it can be adjusted and worked up and the face wrought upon with a chisel, because the body of stone is homogeneous throughout, so that the same identical surface may be produced *ad libitum*, whereas terra-cotta has but one surface, which, once destroyed, can never be restored. Ends and unexposed parts may be trimmed like stone, but the face cannot be touched after burning." In the matter of smaller pieces, in comparison with stone, and the necessary frequency of joints in terra-cotta work, and which may be a point of objection with some architects, I would say this is remedied and overcome by making a lap or cover joint on all washes, and it must be conceded that the class of modelling and ornamentation that is now being produced in terra-cotta is far ahead of the general character of all stone carving, for terra-cotta modellers are not mere mechanics, but artists, and appreciate the value of beautiful figures and graceful lines. And as to the surface finish of terra-cotta, whilst terra-cotta should have its own particular finish, yet, if so desired, any kind of masonic finish can be placed upon the surface of it. Mr. Sullivan, of Chicago, the eminent architect, says, "The artistic possibilities of this fine material are limitless." There are several other important characteristics relating to terra-cotta, and which make it stand pre-eminently to the front as building material, viz. colour, strength, durability, fireproof quality, adaptability for steel and iron construction, and economy.

In speaking of colour there is always a peculiar brightness in the general appearance of all terra-cotta, which I think is due somewhat to the metallic condition of the ware after having been subjected to the high temperature of heat in burning, that lends a more cheerful aspect to buildings than any other building material known. Some twenty years ago two or three colours seemed to predominate, principally buff and red, but in the "eighties" an agitation of colours commenced, and demands for various colours were constantly being made, which demands were met as soon as they could be permanently and practically responded to by the manufacturers, until to-day enough colours can be produced to satisfy the most fastidious taste. I think a mistake is made where the terra-cotta is required exactly to match the stone or brick in colour. If the terra-cotta part of the design has a special "motif" or expression, which it should have, that part of the design should most certainly be expressed in a slightly different shade of colour to the brick or the stone, not too much to make it conspicuous, but enough to bring out the expression of the design readily, and here it would be well to add that architects must not expect perfection in the uniformity of colour in every block of terra-cotta, any more than the same expectation can be fully realised in the use of stone. Much has been said of late upon the subject of "white" or "cream" as a colour, and many buildings have been erected with terra-cotta of these shades of colour, but it has yet to be proved whether these very light colours are the most serviceable to adopt in the atmosphere of our large cities.

As to strength, whilst terra-cotta in itself has immense strength, both by way of support and resistance, yet it is never advocated that it should be placed into buildings in the same hollow condition that it comes from the factory, but, on the other hand, every block should be filled up solid with concrete or brickwork. The first crushing tests of terra-cotta, as far as I can gain any information, were made in the city of London by David Kirkaldy on June 17, 1868, at the instance of Charles Barry, the architect, who had been using 140,000 dols. worth of terra-cotta in one building, Dulwich College, and amongst the many tests that were made I would present this one to your notice:—A 6-inch cube of Bath stone crushed at 88 tons per square foot; a 6-inch cube of Portland stone crushed at 283 tons per square foot; a 6-inch cube of solid terra-cotta crushed at 442 tons per square foot. And which at once declared, at that time, the superiority of terra-cotta over stone in this respect. Mr. James Taylor, in an article in the *Clay-Worker*, reports some crushing tests made in May 1885 by the Boston Terra-Cotta Company, which were eminently satisfactory, and which, in fact, showed a better result than the tests on the English-made terra-cotta of previous years. Mr. Meyenberg, in the same paper, also bears testimony to the crushing strength of this material. Mr. Wagner, in the same paper, says:—"The tensile strength of terra-cotta is about 1,000 lbs. per square inch, compressive strength about 10,000, and if the voids and the solid portions of a hollow piece of terra-cotta were as one to one, it would compare favourably with good stone." Thus it will be seen that terra-cotta is fully competent to sustain its proper proportion of weight in a building. The weight of hollow terra-cotta with braces or reinforcements at intervals, made in the ordinary way, is about 70 lbs. to the cubic foot, but when filled in solid it would weigh about as much as brickwork.

The advantage that terra-cotta has in this respect needs no special proof in this paper, for they are all around us, and if we need a century proof in all ocular demonstration, we must surely wait a little longer. We know that timber will rot, stone will disintegrate, iron will oxidise, and other materials will more or less yield to the destroying influences of the elements, but hard-burned terra-cotta will stand in defiance of all weather.

Terra-cotta is claimed to be fireproof, and from what I understand of the results of our many recent fires terra-cotta did all that was claimed for it in this respect, and this is a very important matter, for in these days of tall buildings, under the present method of steel construction, it is very necessary that such materials be used, and in such a way as to render these "mammoth structures" or modern "beehives" as nearly as possible fireproof; hence the proper thing is to encase the iron-work of the front of the building with terra-cotta entirely, or brick and terra-cotta combined, for stone is not a good fire-resisting material, and encase the iron framing with what is called "fireproof terra-cotta," so as to prevent the heat arising from a fire affecting it, for we know that if iron is not properly protected it becomes the frailest possible material in the event of a fire, but if properly protected it becomes an important factor in all high buildings.

As to the cost of terra-cotta in comparison with stone, and which is the only building material that it legitimately comes in contact with in this respect (for galvanised iron, though much used, cannot be recognised in the category of constructional building materials), I would say that in perfectly plain work it is a sharp tussle between the terra-cotta and the stone, and if it is a work of no repetition stone is liable to be somewhat cheaper, for although the cost of terra-cotta, from increased experience and improved methods on the part of the manufacturers during the past few years, has been much reduced, the cost of stonework, from improved methods of cutting and planing, has been reduced also; but where there is much repetition of the same form, and where any amount of ornamentation is introduced in the mouldings, then the cost of terra-cotta is far below that of stone, and the effect of all such ornamentation is, from the plasticity of terra-cotta as a material in its clay state, far superior to anything that can be produced in stone.

In conclusion, I would like to say a word about setting terra cotta. Much terra-cotta is marred by imperfect setting down by common brickmasons, and it can be at once seen that a good stonemason is the best man to set terra-cotta. He can use a chisel, has been accustomed to set blocks of stone in alignment, and would be much more skilled in this connection with terra-cotta than any ordinary brickmason. Hence a better job could be expected from a workman of this character. Terra-cotta when it arrives at the building should be laid down on

some floor to ascertain the jointing that will be necessary to bring all the pieces together in good form, and thus the setter will become acquainted with each individual block and what it requires at his hands before he puts it into the wall. If a stonemason cannot be obtained, the next best man is one who has been accustomed to lay up best front brickwork. This is the final operation, and requires just as much care and attention as any part of the manufacture.

TESSERÆ.

Charles II. and the Arts.

THE restoration of royalty brought back the arts, not taste. Charles II. had a turn to mechanics, none to the politer sciences. He had learned to draw in his youth ; in the imperial library at Vienna is a view of the Isle of Jersey, designed by him, but he was too indolent even to amuse himself. He introduced the fashions of the court of France, without its elegance. He had seen Louis XIV. countenance Corneille, Molière, Boileau, Le Sueur, who forming themselves on the models of the ancients seemed by the purity of their writings to have studied only in Sparta. Charles found as much genius at home ; but how licentious, how indelicate was the style he permitted or demanded. Dryden's tragedies are a compound of bombast and heroic obscenity enclosed in the most beautiful numbers. If Wycherley had nature, it is nature stark naked. The painters of that time veiled it but little more ; Sir Peter Lely scarce saves appearances but by a bit of fringe or embroidery. His nymphs, generally reposed on the turf, are too wanton and too magnificent to be taken for anything but maids of honour. Yet fantastic as his compositions seem, they were pretty much in the dress of the times, as is evident by a Puritan tract published in 1678, and entitled, "Just and reasonable reprehensions of naked breasts and shoulders." The court had gone a good way beyond the fashion of the preceding reign, when the gallantry in vogue was to wear a lock of some favourite object ; and yet Prynne had thought that mode so damnable that he published an absurd piece against it, called "The Unloveliness of Lovelocks." The sectaries, in opposition to the king, had run into the extreme against politeness ; the new court, to indemnify themselves and mark aversion to their rigid adversaries, took the other extreme. Elegance and delicacy were the point from which both sides started different ways, and taste was as little sought by the men of wit as by those who called themselves the men of God. The latter thought that to demolish was to reform ; the others, that ridicule was the only rational corrective : and thus, while one party destroyed all order and the other gave a loose to disorder, no wonder the age produced scarce any work of art that was worthy of being preserved by posterity. Yet in a history of the arts, as in other histories, the times of confusion and barbarism must have their place, to preserve the connection and to ascertain the ebb and flow of genius. One likes to see through what clouds broke forth the age of Augustus.

General and Particular Ideas in Painting.

Nothing in the art of painting requires more attention and judgment, or more of that power of discrimination which may not improperly be called genius, than the steering between general ideas and individuality ; for though the body of the work must certainly be composed by the first, in order to communicate a character of grandeur to the whole, yet a dash of the latter is sometimes necessary to give an interest. An individual model, copied with scrupulous exactness, makes a mean style, like the Dutch ; and the neglect of an actual model, and the method of proceeding solely from idea, has a tendency to make the painter degenerate into a mannerist. In order to keep the mind in repair it is necessary to replace and refreshen those impressions of nature which are continually wearing away. A circumstance mentioned in the life of Guido is well worth the attention of artists. He was asked from whence he borrowed his idea of beauty, which is acknowledged superior to that of any other painter ; he said he would show all the models he used, and ordered a common porter to sit before him, from whom he drew a beautiful countenance. This was undoubtedly an exaggeration of his conduct, but his intention was to show that he thought it necessary for painters to have some model of nature before them, however they might deviate from it, and correct it from the idea of perfect beauty which they have formed in their minds. In painting it is far better to have a model, even to depart from, than to have nothing fixed and certain to determine the idea. When there is a model there is something to proceed on, something to be corrected ; so that even supposing no part is adopted, the model has still been not without use. Such habits of intercourse with nature will at least create that variety which will prevent any one from prognosticating, on being informed of the subject, what manner of work the painter is likely to produce, which is the most disagreeable character an artist can have.

Figure and Canopy Windows.

Whenever the figure and canopy window is adopted, the canopy, which is as much an integral part of the picture as the figure or group, ought to be represented, not as in old glass, as a mere flat panel of peculiar form, but as an object covering the figure or group, and into which the latter casts a shade, so that the figure or group may be as completely disengaged from the sides of the canopy as it appears to be in sculpture. It is not necessary that the back of the canopy should be made black as the back of a chimney, as in many modern works—there is a notable example of this mode of treating the canopy niches in the ante-chapel of Wadham College—but that an idea of hollowness should be conveyed by perspective and transparent shadow. There is no reason why the back of the niche should not be pierced with open windows, as in many ancient examples, provided a sufficiently strong shadow were thrown under the roof to bring the figure forward, according to the Cinque Cento arrangement of shadows. The old Decorated canopies are frequently so large as completely to overpower the subject placed under them, whilst many of the Perpendicular examples are too rigidly architectural to be pleasing. It would certainly be very desirable to make the canopies in all cases contribute to the effect of the picture as thoroughly as in Cinque Cento glass paintings. Whenever a figure and canopy window, or any design containing large figures, is intended to be seen from a great distance, it is advisable that the figure should either be light on a dark ground, or else richly coloured on a white ground ; for however strongly shaded it may be, the outline of the masses of colour only will be seen from a great distance, consequently the effect will be confused if the outline of the mass of colouring does not coincide with the outline of the figure. This defect is observable even in many Cinque Cento figure and canopy windows, in which it is impossible at a distance to distinguish the figure from the background. Windows so constructed, when the details of the painting are lost in distance, are apt to appear, not like a mosaic, for the pieces of which they are composed are of too large a size, but like a mere congeries of ill-shapen pieces of glass. With regard to small pictures inserted into pattern windows, it would be better to treat them as pictures on mere coloured panels, as, for instance, in the chapter-house at York, than as groups or single figures under canopies, as in Merton Chapel.

Louis Laguerre.

As the assistant and imitator of Verrio, Louis Laguerre's name will be preserved through being immortalised by that unpropitious line of Pope, "Where sprawl the saints of Verrio and Laguerre." The same redundancy of history and fable is displayed in the works of both, and it is but justice to say that their performances were at least in as good a taste as the edifices they were appointed to adorn. Laguerre's father was a Catalan, who settled in France and became master of the menagerie at Versailles. The son being born at Paris in 1663 Louis XIV. did him the honour of being his godfather, and gave him his own name. He studied in the royal academy of painting, and for a short time under Le Brun. In 1683 he came to England with one Ricard, a painter of architecture, and both were employed by Verrio. Laguerre painted for him most part of the large picture in St. Bartholomew's Hospital, and succeeding so well when little above twenty, he rose into much business, executing great numbers of ceilings, halls and staircases, particularly at Lord Exeter's at Burleigh, the staircase at old Devonshire House in Piccadilly, the staircase and saloon at Buckingham House, the staircase at Petworth, many of the apartments at Burleigh-on-the-Hill, where the walls are covered with his Cæsars, some things at Marlborough House in St. James's Park, and, which is his best work, the saloon at Blenheim. King William gave him lodgings at Hampton Court, where he painted the "Labours of Hercules" in chiaroscuro, and being appointed to repair the "Triumphs of Julius Cæsar," by Andrea Mantegna, he had the judgment to imitate the style of the original instead of new clothing them in vermilion and ultramarine, a fate that befel Raphael even from the pencil of Carlo Maratti. Laguerre was at first chosen unanimously by the commissioners for rebuilding St. Paul's to decorate the inside of the cupola, but was set aside by the prevailing interest of Thornhill, a preference not ravished from him by superior merit. Sir Godfrey Kneller was more just to him, though from pique to Thornhill, and employed him to paint the staircase of his house at Witton, where Laguerre distinguished himself beyond his common performances. On the union of England and Scotland he was ordered by Queen Anne to make designs for a set of tapestry on that occasion, in which were to be introduced the portraits of her majesty and the principal ministers ; but though he gave the drawings the work went no farther. A few pictures he painted besides, and made designs for engravers. In 1711 he was a director of an academy of painting erected in London, and was likely to be chosen governor on the resignation of Kneller, but was again baffled by his competitor Thornhill. In truth he was, says Vertue, a

modest unintriguing man. At a tavern in Drury Lane, where was held a club of virtuosi, he painted in chiaroscuro round the room a Bacchanalian procession, and made them a present of his labour. Vertue thinks that Sir James Thornhill was indebted to him for his knowledge of historic painting on ceilings, &c., and says he was imitated by others, as one Riario, Johnson, Brown, and several whose names are perished as well as that gaudy style. Laguerre towards his latter end grew dropsical and inactive, and going to see the "Island Princess" at Drury Lane, which was acted for the benefit of his son, then newly entered to sing on the stage, he was seized with a stroke of apoplexy, and died before the play began, April 20, 1721. He was buried in the churchyard of St. Martin's-in-the-Fields.

Expressiveness of Lines.

Lines differ either in regard to their nature or their direction. 1. Lines differ in regard to their nature according to the different degrees of their consistence or strength. Strong and vigorous lines are expressive to us of strength and stability when perpendicular, and of some degree of harshness or roughness when horizontal or in an oblique direction. Fine and faint lines are expressive to us of smoothness, fineness, delicacy. In any given number of straight lines, that is always most beautiful which is finest, or which, while it preserves its continuity, has the appearance of the smallest quantity of matter employed in the formation of it. Hence, in every subject, either of art or nature, one of the principal causes of the beauty of delicate outline. 2. Lines differ in their direction in two ways. They are either even or uneven; that is, straight or irregular. Irregular lines differ again; they are either in angles or curves. 1. Even lines are expressive to us of softness and smoothness. 2. Uneven lines are either angular or winding. Angular lines are expressive of harshness, roughness, &c. Winding lines of pliancy, delicacy, ease, &c. The real and actual beauty of lines will be found to correspond to those associations, and those are in fact the most beautiful which have the most pleasing or affecting expression. 1. Strong and even lines express strength and smoothness. They have, therefore, a degree of beauty. Fine and even lines express delicacy and smoothness. They are accordingly more beautiful than the former. 2. Strong and angular lines express strength and harshness. They are therefore very seldom beautiful. Fine and angular lines express delicacy together with roughness. They are beautiful, therefore, only when the expression of delicacy prevails over the other. 3. Strong and winding lines express strength and gentleness or delicacy. Their effect is mutually destroyed, and they are accordingly indifferent, if not unpleasing. Fine and winding lines express delicacy and ease. They are accordingly peculiarly beautiful. 4. The least beautiful lines are strong and angular lines. The most beautiful, fine and winding lines. Considering, therefore, lines in this abstracted view, and independent of the nature of the bodies which they distinguish, it seems very natural to conclude that those forms will be the most beautiful which are described by the most beautiful lines, and that of consequence the serpentine or winding form must necessarily be the most beautiful. It was this view of the subject which seems to have influenced Hogarth in the opinions which he published in his "Analysis of Beauty." He saw clearly, and his art afforded him continual proofs of it, that the winding line was of all others the most beautiful. He conceived, therefore, that all forms must be beautiful in proportion to the predominance of this line in their composition; and his opinion falls in so much with the general observation of mankind that it has been very universally adopted.

The Soul's Awakening in Artists.

How and at what period the love of art came upon Romney has not been clearly shown. Cumberland asserts that it was inspired by the cuts in the *Universal Magazine*. Hayley, who probably had the story from the painter, says that he consumed the time of his fellow-workmen in sketching them in various attitudes, while the artist's son states that Da Vinci's "Treatise on Painting," illustrated by many fine engravings, was early in his hands. All these stories may be true; genius draws its materials from many sources. The sight of a few fine prints in an obscure village in Yorkshire awakened the spark in Stothard, the carved figures in an old picture-frame did as much for Chantrey, and Wilkie's sense of the mingled comic and serious was first shown in drawing the head of one of his schoolfellows, who sat to learn his neglected lesson on that bad eminence the stool of shame. Romney himself used to relate that one day in church he saw a man with a most singular face, from which he could never take his eye. He spoke of it when he went home, and his parents desired him to describe the man. He took a pencil and from memory delineated the face so skilfully and with such strength of resemblance that they immediately named the person he meant, and the boy was so pleased with this that he began to draw with more serious application.

Scamozzi.

Concerning the professional merit of Scamozzi judgments have been different and extreme. Some, disgusted perhaps with his ostentation of extraneous erudition, his intimations of his own superiority and reticences concerning other artists, have refused him the praise justly due to him. The title of his work on architecture, "Idea dell' Architettura Universale di V. Scamozzi," and many passages in it, certainly indicate an extravagant opinion of his own sufficiency, but this does not prove that it had no support in real ability. His sixth book on the orders was thought to deserve a translation into French by Daviler, magnificently republished, with additions from other parts of the author's works by Du Ruy at Leyden, 1713. Of Scamozzi's book of antiquities the Marquis Maffei affirms that it is the only one where anything is said on the internal repartition and distribution of amphitheatres, and contains information on the subject never before given or sought for. Count A. Pompei praises Scamozzi's orders, and pronounces the designs in his book and many of his buildings highly commendable; among the latter he specifies the Palace Cornaro as a masterpiece of art. When he succeeded tothe direction of fabrics that were to be continued upon settled and well-concerted plans, it must be allowed that he was too prone to indulge his self-opinion in the attempt to do more than enough and better than well.

Doors.

According to the Italians, the principal door of a building has no determinate dimensions, but varies according to the grandeur of the building and its possessor or its use. Palladio agrees with Vitruvius that the height from the floor to the ceiling should be divided into three parts and a half, that two parts should be given to the height of the aperture, and to its breadth one, after deducting from it the twelfth part of the height. Muet proposes the least breadth of the principal door to be 7½ feet, the largest 12 feet. The height to be one and a half of the breadth, or rather the double of it. With regard to rooms, Palladio has laid down these rules for the doors. The least breadth of the aperture should be two feet, the greatest 3 feet, and the height agreeable to the least 5 feet; to the greatest 6½. Muet is of opinion that the least breadth should be 2½ feet, and the height, suitable to it, 5½. The breadth, from 3 to 4 feet, requires the height to be twice as much. In a royal palace the breadth of 5 or 6 feet may be allowed to the opening, and the height may be double of it, or sometimes less than double by a fifth or fourth part of the breadth.

GENERAL.

The Owen Jones Prizes have been awarded by the Society of Arts to Emmet Brady, School of Art, Glasgow, for design for wall-paper; William F. G. Brown, School of Art, Glasgow, design for printed velvet; James Grimstone, School of Art, Glasgow, designs for wall-paper; Ethel Hedgland, School of Art, Dover, designs for parasol cover and Zouave jacket in cut linen; Florence S. K. Joyce, School of Art, Birmingham, modelled design for a finger-plate; Fred. Charles Kiefer, School of Art, Battersea, designs for printed muslin. The next award will be made in 1899, when six prizes will be offered for competition.

The Trustees of the National Gallery have purchased two Rembrandts from Lady de Saumarez. They are life-size portraits, one of an old man and the other of an old lady, both being seated and dressed in black.

Mr. Frederick Ashmead, consulting engineer to the Corporation of Bristol, has expired in his seventy-third year. He was borough surveyor for a long period.

The Gloucester School Board lately invited local architects to compete for a new school. Mr. Martin, of Birmingham, was appointed referee, and by his award the first prize was awarded to Mr. A. J. Dunn. By a majority of one it was, however, decided to appoint Mr. Medland to carry out the work.

The Papers on Perpendicular architecture as exhibited in the churches of Somersetshire, which were read before the Somersetshire Archæological Society by the late E. A. Freeman, are to be reprinted in a forthcoming book on "The Church Towers of Somersetshire."

Castle Visconti, near Treviglio, which Manzoni adopted as the residence of the heroine in his romance of "The Betrothed," has been sold to a society for the sum of 102,000 francs. The castle is very ancient, and is surrounded on all sides by broad moats.

Mr. John Simmons, of Doncaster, has been appointed consulting engineer for the Ongar Drainage Scheme.

Madame Garnier has presented to the treasury of the Paris Opera House the collection of painters' sketches for the adornment of the building. They are to be arranged in the library about a medallion in mosaic of Charles Garnier.

The Exhibition of French pictures in the Guildhall Gallery has been visited by 203,000 people.

THE

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IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

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For Advertisement Scale, see page xv.

COMPETITIONS OPEN.

LIVERPOOL.—Oct. 3 (time extended).—Designs for new buildings for Royal Institution (50 guineas, 20 guineas). Mr. Harold Waterhouse, hon. sec., 3 Cook Street, Liverpool.

REIGATE.—Oct. 6.—Designs for Municipal Buildings (limit 15,000*l.*, premiums 50*l.*, 30*l.* and 20*l.*). Particulars from C. J. Green, town clerk, Station Road, Redhill.

WIVENHOE.—Sept. 29.—For water supply and drainage schemes. Particulars from C. W. Denton, 8 East Stockwell Street, Colchester.

CONTRACTS OPEN.

ASHTON-UNDER-LYNE.—For additions and alterations to the Station Hotel, Warrington Street. Messrs. John Eaton, Sons & Cantrell, architects, Ashton-under-Lyne.

BARRY.—Sept. 5.—For erecting new girls, boys and infants' schools at Hannah Street, Cadoxton-juxta-Barry, for the Barry School Board. Messrs. J. P. Jones, Richards & Budgen, architects, 18 St. Mary Street, Cardiff.

BLACKBURN.—Sept. 12.—For alterations at the slaughter-houses, for the health committee. Mr. William Stubbs, borough engineer, Municipal Offices.

BLYTH.—Sept. 3.—For new theatre at Blyth, for the Blyth Theatre Company, Limited. Messrs. Wm. Hope & J. C. Maxwell, architects, Newcastle-on-Tyne.

BURY ST. EDMUNDS.—Sept. 10.—For erection of buildings, chimney shaft, &c., for the electric-lighting station. Mr. F. Hastings Medhurst, Westminster Chambers, 13 Victoria Street, S.W.

CARDIFF.—Sept. 12.—For erection of three new pavilions, lodge and contingent works at the sanatorium, for the Corporation. Mr. W. Harpur, borough engineer.

CROMER.—Sept. 10.—For erection of public conveniences, comprising accommodation for both sexes, with cloakroom and adjuncts, on the sea front. Mr. A. F. Scott, surveyor to the Council.

CUMBERLAND.—For reslating and lathing of a large mill at Egremont. The Wyndham Mining Company, Limited, Egremont.

DARTMOUTH.—Sept. 10.—For converting house and premises in Foss Street into shops, &c. Mr. E. H. Back, architect, Dartmouth.

DERBY.—Sept. 7.—For erection of brick boundary wall on north side of land recently acquired for extension of Nottingham Road cemetery. Mr. John Ward, surveyor, Babington Lane, Derby.

DEWSBURY.—Sept. 5.—For works required in alteration of the West Riding Union Bank premises. Messrs. John Kirk & Sons, architects, Dewsbury.

DEWSBURY.—Sept. 6.—For whole or any portion of the works required in the rebuilding of the Dyer's Arms, Westgate, Dewsbury. Mr. J. Lane Fox, architect, Bond Street, Dewsbury.

DEWSBURY.—Sept. 12.—For various fittings, counters, cases, &c., required for fitting up the drapery and millinery departments, for the Dewsbury Pioneers' Industrial Society, Limited. Messrs. Holtom & Fox, architects, Dewsbury.

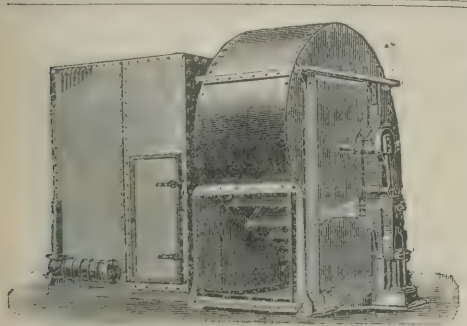
DOVER.—Sept. 13.—For erection of workshop, &c., adjoining car shed at Maxton. Mr. Henry E. Stilgoe, Town Hall, Dover.

DUKINFIELD.—For erection of the Town Hall. Messrs. John Eaton, Sons & Cantrell, architects, &c., Stamford Street, Ashton-under-Lyne.

DURHAM.—For erection of three shops and two houses in Front Street, Stanley. Mr. William Forster, architect, Clifford Road, Stanley.

EDINBURGH.—Sept. 7.—For erection of public baths, Portobello. Mr. R. Morham, city superintendent of works, Public Works Office, City Chambers, Edinburgh.

ELLON.—Sept. 10.—For erection of an addition to the Gordon Hospital, Ellon, from plans by County Engineer.



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Enfield.—Sept. 20.—For erection of a junior mixed department and an infants' department at the Board school, Bush Hill Park. Mr. G. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

Epping.—Sept. 14.—For erection of a new ward at the isolation hospital, Theydon Garnon, and sundry works to existing buildings, with heating and hot-water supply. Mr. E. Egan, architect, Holmdale, Loughton.

Falmouth.—Sept. 10.—For erection of country residence at Swanpool, Falmouth, for Mr. T. J. Bouch-Tremayne. Mr. Horace W. Collins, architect, Redruth.

Godalming.—Sept. 20.—For erection of cemetery chapels and lodge at new cemetery grounds in Eashing Lane. Messrs. Welman & Street, architects, Church Street, Godalming.

Halifax.—Sept. 10.—For additions to premises of Campbell Gas-Engine Company, Limited. Messrs. Jackson & Fox, architects, 22 George Street, Halifax.

Hull.—For erection of a saleroom for Messrs. Lewendon & Son. Messrs. Smith, Brodrick & Lowther, architects, York Chambers, 77 Lowgate, Hull.

Kew.—Oct. 3.—For removal of existing bridge and construction of new masonry bridge over the river Thames, together with alterations of approaches and construction and subsequent removal of temporary bridge over the river. Sir John Wolfe Barry, K.C.B., and Mr. C. A. Brereton, engineers, 21 Delahay Street, Westminster.

Kidderminster.—For additions to the Park Wharf Carpet Manufactory, Park Lane. Mr. J. M. Gething, architect, Oxford Chambers, Kidderminster.

Ladywell.—Sept. 3.—For the formation of a new exit, alteration in existing doorways, and other works at the public baths. Mr. Edward H. Oxenham, clerk, Lewisham Town Hall, Catford, S.E.

Leeds.—For alterations and additions to 115 and 117 Burley Road. Mr. Fred. Mitchell, architect, Safe Deposit Chambers, Albion Street, Leeds.

Leeds.—For extension of Messrs. Harding, Richardson, Rhodes & Co.'s premises, including engine and boiler-houses, and covering 5,200 yards. Mr. William Bakewell, architect, 38 Park Square, Leeds.

Leek.—Sept. 21.—For erection of municipal science and technical school and county silk school. Messrs. William Sugden & Sons, Leek.

Lewes. — Sept. 23. — For erection of two temporary buildings for 100 patients, and for other works in connection therewith, at the East Sussex County Lunatic Asylum. Mr. Henry Card, county surveyor, County Hall, Lewes.

London.—Sept. 12.—For erection of 12 cottages at Winchmore Hill, N., for the Southgate Urban District Council, from plans by Council's surveyor.

London —Oct. 12.—For erection of a new laundry at the workhouse in the Fulham Road, West Brompton, S.W. Mr. Edwin T. Hall, architect, 57 Moorgate Street, E.C.

London.—Sept. 17.—For erection of a block of school buildings and appurtenances for infants on site adjoining the existing schools, Cuckoo Lane, Hanwell, Middlesex, for the managers of the Central London School District. Messrs. J. T. Newman & Jacques, architects, 2 Fen Court, London, E.C.

Manchester.— Sept. 7. — For alterations at schools at Swinton, for the Guardians. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

Mayo.—Sept. 15.—For erection of lightkeepers' dwellings at Termoncarragh, co. Mayo, for Eagle Island Lighthouse. Mr. Owen Armstrong, secretary, Irish Lights Office, Dublin.

Menston.—Sept. 19.—For erection of a farm residence at the West Riding Asylum, Menston, for the West Riding asylum committee. Mr. J. Vickers Edwards, county surveyor, County Hall, Wakefield.

Naburn.—For erection of a hall round the school playground. Apply to Tasker, Naburn.

Newton Abbot.—Sept. 6.—For construction of two bath-rooms, &c., at the workhouse, for the Guardians. Mr. Samuel Segar, architect, Union Street, Newton Abbot.

Oundle.—Sept. 12.—For erection of town hall. Mr. J. B. Corby, architect, Stamford.

Plymouth.—Sept. 7.—For erection and completion of two shops and premises at 3 and 4 Hewer's Row, Ham Street, Plymouth. Mr. James Ford, architect, 1 George Street, Plymouth.

Port Talbot (Wales).—Sept. 30.—For erection of the Grand Hotel and stabling, Port Talbot. Mr. G. E. Robinson, architect, Cardiff.

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RAMSGATE.—Sept. 10.—For erection of offices for the gas and water committee. Mr. William A. McIntosh Valon, engineer.

SHIPLEY (YORKS).—Sept. 7.—For additions and alterations to Windhill Wood End school, for the Shipley School Board. Messrs. Jowett Kendall & J. Harper Bakes, architects, Calverley Chambers, Victoria Square, Leeds.

SOUTHAMPTON.—Sept. 5.—For erection of a girls' school, offices and boundary walls, &c, at Ludlow Road, Woolston. Messrs. W. H. Mitchell, Son & Gutteridge, architects, 9 Portland Street, Southampton.

SOUTH KIRKBY (WAKEFIELD).—Sept. 6.—For erection of new Wesleyan Sunday school, &c., at South Kirkby. Mr. G. F. Pennington, M.S.A., architect and surveyor, Castleford.

STOKESLEY.—Sept. 13.—For rebuilding Tanton Bridge, near Stokesley, and improving the approaches. Mr. Walker Stead, county surveyor, Northallerton.

SWANSEA.—Sept. 19.—For erection of Manselton school, for the Swansea (U.D.) School Board. Mr. C. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

TENBURY.—Sept. 3.—For erection of a retaining wall, about 200 feet long by 12 feet deep, by the side of Kyre Brook. Mr. R. W. Jarvis, surveyor, Tenbury.

TONBRIDGE.—Sept. 3.—For erection of proposed technical institute and free library. Mr. J. H. Phillips, St. John's Chambers, Cardiff.

WAKEFIELD.—Sept. 6.—For erection of Wesleyan Sunday school, &c., at South Kirkby. Mr. George F. Pennington, architect, Central Chambers, Carlton Street, Castleford.

WALES.—For erection of eight houses at Troedyrhiw. Mr. C. M. Davies, architect, 112 High Street, Merthyr Tydfil.

WALTHAMSTOW.—Sept. 13.—For erection of school buildings in Queen's Road. Mr. W. A. Longmore, architect, 7 Great Alie Street, E.

WELLS.—Sept. 3.—For erection of a public hall and post-office buildings on the site of the present market hall. Mr. John Johnson, architect, 9 Queen Victoria Street, London, E.C.

WEST BROMPTON.—Oct. 12.—For erection of a laundry at the workhouse, Fulham Road. Mr. Edwin T. Hall, architect, 57 Moorgate Street, E.C.

WESTBURY-ON-SEVERN.—Oct. 3.—For erecting kitchen stores, laundry, committee-room, tramp wards, receiving wards, porter's lodge, &c., at the workhouse. Mr. W. Fitzgerald Jones, architect, 21 George Street, Gloucester.

WESTON-SUPER-MARE.—Sept. 13.—For alterations and additions to the Knightstone Baths. Messrs. Price & Wilde, architects, 15 Waterloo Street, Weston-super-Mare.

WHALLEY AND READ.—Sept. 10.—For repair of Read old bridge, crossing the Sabden Brook. Mr. W. Harold Radford, county bridge-master, 19 Brazenose Street, Manchester.

WHITBY.—Sept. 10.—For erection of a pair of semi-detached villas on the Brook Park Estate, near Sleights station. Mr. John J. Milligan, architect, 77 Baxtergate, Whitby.

WIDNES.—Sept. 12.—For erection of relief offices and vaccination station. Mr. J. P. Fraser, architect, 4 Bold Street, Warrington.

TENDERS.

ALDERSHOT.

For alterations and additions to the West End schools, Aldershot, for the Aldershot School Board. Messrs. NASH & SON, architects, South Street, Farnham.

Edgoose	£519 10 0
Bateman	495 0 0
Kemp	495 0 0

BARNSTAPLE.

For construction of a concrete impounding sewer 6 feet high by 3 feet wide. Mr. FRANK W. CHANTER, engineer, Pilton Bridge, Barnstaple.

W. Shaddick	£1,591 0 0
W. SLEE, Barnstaple (*accepted*)	1,315 0 0

BASFORD.

For re-erecting Beaufit Lane bridge over the river Erewash, for the Rural District Council. Mr. G. W. HAWLEY, surveyor, York Chambers, King Street, Nottingham.

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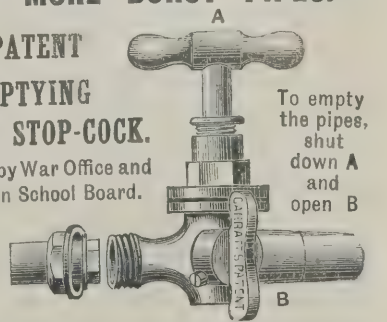
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E. Watmough, joiner.
J. Smithies, slater.
J. Black & Son, plasterer.
Thos. Perry, plumber.

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For reflooring the boys' play-room at Hackney schools, Brentwood, Essex, for the guardians of the Hackney Union. Mr. W. A. FINCH, architect, 76 Finsbury Pavement, E.C.

S. R. Lamble (*amended*)	£219 0 0
BARRETT & POWER, Hackney (*accepted*)	179 0 0
S. R. Lamble	167 0 0

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For additions, &c., to Royal Pavilion. Mr. F. J. C. MAY, C.E., Town Hall, Brighton.

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Thomas E. Nye	333 0 0
V. P. FREEMAN, Brighton (*accepted*)	320 0 0

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For additions to the day schools, Soundwell. Mr. H. W. BENNETT, architect, Staple Hill.

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E. Clark	1,694 0 0
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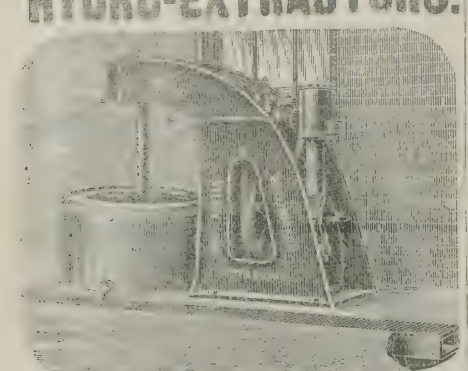
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For alterations and additions to premises in Broad Street, for Messrs. T. Smith & Co. Messrs. JACKSON & FOX, architects, George Street, Halifax.

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Buckley & Lambert, joiner	53 7 6
G. Fawley & Son, plumber	40 0 0

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For additions to Eastwood schools. Messrs. R. SCRIVENER & SONS, architects, Hanley.

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N. Bennett	790 0 0
C. Cornes	749 10 0
J. Godwin	740 0 0
G. ELLIS, Hanley (*accepted*)	702 0 0

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Jones & Sanderson, joiner	34 0 0
M. Woodcock, slater	23 9 6
H. Hulmshaw, plumber	11 4 0
Wrigglesworth, mason	9 19 6
R. Monaghan, painter	8 15 0

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J. PANEY, Wood Green (*accepted*)	220 0 0

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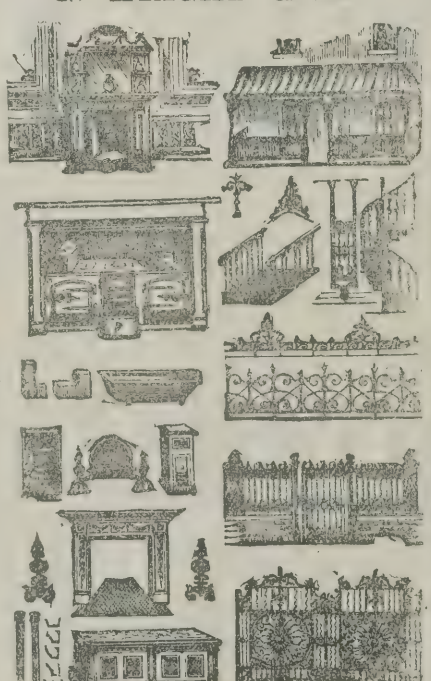
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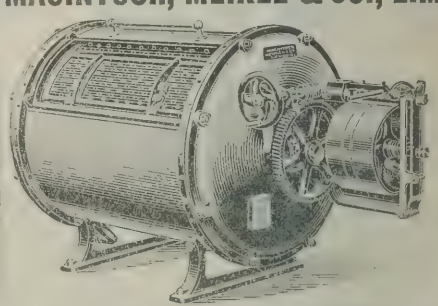
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J. Ainscouth & Son	£5,195 3 0
G. M. Collins	4,784 15 8
G. Bell	4,615 6 11
G. Freeman & Sons	4,509 14 0
ALLEN TAYLOR, Hazelgrove (*accepted*)	4,262 3 0
E. Cheetham	4,000 0 0
J. Ford	3,984 5 1

NEWSTEAD.

For erection of Wesleyan chapel and boundary walls at Newstead. Mr. J. E. GOODACRE, architect, Mansfield.

Greenwood	£1,600 0 0
J. F. Price	1,572 18 0
Gilbert & Gabbitas	1,470 0 0
W. Rigley	1,402 0 0
Pogson & Tate	1,359 3 0
Thomason	1,350 0 0
Fisher Bros.	1,336 0 0
W. BAINS, East Kirkby (*accepted*)	1,338 6 0

NOTTINGHAM.

For erection of new workhouse for the Guardians of Nottingham Union.

J. Wright	£290,000 0 0
E Hind	286,000 0 0
Walker & Slater	283,400 0 0
J. Hutchinson	281,500 0 0
F. Evans	279,950 0 0
H. Vickers	278,250 0 0
J. W. Woodsend	278,000 0 0
F. Messom	277,753 0 0
T. Fish & Sons	276,350 0 0
J. Hodson & Son	274,500 0 0

PEMBERTON.

For construction of about one mile of 9-inch sewer from Smithy Brook (through fields) to Billinge Road, for the Pemberton Urban District Council.

W. Winnard	£989 0 0
E. Cheetham	800 0 0
W. Gaskell & Son	743 0 0
P. Hitchen & Son	716 0 0
J. Prescott	679 0 0
J. J. Blackburn	655 0 0
T. Kearsley	652 0 0
J. FAIRHURST, Pemberton (*accepted*)	580 0 0

SHELTON.

For erection of Volunteer drill hall, Shelton. Messrs. R. SCRIVENER & SONS, architects, Hanley.

Broadhurst	£4,460 0 0
Cornes & Son	4,400 0 0
Bagnall	4,320 0 0
Yoxall	4,310 0 0
Godwin	4,198 0 0
Bennett Bros.	4,150 0 0
ELLIS, Hanley (*accepted*)	4,095 0 0

SOUTHBOROUGH.

For about 4,000 yards of street kerbing and pitched channelling, and about 8,000 yards of blue or red brick paving. Mr. WILLIAM HARMER, surveyor.

W. A. Locke	£3,057 0 0
J. Jarvis	2,940 0 0
W. Wadey	2,700 0 0
W. H. Wheeler	2,429 0 0
Hallett	2,367 18 6
T. FREE & SONS, Maidenhead (*accepted*)	2,365 0 0

SOUTHAMPTON.

For improvement works in Regent's Park Road.

W. H. Bull	£3,499 0 0
Sidney Nichols	3,313 0 0
F. OSMAN (*accepted*)	3,275 0 0
Borough engineer's estimate	3,183 0 0

For improvement works on the Berrywood Estate.

F. OSMAN (*accepted*)	£1,614 0 0

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Hotel Cecil, London.
Vice-Regal Lodge, Dublin.
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Section 1.

Hobbs & Elenor	£470 2 6
J. Carrick	319 17 6
J. MANNERS (*accepted*)	284 4 0

Section 2.

Hoqbs & Elenor, Stockton	388 16 9
J. Manners, Coundon	287 8 0
J. CARRICK, Durham (*accepted*)	272 4 6

SWINDON.

For erection of shop, dwelling-house, dairy and stable in Radnor Street, New Swindon, for Mr. A. C. Buckeldee. Mr. R. J. BESWICK, architect, 9 Regent Street, New Swindon.

C. Williams	£1,499 0 0
J. Williams	1,467 0 0
R. Payne	1,325 0 0
W. Chambers	1,105 0 0
BALL & KILMINSTER, Kent Road (*accepted*)	1,073 0 0

THETFORD.

For erection of vestry, St. Cuthbert's Church. Mr. A. J. LACEY, architect, 6 Upper King Street, Norwich.

J. W. Bunning & Son	£313 9 0
W. Boughton & Sons	295 0 0
W. Curtis	280 0 0
S. HOLDEN, Thetford (*accepted*)	276 0 0

THEYDON BOIS.

For erection of dairy, &c., at Purlieu, Theydon Bois, for Mr. E. A. King. Mr. W. A. FINCH, architect, 76 Finsbury Pavement, E.C.

S. R. LAMBLE, Kentish Town (*accepted*)	£295 0 0

WANSFORD.

For alterations and additions to a house in Wansford. Mr. J. C. TRAYLEN, architect, Stamford.

L. C. Gilbert, Wansford	£235 0 0
COATES & SON, Thrapston (*accepted*)	210 0 0

ELECTRIC NOTES.

AN agreement has been arranged between the Leeds Corporation and the Yorkshire House-to-House Electric Supply Company for the transference of the company's business. The capital expenditure from which the company shall benefit is to cease on September 1. From that date all capital expenditure will be for and on behalf of the Corporation. The second provision is that the company shall receive all the earnings up to September 30, which is the usual quarter end. This being the case, the company will only begin to receive interest on any unpaid purchase-money from October 1. The date definitely fixed for handing over Corporation scrip and cash to the company in payment for their concern is November 15. The worth of the stores is to be ascertained by valuation, the Corporation and the company each appointing a valuer. It is further provided in the agreement that the Corporation shall take and pay for the book debts, the latter being guaranteed by the company. The Corporation will take over contracts, wayleaves and other matters. In regard to the purchase-money the Corporation have, as is known, obtained Parliamentary sanction to the issuing of Five per Cent. Irredeemable Stock for the amount properly expended on capital account and cash for book debts, stores, &c.

THE minutes of the joint committee of the Kirkaldy Town Council and the promoters of the local company on the subject of tramways and electric light have been issued to the members of Council. The minutes contain a report from Professor Kennedy, in which he recommends that a tramway route should be limited to that beginning at the public park, proceeding to near the station, down Wemyssfield to High Street, thence proceeding along High Street, Nether Street and St. Clair Street to the northern end of Sinclairtown. The length of the route is three miles. The total cost, including plant, buildings and mains required for electric lighting, he puts down at 60,000*l*. The committee, however, after examination of the figures, are of opinion that they did not see their way to make any recommendation to the Town Council in regard to the proposed scheme. They resolved to lay before the Council an abstract of the figure that they had before them, and the clerk was instructed to prepare such an abstract, and to issue it to the Council along with the minutes. The town clerk has also issued a long letter to the members of Council expressing his opinion that he would strongly recommend the Council not to take up at the present time a combined scheme of tramways

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and electric lighting, but to consent to private companies taking up the scheme of electric lighting and tramways.

THE Grimsby Corporation have adopted an electric-lighting scheme at an estimated cost of 40,000*l.*, which sum includes provision for an electric tram service.

AN inquiry has been held before Colonel A. C. Smith, R.E., representing the Local Government Board, at Leyton, as the Urban Council have applied for authority to borrow 5,000*l.* for electric lighting. Already the expenditure amounts to 29,480*l.*, and the demand for the light is increasing.

ELECTRIC light is now employed in the library and assembly hall of the French Institut in Paris. It is anticipated that the light will be introduced by degrees in other parts of the building.

THE electric lighting of the committee-rooms of the Houses of Parliament will be completed during the recess. The delay was caused by a doubt as to the best method of placing the incandescent lamps. It has now been practically demonstrated that the fixed electroliers near the ceiling give a more satisfactory result for writing purposes than shaded lamps which can be lowered at will, and consequently the former will be fixed wherever more light is needed.

MOUNT EPHRAIM, Tunbridge, has been illuminated by electric light, and has therefore gained in attractiveness. There are ten lofty pillar lights on each side of the promenade alternately, and twenty lesser lamps, half as high, on the same pillar posts. This triple method of lighting the whole length of Mount Ephraim floods the paths and carriage drive with light, and the nightly scene is a striking one in all directions. It is said that the lights on Mount Ephraim can be seen distinctly as far into East Sussex as Crowborough Beacon one way and Frant village by way of the Forest.

TRADE NOTES.

MESSRS. W. SCUPHAM & SONS, LIMITED, have just perfected their patent drawer knob machine, and can now promise prompt delivery of the largest orders. They already do a large shipping trade in addition to the home factors.

THE new workhouse infirmary, Merthyr Tydfil, is being warmed and ventilated by means of Shorland's patent Manchester stoves (some double-fronted and some single-fronted) and patent Manchester grates, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

BUILDING AND BUILDERS.

MESSRS. G. & R. COUSIN, contractors, Alloa, have been successful in securing the contract for a large addition to the Waverley Station Hotel, Edinburgh. The estimated cost is stated at between 50,000*l.* and 60,000*l.*

WORKMEN'S dwellings are to be erected in Southampton according to plans to be prepared by Mr. Hair.

A STATION hotel costing 4,000*l.* is to be erected by the South-Eastern Railway Company at Whitehall, Crayford, for the accommodation of the men employed at the engine works.

A LARGE hotel, to cost nearly 70,000*l.* and accommodate 160 guests, is about to be erected at Lowestoft by Spiers & Pond, Limited.

THE Lichfield Guardians are now considering plans by Mr. W. H. Woodroffe for an extension of the workhouse buildings.

THE Great Western Railway Company have sanctioned the erection of the proposed Jubilee Memorial clock tower at the railway station approach, Maidenhead, and have approved of Mr. E. J. Shrewsbury's design for the memorial.

THE New Schultze Gunpowder Company, Limited, of 28 Gresham Street, London, and of Fritham, Lyndhurst, manufacturers of explosives, have applied to the Hants County Council for their assent to the establishment of a factory for explosives on the premises known as the Ballast Hole, or Old Gravel Pit, at Rumbridge, Totton.

THE old town hall, Henley, has been sold, as a new building is about to be erected. The town hall was built in 1796 by Mr. William Bradshaw, a member of the then local authority. Possession for the purpose of pulling-down and clearing the site will be given on September 12, and the whole is to be absolutely cleared on October 8.

THE public health committees of the local authorities of the burgh of Arbroath and the Arbroath district of Forfarshire, to whom the matter was remitted, have approved of erecting a joint epidemic hospital to supersede the present hospital belonging to the burgh, which is closely environed with dwelling-houses and by the Infirmary. A sub-committee has been appointed to look out for a suitable site.

ACTON Church, Nantwich, which is one of the oldest edifices in the country, has been reopened after undergoing extensive alterations. The nave has been completely restored at a cost of nearly 6,000*l.*, which is being defrayed by an old parishioner,

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PRICE LIST AND ESTIMATES ON APPLICATION.

Mr. Sutton Timmis, of Liverpool, to whom the parishioners are presenting valuable silver plate. Lord Tollemache, patron of the living, has borne the cost of restoring the chancel, and Mr. Henry Tollemache, M.P., has defrayed the expense of the erection of the new organ-chamber.

THE Worcester plasterers are out on strike. They asked for an additional penny per hour, which was refused by the employers on the ground that the state of the trade does not warrant it. The strike has caused some inconvenience to the builders. The men for some time past have been agitating for the employers to agree to a new code of rules, which would entitle them to an advance of wages for overtime, and would place them upon the same terms as regards rules as masons and bricklayers. The masters were willing to sign this code, and are still willing to do so, but they do not see their way to give the increase of one penny per hour, and they also consider it unreasonable at this time of the year.

VARIETIES.

THE Corporation of Aberdeen have paid the purchase price 84,734*l*, for the tramway system in use in the city.

A HIGHER Grade school has been opened at Heckmondwike which cost 18,000*l*. The architect is Mr. A. A. Scott.

AN illustrated pamphlet is being issued by the Great Eastern Railway Company descriptive of the beauties of the Cromer district.

IT is proposed to reconstruct the Aberdeen Graving Dock at a cost of 125,000*l*. The project comes from the works committee and awaits the approval of the Harbour Board.

THE Dundee Foresters have purchased a large property in the town and intend to erect a capacious hall for public meetings, besides suitable halls for the use of the order, shops, &c.

MESSRS. P. & W. MACLELLAN, of Glasgow, have obtained the contract for supplying 1,000 tons of tramway rails to the Glasgow Corporation. There were several German tenders.

THERE are at present in London 37,000 people living five in one room, 17,000 people living six in one room, 6,000 living seven in one room, 1,800 living eight in one room, 32,000 living eight in two rooms, and 14,000 living nine in two rooms.

THE Clacton-on-Sea Urban Council have resolved that any householder requiring a supply of salt water for the purposes of baths, flushing, &c., shall be allowed to connect with the sea-water main, where convenient, free of charge.

A PROJECT is under consideration for securing the waters of the Upper Derwent for the supply of Mid-Derbyshire, the Corporation of Derby, Nottingham, Leicester and Sheffield, at a cost of 3,000,000*l*, to yield 14,000,000 gallons per diem.

COLSTON HALL, where the Trades Union Congress was held in the early part of the week, was destroyed by fire early yesterday morning. The meetings of the British Association were to be held in it on Wednesday next and succeeding days.

ABOUT 150 of the employés of Messrs. W. Scupham & Sons, Limited, the well-known timber merchants, &c., have just had their annual outing. This year Bridlington was visited, and fine weather contributed to a very enjoyable day. There can be no doubt that these little outings place employers and employed on a better footing.

THE River Wear Commissioners at Sunderland adopted on Wednesday a scheme for quay and dock extensions to cost 261,000*l*. This is in addition to the works in progress, which raise the total cost to 375,000*l*. The object is to provide accommodation for the large steamers which are now being generally ordered by shipowners.

THE Master Plumbers and Plumbers' Union of Ottawa have appointed a committee to interview the Council and learn why the plumbing by-law passed in 1893 has not been enforced. The by-law calls upon every master plumber to take out a license at 2 dols. per year, and to give a bond of 200 dols. as a guarantee of good work; the license fee for journeymen plumbers is 25 cents. It is claimed that the health of the citizens has suffered because of defective plumbing-work done by incompetent and irresponsible firms, and the Council will be urged to enforce the law for the future and to incorporate in it a provision that iron pipe in houses should be carried through the foundation and protected by a stone arch, so that when the foundation sets the drain still remains unimpaired.

MR. G. FRAMPTON, A.R.A., has had the honour of submitting for the Queen's inspection a small plaster cast of the colossal statue of Her Majesty to be placed in front of the Government House, Calcutta, by the British and native inhabitants of India, in commemoration of the Queen's Diamond Jubilee.

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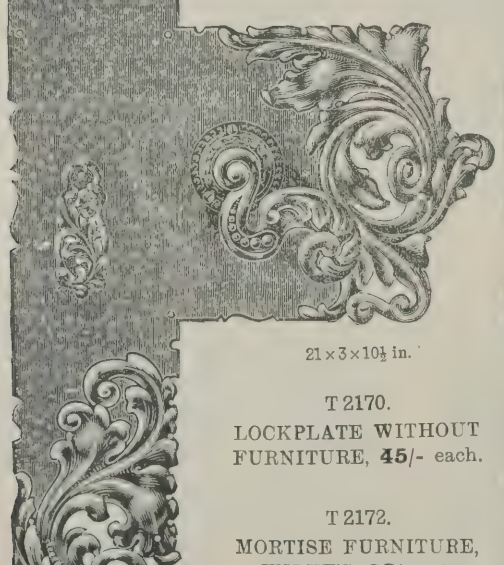
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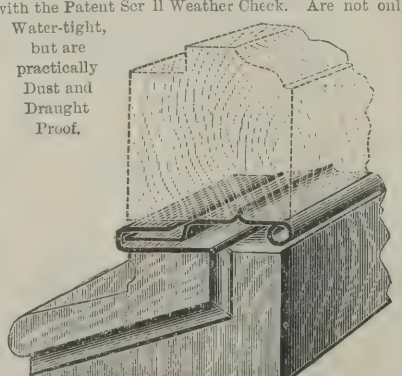


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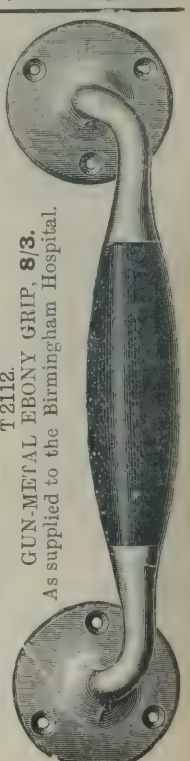


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As supplied to the Birmingham Hospital.

ILLUSTRATIONS.

CATHEDRAL SERIES.—PETERBOROUGH: WEST FRONT.—WEST FRONT IN 1827.—WEST FRONT, PLAN AND SECTION.

THE GUARDIAN ANGELS' CHURCH, MILE END, E.

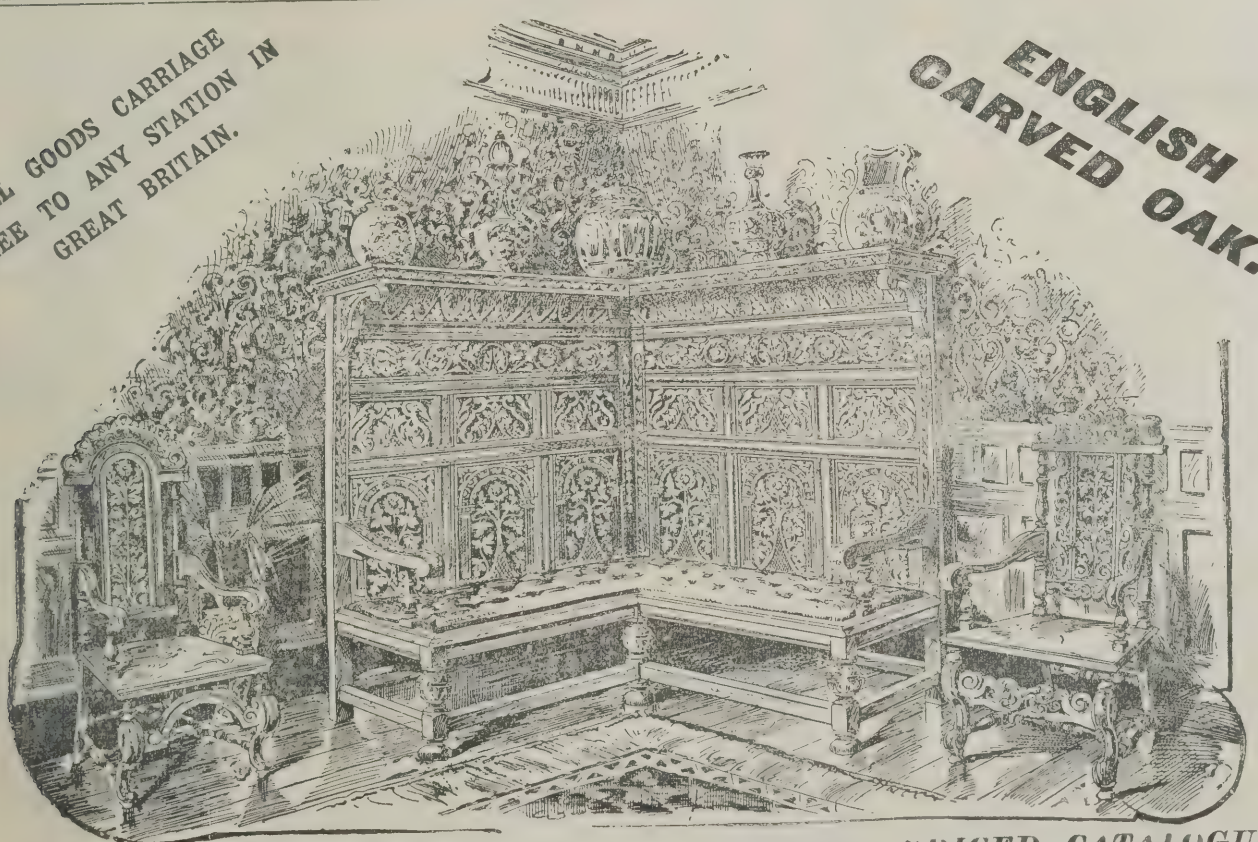
OFFICE, COLLEGE OF ARMS.

WIRELESS TELEGRAPHY.

A LECTURE was delivered in the theatre of the Royal Dublin Society by Monsignor Molloy, D.D., D.Sc., on "Signalling through Space by means of Electric Waves, without the aid of Wires." He began by observing that in the ordinary electric telegraph the electric energy generated at one station was conveyed to another by means of a wire, through which it was conceived to flow as a river flowed through its channel. But in the system of wireless telegraphy as developed by Signor Marconi, the electric energy went out in all directions from the sending station and travelled freely through space in the form of electric waves as light went out from the candle, or as the sounds of the human voice went out from the organs of speech. It seemed to him therefore that he should best meet their wishes if he began by trying to give them some clear conceptions about the nature of these electric waves, sketching briefly the history of their discovery, and bringing forward some experimental evidence to prove their existence. Afterwards he would show how these waves might be used to convey signals through space, and he would explain the construction and action of Signor Marconi's apparatus. At the end they would have an opportunity of seeing the apparatus at work and of sending messages through it. It would help them very much to form a distinct conception of electric waves if they first glanced for a moment at the more familiar phenomena of the waves of sound and the waves of light. It was by means of waves of sound that they heard his voice. As he spoke he put the vocal cords of his throat into vibration; each swing of the vocal cords produced a disturbance of the air in contact with them; and as vibration followed vibration, a succession of disturbances or impulses was produced which travelled outwards and away, in all directions, until they reached the ears of the audience, and there awakened the sensation of sound. In like manner, light was transmitted from a luminous body through space, in the form o a series of impulses or waves, which, passing through the pupil of the eye struck upon the retina, and awakened the sensation of vision. In both cases a medium was necessary through which the vibrations could be transmitted; the medium for the waves of sound was air, the medium for the waves of light was a far more subtle medium, which was supposed to pervade the whole universe, and which was called ether. Sound waves travelled at the rate of 1,100 feet a second; light waves at the rate of 186,000 miles a second. Turning then to electrical energy, the lecturer showed how the existence of electric waves was, at first, only a conjecture or hypothesis, based on the analogy of sound and light and radiant heat; then, in the hands of Clerk-Maxwell, it was raised to the dignity of a theory, supported by mathematical reasoning; and, lastly, it was conclusively demonstrated by the experiments of Hertz. He explained the general principles on which the experiments of Hertz were conducted, and exhibited in a manner visible to the whole audience the well-known experiments on electrical resonance. This principle afforded a very delicate means of detecting the presence of electric waves. Various forms of apparatus had been devised which responded to the action of electric waves, and which might be called by the general name of electric resonators. The most sensitive of all was due to Professor Branly, of Paris, and was discovered, in the first instance, by a sort of lucky accident. It consisted simply of a glass tube filled with brass or copper or iron filings. In its normal condition the tube was practically a non-conductor, but when struck by the electric waves it became a fairly good conductor. Hence if it were placed in the circuit of a battery no current would pass so long as the metal filings remained in their loose, incoherent condition. But no sooner did the electric waves come in from a distant station than the filings were welded together by the action of the waves and they became a conductor. The current then passed, and might be used to ring a bell, to deflect a galvanometer, or to work a Morse instrument at pleasure. This marvellous little piece of apparatus was called a coherer. The lecturer then showed a coherer at work, and used it for transmitting signals from one part of the platform to another. But this, he said, was only a laboratory or, at most, a lecture-room experiment. It required the genius of the inventor to lift it up into the sphere of practical utility and to extend the distance over which signals could be sent from a few yards to many miles, and the inventor appeared in the person of Signor Marconi.

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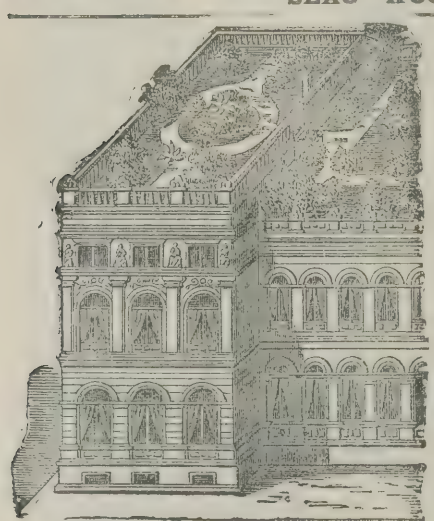
Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations

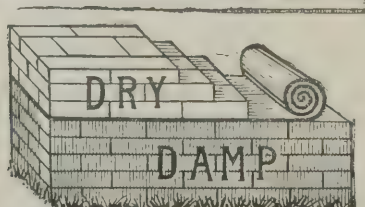
AMERICAN FIRE PROTECTION.

A REPORT, by Consul-General Sir D. Colnaghi, on the fire department of the city of Boston, Massachusetts, has been issued. The Boston Fire Department, of which Colonel Russell is the present head, has control over an area of about 43 square miles, containing a population of about 500,000, or, roughly speaking, about the same as Birmingham. This area is divided into twelve "fire districts." The fire department, as at present constituted, is headed by a fire commissioner, appointed for three years by the mayor and eligible for reappointment. A chief of department is the executive officer of the commissioner, and when present has command at all fires. After him follow a first assistant chief, second assistant chief (acting also as district chief), eleven district chiefs, the superintendent and assistant-superintendent of fire alarms, and the usual clerks and officers required to carry out the work of the department. The active force comprises forty-five engine companies, including two double companies, two fire boats, seventeen ladder companies, twelve chemical engines, two water towers, one independent hose company, two combination waggons, chemical and hose, and three combination ladder companies, chemical and ladder. These companies are distributed through the twelve fire districts, each district being under the supervision and command of a district chief. The total force of the department in uniformed and ununiformed men is 849. A captain, lieutenant and ten men constitute an average engine or ladder company. Every man is ready for duty at a moment's notice for twenty-one hours out of the twenty-four, the three remaining hours being reserved for meals. Implicit obedience to superior officers is required, and men, horses and apparatus are kept under constant inspection and drill. In joining the Boston Fire Department to-day a man enters upon a life profession. The thorough preparation that he goes through insures, as far as possible, a man perfectly fit, physically and otherwise, for the duties he will have to perform. After the candidates have been conditionally appointed they enter the department drill school, where each new member must serve thirty days, being put through the whole manual of apparatus and equipment, and his courage, strength and endurance tested by actual experience in the line of his duty, with the exception of the fire and smoke. These drill schools are considered imperative for the training of firemen in all large American cities.

Distributed throughout the city in convenient localities are 601 fire-alarm boxes, connected electrically with the fire-alarm office in the department headquarters, where night and day two operators are on duty to receive all alarms of fire sent from the boxes and repeat them to the different engine-houses. The keyless fire-alarm boxes are painted a bright red, and many have also a lamp showing a red light. On turning the large handle on the outside of the box a loud gong sounds in the inside. This is simply a warning to citizens that the box is being opened, so as to guard against false alarms by mischievous persons. The turning of the handle opens the door, but inside is a second door with a hook projecting from a slot in the centre. By pulling down this hook once and letting it go the alarm is sent into department headquarters, whence it is at once notified to all the department houses in Boston. In order, however, that the men may not be unnecessarily disturbed, in many of the engine-houses in the city proper there is a small bell, just loud enough to be heard by the house patrol. When the alarm comes in this bell strikes the box number, and the patrol immediately ascertains whether the number is one to which the company does or does not respond. In the latter case the gong is switched off, and the company is not disturbed, otherwise the gong rings. At its first blow the patrol pulls a lever which mechanically opens the stable doors and releases the horses, so that they may run out under the harness of the apparatus to which they belong. The men come rushing down the sliding pole and stairs. Drivers take their seats, the collars are snapped on the horses' necks, and by this simple action and the pulling of a cord they are harnessed; the patrol announces the box number, the engineer lights the fire under the boiler, the captain gives the word "go," and jumps on to the engine with the two engineers, the lieutenant and the rest of the company following on the hose waggon. All this is done in about ten seconds. One and a half minutes have elapsed since the first alarm was sounded when the man at the box sees an engine followed by a hose waggon, ladder truck and chemical coming towards him, and he indicates the position of the fire. The captain of the engine, who is thoroughly acquainted with the hydrants in his district, immediately places his engine. In the meantime the district chief has arrived, and his driver, who is a telegraphist, goes to the box, and, by means of the Morse key it contains, notifies fire alarm headquarters that he is there. In this way the officer in chief command at the fire has communication by telegraph with the rest of the department. If the fire threatens to get beyond control the officer in command orders a second alarm. The operator at headquarters repeats it by striking

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two blows on the gong followed by the box number, to warn the houses. Again, the officer in command at the fire can telegraph from the alarm box for any number of companies he may want.

With the apparatus on duty at a large fire a section of the city would be left unprotected were it not for the system in force of covering the denuded territory. Thus, in the event of a fire requiring a second or third alarm, the companies in the adjacent districts move to the houses of those companies which have responded to the call. There are two maps of the city with pegs in them indicating the location of the companies at the engine-houses, one at the night headquarters of the chief of department and one at the fire-alarm office. The pegs in these maps representing the companies that have responded to the first, second, third and perhaps following alarms are taken out, and the pegs representing the covering companies are put in their places. Thus by means of these maps and a running card (which is an assignment of companies) it is easily to be seen how the city has been left protected. Care is taken not to leave any one district absolutely defenceless.

The Consul-General gives a list of the engines, steam and chemical, hose, ladder, trucks, water-towers, &c., in service. The new horseless propellers, which have given very satisfactory results, have a capacity of 1,350 gallons per minute. The ladder trucks are a very useful arm. They carry ladders from 10 feet to 65 feet in length, and are fully equipped with medicine chests, life-lines and a complete assortment of fire appliances. Five of these ladders are of the aerial pattern, which can be raised to a height of from 85 feet to 100 feet by means of cranks and a screw on a turntable. Fire-escapes of the English pattern are not in use, but life-saving nets are employed in the event of persons having to jump from a burning building. The water-tower consists of a cylinder set in a square case like a telescope and mounted on wheels. It can be raised perpendicularly by chemical or water pressure. The inner tube is then elevated by a gearing until it reaches the height of about 55 feet. Inside the tubing is a double length of hose, 3½ inches in diameter, connected at the lower end with six lines of hose from three engines, and at the top with a hollow arm or pipe which can be worked up and down and to the right and left by a man standing on the platform of the tower. When a fire is raging in the upper part of a high building water can be directed to each or any portion of its interior with great efficiency. Fires along the water front are difficult to handle, and it is here that the fire-boats render valuable service; their respective capacity is about 7,000 gallons per minute. Chemical engines form another useful piece of apparatus. They are always ready to go to work, the hose being light and easily handled. The capacity of the chemical engines in this department is from 50 to 100 gallons. They generally consist of two tanks, with the necessary appliances, hung on four wheels. On account of their lightness they are drawn with great speed to a fire. Carbonic acid is both the working and extinguishing agent. The total number of fires extinguished by the chemical engines in 1897 was 241. During the same year 472 fires were extinguished by the little hand or portable extinguishers. These are filled with water, soda and a small bottle of vitriol. By turning a small valve on the top of the extinguisher the bottle is broken, which causes a pressure sufficient for the play of water on the fire through a small hose. All appliances must be ready at all times for service and at any hour of the day or night. When through accident or otherwise anything becomes unfit for service the department repair-shop is ready at a moment's notice to repair or replace it. Connected with the repair-shop is a school of engineers, where the men with a liking for machinery are drilled in the handling of an engine. A school of telegraphy at which members of the force are educated in writing with the Morse key is also attached to the department.

SANITARY ASSOCIATION OF SCOTLAND.

THE annual Congress of the Sanitary Association of Scotland will be held this year in Rothesay. Opening on the evening of September 7 next with the annual business meeting, the Congress will extend over three days. On Thursday, September 8, after the presidential address has been delivered, a paper will be read and a discussion will take place on the vaccination question, and in the evening the annual dinner of the Association will take place. On Friday a paper will be read on "Women as Sanitary Workers" by Dr. Elsie Maud Inglis, Edinburgh, and a discussion will take place on the amendment of the Food and Drugs Acts, and in the afternoon Mr. A. MacKay Trotter, Glasgow, will read a paper on "The Housing of Cattle." Thereafter there will be a sail round the island of Bute, and next day the Congress proceedings will be brought to a close by a garden party at Mount Stuart House on the invitation of Lord and Lady Bute.

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THE AVIEMORE RAILWAY.

AFTER being about seven years under construction, writes a special correspondent of the *Glasgow Herald*, there is now a prospect of this short cut over the Monaleadh mountains, between Inverness and Aviemore, being opened for through traffic in the first days of October. The delay in the completion of this railway is attributed to a variety of causes, the first perhaps being that the Highland Railway management were not for several years in too great a hurry to open a line which will have, in the first place, the effect of diminishing the annual revenue for passenger traffic. However that may be, the line has been a difficult as well as an expensive one to make, traversing as it does a wild and mountainous tract of country, and the substantial manner in which the work has been carried out to no small extent compensates for the delay which has taken place. The route selected means practically the saving of an hour in the journey from Perth to Inverness and *vice versâ*, so that henceforth the principal mail trains will take three hours instead of four to accomplish the journey. In other words, the total mileage between the two cities has been reduced by over 30 miles. Viewed as a whole, this railway, which is 34 miles long, is interesting from an engineering point of view, and it also takes the traveller through a stretch of country which has many attractive features. The first section of the line—that between Aviemore and Carrbridge—was opened as long ago as 1892. It passes through a finely-wooded undulating country, views being obtained on both sides of some of those huge plantations of fir by which the Earls of Seafield have done so much to bring back this region to something like its pristine sylvan grandeur. The only obstacle encountered by the engineers in this section was a peat moss in Crannich Wood, near the village of Carrbridge, which consumed 50,000 cubic yards of extra material before a solid foundation was obtained for the permanent way. Carrbridge, where the line attains the altitude of 914 feet above sea-level, already shows many signs of prosperity owing to the railway facilities which have now been supplied. Enjoying a bracing atmosphere, surrounded by dense pinewoods, built on a dry substratum of gravel and supplied with an abundance of fine spring-water, the situation is altogether a very desirable one, and is specially recommended for asthmatic people, for whom the aroma of the pine is considered beneficial. Villas are springing up rapidly, and the summer population of the village is this year considerably larger than in former seasons.

Beyond Carrbridge the expensive character of the line is at once apparent. First comes a bridge with a span of 180 feet, and standing 56 feet above the bed of the river Dulnan; then a long embankment 45 feet high, composed of 140,000 cubic yards of material, followed by an extensive cutting 50 feet deep, the excavation of which took about three years, the material cut through being almost exclusively hard mountain clay. The first bridge of any note on the route is that which carries the line through and across the gorge known as the Slochdmuick, a gloomy and desolate scene, which so recently as the middle of last century was infested by Highland banditti. The last leader of one of the gangs was the son of a small Highland proprietor, Mackintosh of Borlum, three of whose companions in crime were hung at Inverness in 1770 for an attempt to rob Sir Hector Monro of Novar. The railway crosses the gorge at right angles by a viaduct of eight arches, of 37 feet span each, at a height of 105 feet, and on a rising gradient of 1 in 70. It is 400 yards long. The granite of which the viaduct is built is native, and the sombre appearance of the structure is pleasingly relieved by the introduction of red sandstone facings. On emerging from the gloom of the pass the railway traverses a tract of wild, uninhabited country, which has little interest except for the sportsman. Five miles from Carrbridge, near the march between the parishes of Duthil and Moy, the summit level of the line (1,323 feet) is reached, and here occurs the Drumbain cutting, the largest on the whole line between Aviemore and Inverness, which means a work of great magnitude indeed. For a considerable portion of its length the depth is 56 feet, and by the time it was completed the amount of material excavated was calculated at 350,000 cubic yards. As the winter in this elevated region is generally so tempestuous that the work had to be suspended for four or five months at a time, it was a very formidable and protracted undertaking. At the upper portion of the cutting a great bed of moss was encountered, in which, at a depth of 25 feet, three successive crops of fir could be traced, each buried 3 feet under the other, showing that even in this exposed and inhospitable region, where there is not a twig now to be seen, Scotland was once tree-clothed. Skirting the hill-side, with a falling grade, the line enters the heart of the Mackintosh country and the beautiful valley of the Findhorn. To carry the railway across the Findhorn river and valley two viaducts were necessary, the first being exceptionally large and lofty. It is formed by a steel superstructure resting on granite piers, and is 445 yards in length. There are nine spans each of 130 feet, with landward

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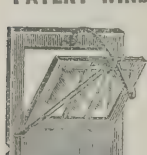
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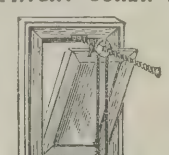
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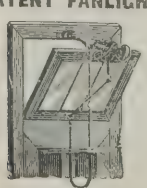
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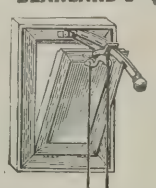
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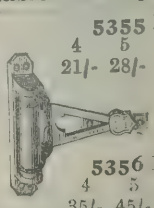


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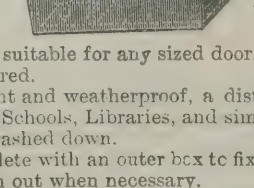


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arches of 36 feet at each end. The height from the bed of the river to the rail level is 140 feet. The whole viaduct is on a curve of half a mile radius, and has a grade of 1 in 60, falling northwards. Farther on is another viaduct constructed of stone and consisting of nine arches of 36 feet span, with lengths varying from 40 feet to 80 feet. The style adopted for these two viaducts is rather ornate, with the result that they add to rather than take from the picturesque appearance of the valley. Near by, embowered among trees, is Tomatin station, the offices, like all the other stations on this line, being built of stone and substantial and commodious. A mile or two further on is Moghall station, situated opposite one of the entrances to the policies of the handsome residence of the Mackintosh of Mackintosh. Glimpses of the mansion and the historic loch close by are obtained from the railway. The Mackintosh has, by the way, done much by judicious planting to improve the appearance of the country round about, there being several flourishing in plantations. Between Moy and Devoit, in the Nairn Valley, there is a stretch of bleak country, famous, however, in local history, one point, known as the threshold of the highlands, being the scene of the rout of Moy after the battle of Culloden. Davoit station is perched on an embankment 30 feet in height (135,000 feet of material) high up on a spur of the Monadhliadhs, and commands one of the grandest and most extensive views of scenery to be found on the Highland Railway.

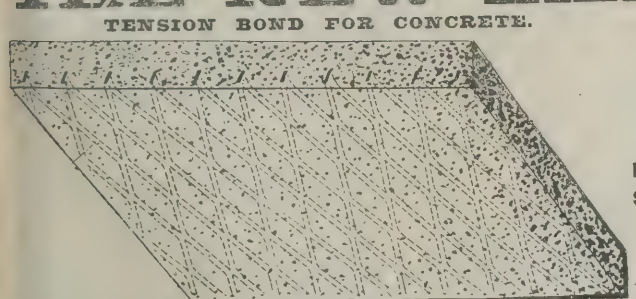
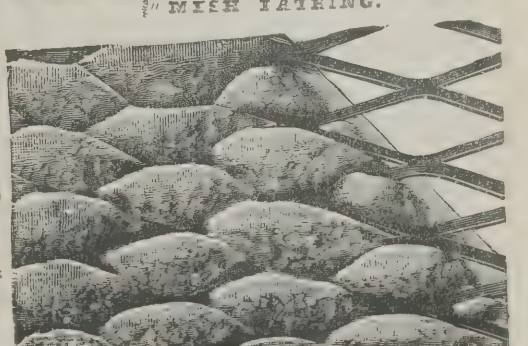
With the huge bulk of Ben Wyvis as a centre-piece, the panorama embraces the Caithness hills and the great expanse of the North Sea, while the dome-like top of Mealfournie closes in the picture in the west. Up to this point the line is a single one, although all the viaducts and bridges are made for a double set of rails; for the remaining ten miles to Inverness it is double, so as to facilitate the departure and arrival of traffic. Rounding the shoulder of the hill, now in deep cutting and now on high embankments, the line descends into the Nairn Valley, which it crosses by a viaduct of a remarkably striking character. It is approached on each side by embankments 50 feet high, and containing between them 300,000 cubic yards of material. The viaduct is 600 yards long and consists of twenty-eight arches of 50 feet span and one of 100 feet, the latter being over the bed of the river, above which the rail level attains 120 feet. The viaduct is entirely built of stone, the greater proportion of which was obtained from a quarry near by. Half of the structure is built straight and the other half on a curve of half a mile radius, with a grade of 1 in 60. Altogether it is a formidable and very graceful piece of stonework, in which the late Mr. Murdo Patterson, the company's engineer—who died within sight of it—justly took great pride. About 600 yards farther on is Culloden Moor station, itself being about three-quarters of a mile to the west. A mile of cutting, 30 feet deep on an average, takes the line through the Culloden woods, after which, on an embankment which at places is 50 feet in height, the descent is made into the Highland capital. The approach is far more picturesque than by the present route along the shore level of the firth, and is sure to strike the visitors with admiration, the old description of Inverness as a town cradled among mountains being vividly realised. In the whole length of 34 miles there are no fewer than 150 bridges of various sizes, four viaducts, two of them being exceptionally large, while the total amount of earth material dealt with was over two million cubic feet. Though the gradients up and down are frequently 1 in 60, the curves have been made on an easy radius, and fast running with through trains is intended. This season there was a great congestion of traffic, the number of visitors to the Highlands being much in excess of previous years, and this alternative route will afford a much-needed relief, while it opens up a stretch of country which is sure to attract persons in search of bracing health resorts.

NEW DOCK AT GRANGEMOUTH.

THE Caledonian Railway Company are at present completing arrangements for increasing their dock accommodation at Grangemouth to an amount equal to treble its present extent. The new dock will be situated between the old dock and the Forth, and will occupy the foreshore lying immediately to the south of the river Carron. Between the old dock and the entrance the extreme distance is about a mile and a half. Included in this space, besides the new dock, there will be two channels, one called the eastern channel, connecting the dock with the Forth, as above stated. In this channel, about half-way between the entrance lock into the dock and the sea, there will be a large canting basin. Above the new dock the other or western channel will be made, giving access from the new dock to the old docks. About one-half the area to be thus occupied consists of foreshore, which is under water at full tide. The first operation therefore to be performed in the construction of the dock will

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be the excavation of the dry material lying to the west above high-water mark, and the driving of an embankment around the whole of the space to be reclaimed from the firth, and which will be occupied by the channels, canting basin, sidings, and other accommodation necessary for the working of the railway traffic. When the tide has been thus excluded, and the impounded water pumped out, the building of the dock walls and the entrance channel will be commenced. The method of building the enclosing walls of the entrance channel leading directly into the Forth will be different from any of those hitherto adopted in similar undertakings in this part of the country. On each side of the entrance a series of monoliths will be placed and sunk to a depth of from 40 to 50 feet. These monoliths, to be composed of concrete, will be rectangular in shape, of varying lengths up to about 40 feet, and about 20 feet in width. In constructing these monoliths a steel shoe with cutting edges is first placed on the surface, a piled platform having been previously erected to enable the process of sinking to be properly carried out. Two iron screw rods are then fastened to the shoe, and a brick kerb having been built inside the shoe a little above the level of the steel sides, the screws are brought into use for the purpose of lowering the steel shoe into the layer of mud forming the upper surface of the bed of the Forth. The operation is continued by removing the earth inside, and as the steel shoe gradually sinks, concrete walls are built, the concrete being poured in in a plastic state. This process goes on gradually, earth being removed from inside the monoliths, and concrete being added to the walls until the required depth has been attained. The screw rods in the meantime maintain the connection between the steel shoe and the brick kerb and concrete of which the monoliths are composed, and also prevent them from going off the line either laterally or vertically. The entrance to the channel at the sea end will be trumpet-mouthed, and the monoliths will extend for a considerable distance into the channel of the Forth. The same method will be followed in the construction of the inverts of the locks. But the remaining portions of the channels and the sides of the canting basin will be formed by a slope of 3 to 1. The quay walls will be composed either of concrete or rubble masonry, and the total quantity of concrete and rubble to be used, including the concrete in the monoliths, will amount to from 300,000 to 400,000 cubic yards. The material for the concrete will be procured from the slag heaps at Carron Ironworks. Similar slag was employed in the construction of the first dock formed by the Caledonian Company, and has proved thoroughly satisfactory. It is what is known as cold-blast slag; it was put out probably a century ago red hot, and, no doubt, was on fire afterwards for many years. After the dock walls are formed the interior excavation will be begun, the earthwork being removed partly by steam navvies and partly by dredging. The total quantity of earthwork to be thus disposed of, including that in connection with the sinking of the monoliths, will be from 3,000,000 to 4,000,000 cubic yards. The coping and ashlar for machinery beds, roller paths, ashlar pointing, square quoins, hollow quoins, sills, caisson sills, &c., will be of granite, of which material about 120,000 cubic feet will be employed. Altogether the dock will contain between 32 and 33 acres of water space, and will give at least treble the accommodation contained in the last dock. For the safety of the dock walls dry material will be placed and carefully rammed in the space behind the walls, and the whole of the earth to be excavated will be needed, it is expected, for raising the ground about the dock to the level of the coping of the dock walls. Around the reclaimed ground an embankment will be raised at the eastern end, thoroughly pitched and protected against the action of the sea. In extent this space will measure from the old dock to the sea about a mile and a half in length, while it will have a breadth of about half a mile. It will be utilised for railway sidings, hoists, shoots and the various appliances requisite for the working of the traffic of the port. The work of making the dock will be begun forthwith, and it is expected to be completed in about four years.

THE AUCTIONEERS' INSTITUTE.

THE autumn provincial meeting of the Auctioneers' Institute will be held at Brighton on Thursday and Friday, September 8 and 9. On the first day the council will be received by the mayor, Sir John Blaker, and will hold its business meeting in the Pavilion. The second day will be occupied in visiting the waterworks, the electricity generating station, the School of Technology, and other works connected with the Corporation. In the evening there will be a banquet in the Pavilion, when the president, Mr. Edward Dobson, of Bradford, will occupy the chair, and will be supported by the Mayor, members of the Corporation, local Members of Parliament and others.

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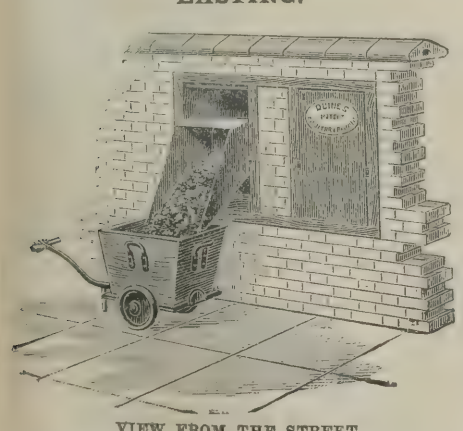
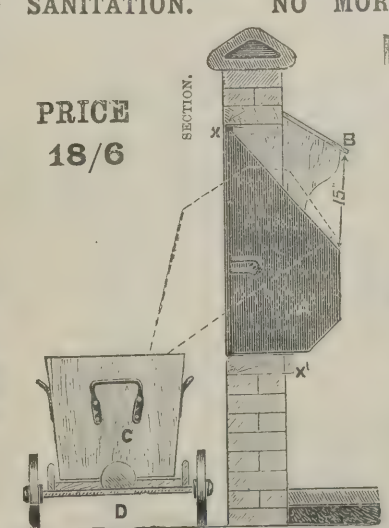
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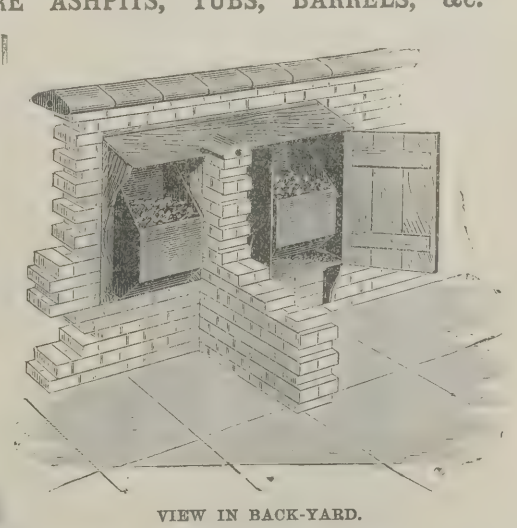
CENTENARY OF GAS-LIGHTING IN BIRMINGHAM.

IT is interesting to record the fact, says the *Birmingham Post*, that this is the centenary anniversary of the time when William Murdoch first applied gas-lighting for illuminating purposes on an extensive scale in Birmingham. Murdoch was the inventor of gas-lighting, and thus became the founder of one of our most useful industries. He was a great public benefactor, how great can only be adequately appreciated by our oldest citizens, who can remember the days when tallow-chandlers abounded, the rushlight was the principal illuminant within the economic means of the working-classes, and gas was an expensive luxury. Those times have happily changed, and now gas is not only rapidly superseding oil and the wick in the humblest households, but more powerful illumination by electricity is gradually taking the place of gas in public buildings and prominent business establishments. What a difference has been effected in the lighting of Birmingham during the past hundred years. The manufacture of coal-gas in these days may be similar to that carried on by Murdoch, but the methods of producing it have been immeasurably improved. Man's ingenuity has given us superior buildings better appliances, improved machinery, and we enjoy the advantage of a more brilliant light at a cost of which our forefathers could not possibly have dreamed. Murdoch came to Birmingham in 1777, and accepted an engagement with Boulton & Watt, at Soho. Then he was sent by them to Cornwall, and it was while he resided at Redruth that he first applied coal-gas to economic purposes. This was in 1792, and in 1798, a century ago, when he returned to Soho and saw the flickering hand lamps which the workmen used, he carried out an installation of gas-lighting on a much larger scale than he had previously attempted. William Matthews, in his historical sketch of the origin and progress of gas-lighting, says that Murdoch's experiments at Boulton & Watt's works "were sedulously continued with a view to ascertain, not only the best modes of making, but also of purifying and burning the gas so as to prevent either the smell or the smoke from being offensive. The Peace of Amiens, which took place in the spring of 1802, afforded him an opportunity peculiarly favourable for making a more complete display of these brilliant lights than had ever been exhibited. The illumination of Soho works on this occasion was one of extraordinary splendour. The whole front of that extensive range of buildings was ornamented with a great variety of devices that admirably displayed many of the varied forms of which the gaslight was susceptible. This luminous spectacle was as novel as it was astonishing, and Birmingham poured forth its numerous population to gaze at and to admire this wonderful display of the combined effects of science and art." Murdoch had many difficulties to overcome before he attained the perfection which he exhibited on that occasion, but as he united scientific knowledge with great practical skill his perseverance enabled him to triumph. With the sanction of Boulton & Watt he extended the apparatus at the Soho foundry so as to give light to all the principal shops, and it was used by some of the leading tradespeople to the exclusion of other artificial light. Gas was not long, however, confined to this district. Its advantages were demonstrated in other towns, and eventually companies were formed to supply the public with this new and invaluable means of enhancing their domestic comfort. The first use of gas in London was in 1807, and the first gas company established was in the Metropolis in 1810.

Birmingham, strange to say, was very slow to move in the same direction, but private use was made of the invention by several persons. In 1817 Mr. John Gostling erected gasworks, and laid pipes for the supply of gas by agreement with the Street Commissioners and with private consumers. The first shop lighted was Pulteney's, at the corner of Moor Street, in 1818, but the streets were not lighted by gas until April 19, 1826. In 1819 Mr. Gostling's business was converted into a company, under the name of the Birmingham Gas Company, and in 1825 the Birmingham and Staffordshire Gas Company was established, the former supplying the town only, while the latter extended its area almost to Wolverhampton. These two companies remained in existence until 1875, when the undertakings were purchased by the Corporation on behalf of the town. Curiously enough there are no available records which would enable a comparison to be made of the amount of gas manufactured and distributed by the Corporation and by the old companies, but the prices charged are an eloquent testimony to the advantages we enjoy now as compared with the time of our forefathers. From 1819 to 1825 two methods of charging the consumers were adopted, namely, by contract and by meter indication. At first the number of consumers was small, and, according to their agreements, they were expected to turn out their lights within ten minutes of the time

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specified in the contracts, except on Saturday nights, when they were allowed an extra hour. Argand burners were used, and those who burned gas from dusk until nine o'clock at night were charged 3*l.* 10*s.* per annum if the burners had 16 holes, but if they only had twelve holes the price was 2*l.* 12*s.* per annum. If the gas was not extinguished until ten o'clock the prices were 4*l.* 10*s.* and 3*l.* 8*s.* respectively, eleven o'clock 5*l.* 10*s.* and 4*l.* 4*s.*, and twelve o'clock 6*l.* 10*s.* and 5*l.* This scale was in respect to six days a week, but if the seventh day was contracted for the prices were proportionately higher. When the meter system was solely adopted the consumption was the more easily checked, and the scale of charges was altered. In 1825 the price was 15*s.* per 1,000 cubic feet, less 5 per cent. discount for prompt payment, but it was subsequently reduced to 12*s.*, and in 1834 to 10*s.* per 1,000 feet. In 1837 a scale was introduced whereby the consumers of under 5,000 cubic feet of gas paid 9*s.* 2*d.* per 1,000, under 25,000 cubic feet 8*s.* 4*d.* per 1,000, under 75,000 cubic feet 7*s.* 6*d.* per 1,000, and above that quantity 6*s.* 8*d.* per 1,000, in each case a discount of 7½ per cent. being allowed. As years rolled by the scale was frequently revised, invariably in favour of the consumer. In 1850 the price varied between 5*s.* 6*d.* per 1,000 for a consumption under 10,000 cubic feet and 3*s.* 6*d.* per thousand for a consumption of 200,000 feet and upwards, the discounts being 5 per cent. In 1873 the price was 2*s.* 7*d.* per thousand for a consumption of 25,000 feet and under, and 2*s.* 3*d.* per thousand where the consumption reached 100,000 cubic feet. Then, in consequence of the prosperity of the times, higher wages and dearer coal, the price was slightly raised, and when in 1875 the Corporation acquired the undertakings the charges ranged from 3*s.* to 3*s.* 6*d.* per thousand feet, with a discount of 5 per cent. The next year the price was reduced 3*d.* per thousand feet, and other reductions were subsequently effected until 1887, when the scale ranged between 2*s.* 3*d.* and 2*s.* 7*d.* per thousand—prices which rule to-day. Although it is not possible to compare the development of the undertaking under the Corporation with the business done by the old companies, the growth of the gas department will be apparent by contrasting the first year under municipal government with that which expired in March last. In 1875 the amount of coal carbonised was 296,000 tons, but last year it had risen to 509,481 tons; and whereas the amount of gas sold and used in 1875 was, in round figures, 2,327,000,000 cubic feet, last year the total had reached the enormous amount of 5,074,000,000 cubic feet. The surplus profit in 1875 was 25,339*l.* and last year 50,336*l.*

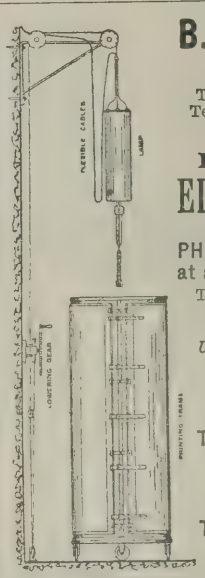
LIABILITY FOR COST OF MAIN SEWERS.

JUDGMENT has been given by Lord Pearson of the Scottish Courts in an action taken by the Corporation to recover 337*l.* 7*s.* 5*d.* from Mr. David V. Wyllie, architect, Bath Street, Glasgow, as his proportion of the cost of a sewer constructed by the Corporation in 1895. The sewer was laid in Crow Road, which now forms the westmost boundary of Glasgow, the ground on the west side of the road being in Renfrewshire. The defender is proprietor of land adjoining Crow Road, which he acquired early in 1890. In 1890 the only drain was a 9-inch one. It served for some of the earlier plots, and still served for one of the streets, but it was obviously inadequate, his lordship said, for an extensive building estate. In 1891, when the area including Crow Road was annexed to Glasgow, the Corporation entered into an agreement with Partick and the Upper Ward of Renfrewshire for the formation of the Whiteinch Drainage District. The Glasgow Police Commissioners constructed the sewer, the total cost of which was a little over 11,000*l.* The Corporation founded their claim on their Police Act of 1866, and on the invariable practice in Glasgow as to defraying the cost of public sewers. The Act lays the first cost on the Corporation, but they are to be relieved of it (as to streets in which no ordinary public sewer previously existed) by the proprietors of lands and heritages adjoining the street in proportion to their frontage thereto. They had charged Mr. Wyllie according to this rule. He maintained that the Corporation were in error in appealing to their Police Act of 1866; that the sewer in question was not, and could not have been constructed or assessed for under that Act, even so far as it lay within the city, and that the Public Health Act, 1867, under which the Police Commissioners are the local authority, furnished the true standard of liability. It was urged that in the 1866 Act a public sewer was a sewer for carrying off the surface-water of a road or street, and that in so far as this one did more it was not a public sewer within the meaning of that statute, whatever else it might be. The Act was consistent with that view when it laid the burden on frontagers. But if a costly main sewer admittedly larger than was needed for street drainage in the limited sense ran down one street in a drainage area, the frontagers to that street might well complain if they had to pay the whole cost of it, and to pay it not even by instalments but all at once. It was also said that it was impossible to ascertain how much of the cost the Corporation would have to bear until the lapse of 33⅓ years. The Corporation had power to construct this sewer from end

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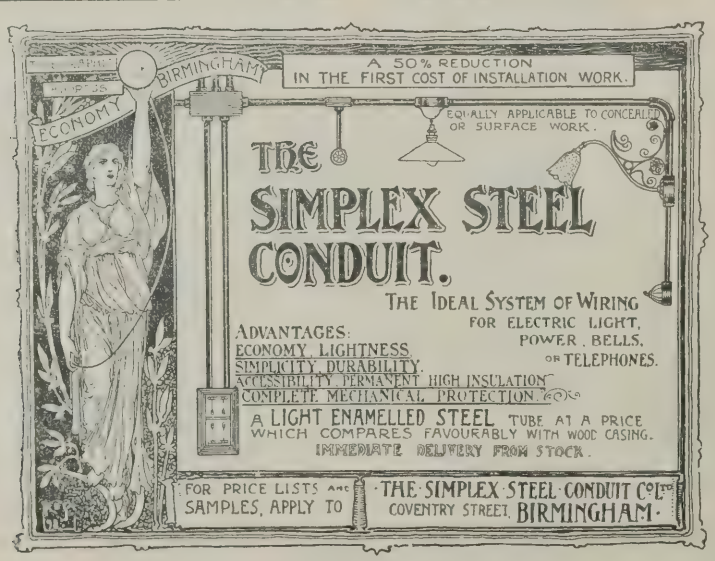
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to end under the Public Health Act, 1867, in which case the cost would have been defrayed by a general assessment spread over a series of years. His lordship said he had found the case presented attended with difficulty, but on the whole he was not satisfied that what the Corporation proposed to do in the way of charging for the Glasgow part of the sewer was not beyond their power. It was true that the Glasgow part of the sewer would not in itself have been available for want of an outfall, and that the Glasgow Police Act, 1866, afforded no solution of the difficulty. It might also be true that the difficulty might have been overcome under the Public Health Act, 1867, which would have resulted in an annual charge on the general assessment. But the thing having been done under an agreement confirmed by statute, and Glasgow being simply left to apply her own rules as to assessment, his lordship thought the Corporation were warranted in treating the sewer so far as within the city as if it were a new public sewer. All along since 1862 the cost of sewers such as this had been borne by the frontagers. Although it might not be the fairest method of providing for the cost of main or trunk sewers, it was the Glasgow method, and this his lordship thought was the true answer to the defendant's complaint, that the frontagers in Crow Road were suffering exceptional hardship. The defendant also pleaded that the burden on frontagers only applied to the case of a road or street in which no ordinary public sewer previously existed, and that such a sewer did previously exist in Crow Road, namely, the 9-inch drain above referred to. His lordship thought this plea failed upon the facts, and he was not convinced that that drain ever ceased to be a private drain. It must be remembered that until 1891 this drain was not in the city, and the Glasgow Police Act had no application to it. But it was said that at the moment of annexation in 1891 the definition clause of the Act of 1866 attached to it, and made it a public sewer. This seemed not quite consistent with section 52 of the Annexation Act of 1891, by which private drainage works could only be acquired by the Corporation after certain procedure, including the payment of compensation. His lordship next dealt with an argument stated for the defendant, to the effect that the Corporation had so dealt with the drain as to commit them to the view that it was a public sewer, and said he could not hold that the Corporation were barred from contending that the drain was not a public sewer. With regard to the pleas stated against the principle on which the allocation had been made, his lordship said the defendant carried his contention this length, that each frontager should be dealt with in the calculation quite apart from the others; and that one whose property happened to be situated where the sewer was near the surface, or where there was no rock cutting or no manhole, was to get the benefit of that in the calculation. His lordship thought the method followed by the Corporation was in every way more reasonable and equitable, and on the whole matter he thought the Corporation were entitled to prevail. They were willing to take the frontage at 232 yards instead of 240, which brought down the sum claimed to 337*l.* 7*s.* 5*d.*, and as this was only conceded at the proof, he thought interest should only run from that date as on an ascertained amount.

PATENT AND MERCHANDISE MARKS.

A PARLIAMENTARY paper was issued on Saturday containing correspondence and reports relating to the recent International Conference at Brussels on the subject of industrial property and merchandise marks. The British delegates, in concluding their account of the proceedings, observe :—"We may state that, if the positive results of the conference are not great, the thorough discussion to which the disputed points have been subjected may possibly clear the ground for the establishment of a general accord. It is evident that the German Government will not join the union unless satisfaction is given to them on two points, viz. (1) Agreement to three years as the minimum period for the forfeiture of patents for non-working; and (2) the extension of the period of priority for patents from six to twelve months. Great Britain could grant the former of these concessions without any fresh legislation. Not so, however, as regards the latter. It will be for Her Majesty's Government to consider whether, if an agreement can be reached between Great Britain and France and the other contracting States as to Article VI., relative to the registration of a trade mark *telle quelle*, it is desirable or not to undertake the legislation which would be required to give effect to an extension of the period of priority for patents from six to twelve months. If this could be done every obstacle, so far as Great Britain is concerned, would apparently be removed to the adhesion of Germany to the union."

CHRIST CHURCH, BIRMINGHAM.

THE first arbitration arising out of the Birmingham Churches Bill, 1897, has recently been settled under and according to the provisions of the Land Clauses Consolidation Act. The case

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was to determine the value of the property, right and interest of Miss Elizabeth Homer in and to certain catacombs and vaults under Christ Church, and the compensation to be paid to her for the acquisition thereof. Mr. Frank Smith, of Cannon Street, was the arbitrator on behalf of the claimant, Miss Homer (instructed by Messrs. Jacob Rowlands & Son), and Mr. Edward Bettridge, Waterloo Street, was the arbitrator on behalf of the church trustees (instructed by Messrs. Milward & Co.), and they appointed Mr. George Spencer Mathews, Waterloo Street, to act as umpire. The arbitration proceedings took place in June last, and Mr. Smith and Mr. Bettridge having failed to agree the matter was referred to the umpire. Mr. Mathews has recently published his award, and the amount works out a little more than 10*l.* a catacomb. The catacombs are built in tiers of three, and each catacomb averages 7 feet 9 inches long, 2 feet 9 inches wide and 1 foot 8 inches high, and contains approximately 19 superficial feet.

TRINITY HOSPITAL, LEICESTER.

THE construction of a new bridge over the canal and the making of a new road from the Western Boulevard into the Newarke at Leicester, necessitated an interference with the ancient buildings of the Trinity Hospital. Not only had the Corporation to take a portion of the front garden for the purpose of widening the thoroughfare, but to straighten the street line some of the rooms in the institution had to be taken down, the Town Council making an exchange of land by way of compensation. The alterations had raised the question of increasing the accommodation at the hospital, where the inmates had now no day room, but must live and sleep in the same apartment. Two schemes are at present under consideration, with the object of giving the hospitallers two rooms each, and one of them will ultimately be adopted. The hospital, with an oratory, was founded in 1330 by the Duke of Lancaster, and enlarged by his son, then benefiting about 100 alms people, who were attended by some ten nurses, and the oratory having been transformed into a collegiate body. Eventually the college was disbanded, but the hospital continued, and in 1770 was renovated at the expense of the Duchy of Lancaster. It is one of the most ancient places in the borough, the chapel of the hospital being the same as was used in the days of John o' Gaunt. This it is proposed to leave untouched.

SWIVEL WINDOWS.

A BUILDING ordinance was recently passed by the City Council of Chicago compelling the use of swivel windows above the second storey of all new buildings. The purpose of the law is declared to be the prevention of the numerous accidents attending the cleaning of stationary windows. The new law provides that upper storey windows must swing on horizontal or vertical pivots, otherwise a balcony must be built in front of every window. Opposition has arisen to the law on the ground that it was designed to benefit the owners of patents on swivel windows, and also that the size of windows will have to be reduced owing to wind pressure, and accidents will result from falling window-sashes.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C. from whom all particulars and information relating to Patents may be had gratuitously.*]

APPLICATIONS FOR PATENTS.

17614. Edward Lloyd Pease, for "Improvements in structural arrangements in a manner applicable to roofing and the like structural purposes."

17663. Andrew Kesson, for "Improvements in brick-making machinery."

17696. John Cameron Swan, for "Improvements in kilns for burning cement-making materials and for similar purposes."

17792. James Carr, for "Improvements in ventilators for ventilating rooms, buildings and the like."

17863. John L. Stevenson and John Evans, for "Checkering bricks for hot-blast stoves."

17933. Thomas Constantine Fawcett, for "Improvements in the method of feeding duplex brick-making machines."

17951. George Hodgkinson, for "Improved means for glazing roofs and similar parts of buildings or structures."

19273. Quoclin, for "System of sheet roofing."

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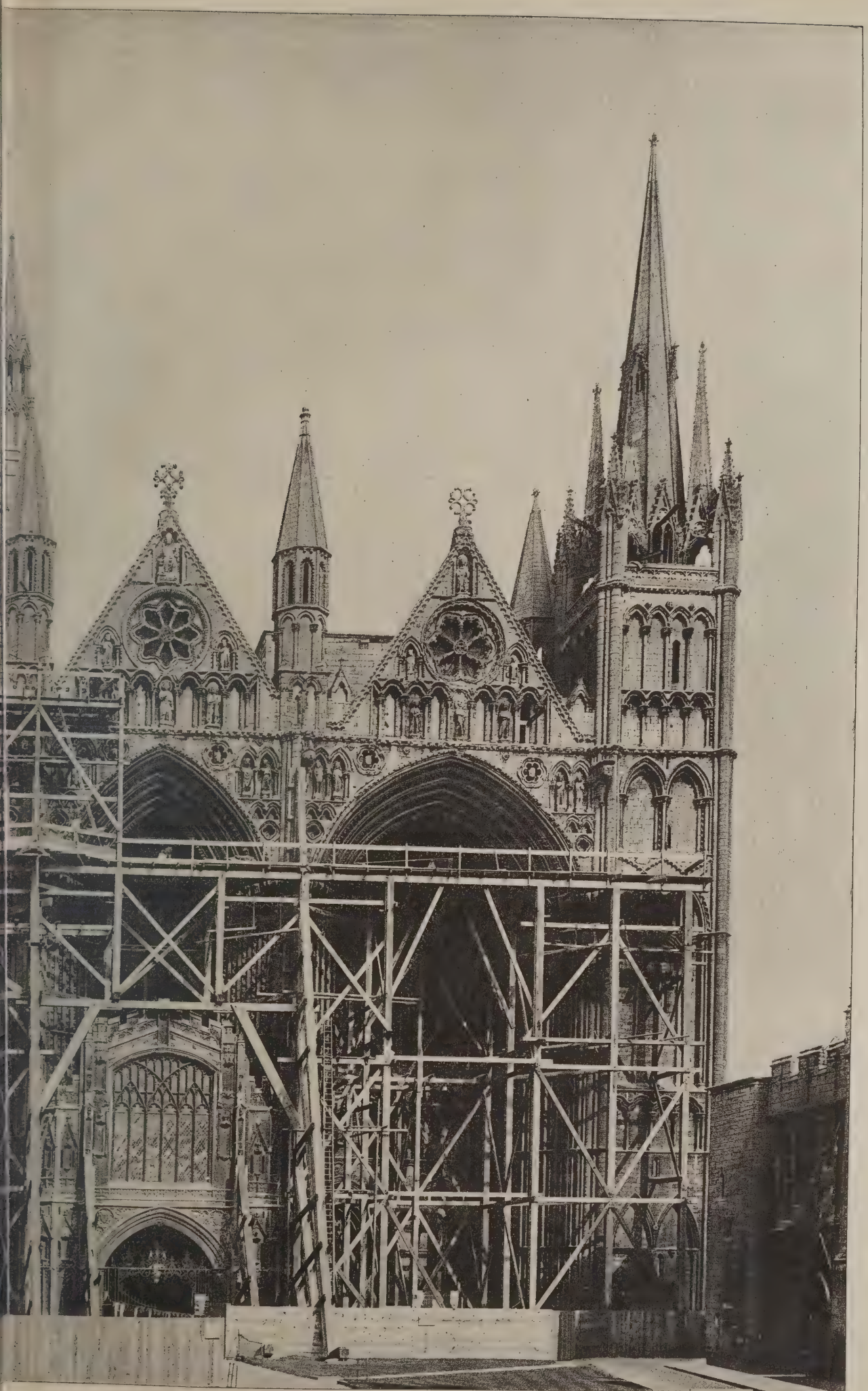
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CATHEDRAL SERIES, No. 163.—PETERBOROUGH: WEST FRONT IN 1827.

From a Drawing by R. Cattermole.



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PETERBOROUGH: WEST FRONT.



THE GUARDIAN ANGEL

J. H. EASTWOOD

Sept 2nd 1893



CHURCH, MILE END, E.
F. I. A., Architect.



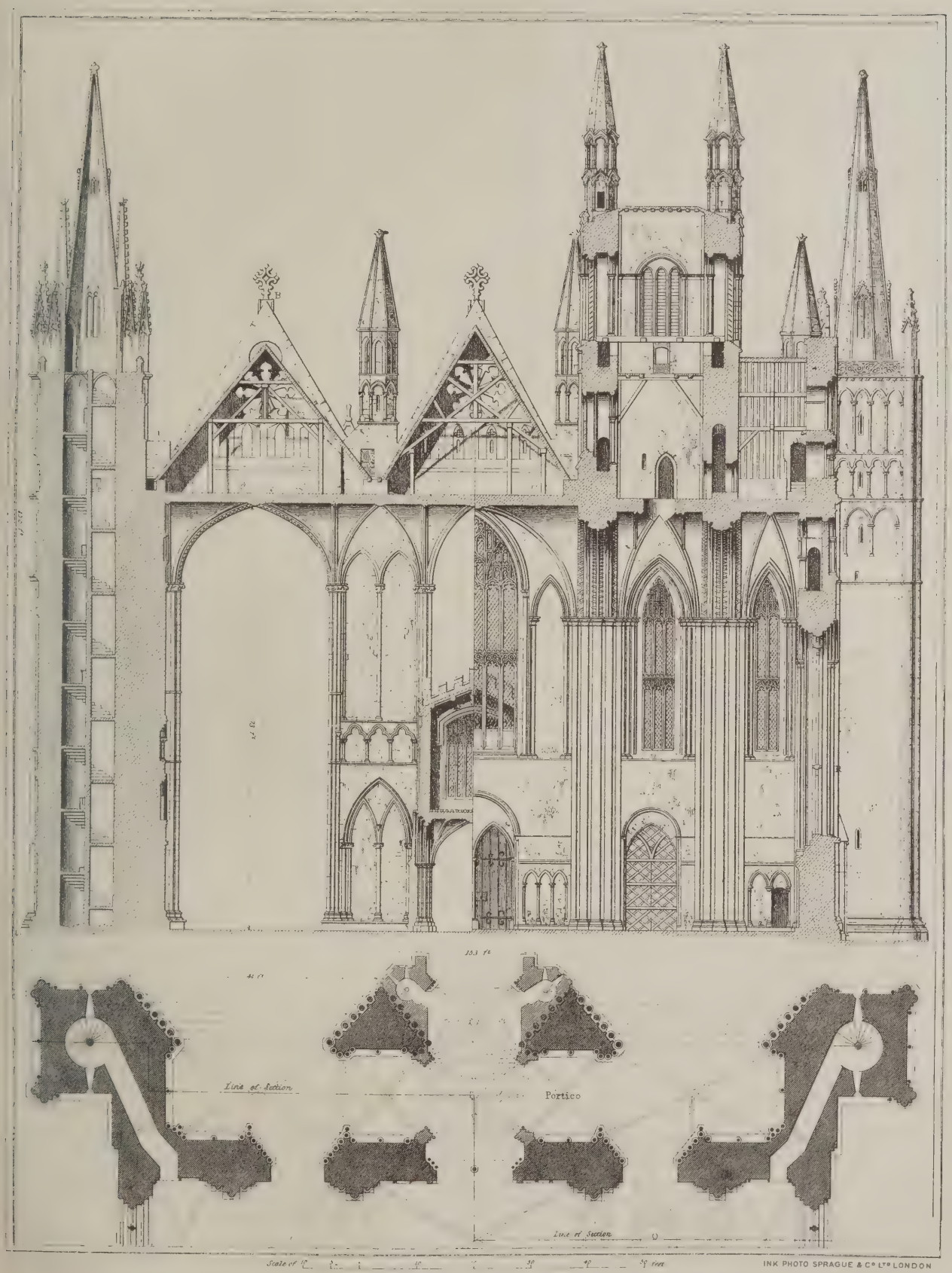
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Sept: 2nd 1898



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EG OF ARMS.



CATHEDRAL SERIES, No. 164.—PETERBOROUGH: WEST FRONT. PLAN AND SECTION.

The Architect.

THE WEEK.

IT was right on the part of Sir J. WOLFE BARRY to draw attention at Bristol to the unnecessary cost which is imposed on those who have to erect large structures in order to meet the requirements of the Board of Trade in providing for wind pressure. TREDGOLD ascertained that the pressure was equal to 40 lbs. per square foot, and was similar with areas of all dimensions. But when at Christmas, 1879, the Tay Bridge broke down, owing, as was supposed, to wind pressure being more than 40 lbs. a foot on the exposed surface, the Board of Trade enacted that all railway bridges and similar structures should be made able to resist a pressure of 56 lbs. There was a belief that small gauge experiments were not to be relied on. It was found by experiments at the Forth Bridge on two wind gauges, one of 300 square feet and the other of 1½ square feet, that with an increase of area the unit of pressure fell off in a very marked degree. Under the same conditions of wind and exposure the larger gauge registered a pressure 38·7 per cent. less per square foot than the smaller gauge. Sir J. WOLFE BARRY instituted experiments at the Tower Bridge by observing the pressure on the surface of the bascules of the bridge as evidenced by the power exerted by the actuating engines. In that way a wind gauge of some 5,000 feet in area was obtained, and it has been shown that, while small anemometers placed on the fixed parts of the bridge adjoining the bascules register from 6 to 9 lbs. per square foot, the wind pressure on the bascules is only from 1 to 1½ lbs. per square foot. The amount fixed by TREDGOLD was therefore more than sufficient. "It is difficult to imagine," said Sir J. WOLFE BARRY, "the amount of money which has been wasted in unnecessary provision against wind strains of 56 lbs. per square foot on large areas in consequence of this hurried generalisation from insufficient data. I know something of what the provision for 56 lbs. on the square foot for wind cost at the Tower Bridge, and I do not wish to mention it; but if the public had been told that the dictum of experts, arrived at however hastily in 1880, was to be set aside in the construction of that bridge, all confidence would have been beforehand destroyed in it, and I suppose no committee of Parliament would have passed the Act." It is well occasionally to make assurance doubly sure, but in construction excessive strength imposes other charges besides those of cost.

ON Monday the Cheltenham Town Council passed the following resolution:—"That whereas the present distribution of the fund available for technical instruction in Cheltenham secures inadequate results for the money spent, this Council is of opinion that the time has arrived when steps should be taken to establish a school of technical instruction under the control of the Corporation of Cheltenham, and hereby requests the technical education committee to forthwith consider and prepare a scheme for the establishment of such school." In many other corporations a similar resolution would be adopted if as much care were taken in the investigation of results. The "education" which is given in most of the provincial towns can hardly be taken seriously. But it serves the purposes of a host of officials at South Kensington, and to uphold them at all costs is, we suppose, one of the inevitable misfortunes to which the country is doomed.

IT is expected in modern warfare that public buildings will not suffer by cannonading if they can be avoided, and the French console themselves for some of their losses in the war of 1870-71 by charging their opponents with indifference to a regulation which was dictated by advanced civilisation. The great victory of Friday last in the Soudan —one in which all Britons can rejoice—has caused more or less injury to the Mahdi's tomb, but it is not apparently an example of architecture which does much credit to the modern Arab artists. It was apparently designed by an ex-Government official, and those in Egypt are not of more refined taste than the officials of the West. According to SLATIN PASHA it is "a square building, was erected some 30 feet high and 36 feet each way, and the stone for this construction, of which the walls were upwards of 6 feet thick, had to be brought all the way from Khartoum. About this a hexagonal wall 15 feet high was built, from which rose a dome 40 feet high. On the corners of the main building were four smaller domes. This was called Kubbet el Mahdi (Mahdi's dome). It was furnished with ten large arched windows and two doors, and in the hexagonal portion were six skylights. It was whitewashed all over and surrounded by a trellis-work fence. The windows and doors were made by the workmen in the Khartoum arsenal, while directly beneath the dome and over the Mahdi's grave a wooden sarcophagus was erected, covered with black cloth. On the sides of the walls candelabra were hung, while suspended by a long chain from the centre of the dome was an immense chandelier taken from the Government Palace at Khartoum. The sombre appearance of the inside of the building was relieved by some gaudy painting on the walls." Probably it was supposed the tomb of the Mahdi would rival MOHAMMED'S as a goal of pilgrims, but after the downfall of the Khalifa a week ago the tomb had better vanish like other "dangerous structures."

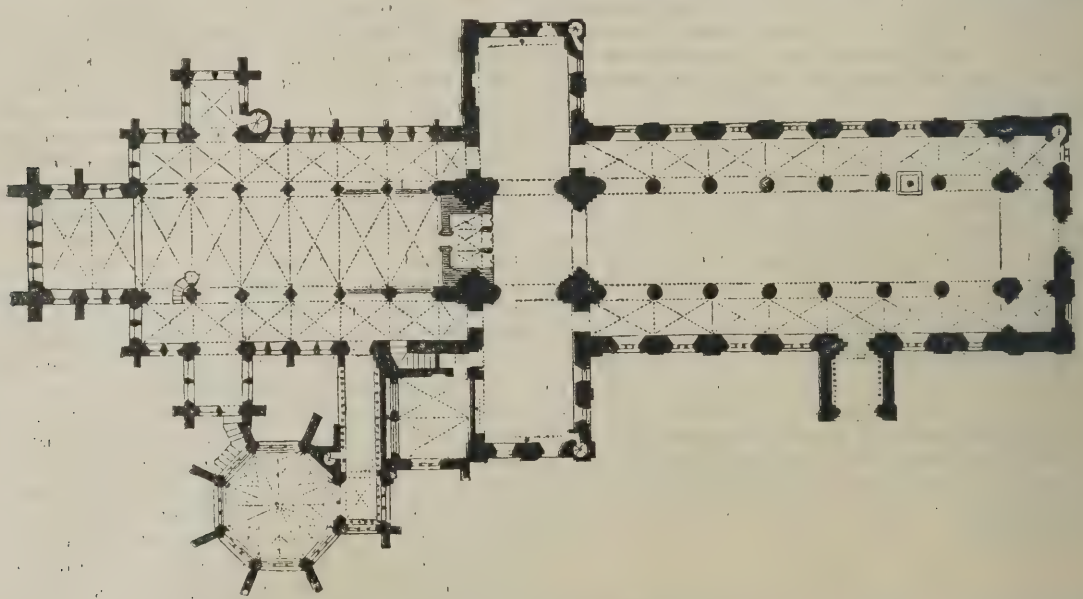
WHEN describing GIOTTO'S frescoes at Sta Croce, and especially that which represents the contest between St. FRANCIS and his father, Mr. RUSKIN says, "I have read the picture to you as, if Mr. SPURGEON knew anything about art, Mr. SPURGEON would read it—that is to say, from the plain, common sense, Protestant side." The volume of the Pastor's autobiography which has just appeared reveals that, in spite of his indifference to art, Mr. SPURGEON'S common-sense Protestantism at one time fascinated Mr. RUSKIN. He was a regular attendant at the services in the concert-hall of the Surrey Gardens. The catastrophe of 1856 was not without its effect on the minister, and in 1858 he was dangerously ill. On the very first day Mr. SPURGEON was able to leave his room he was visited by Mr. RUSKIN, who exclaimed on seeing him, "My brother, my dear brother," and, casting himself on his knees beside the sofa, kissed him tenderly. But he did not come empty-handed. It was characteristic of Mr. RUSKIN that as the most efficient aids to recovery he brought with him a pair of engravings and some bottles of rare wine. Mr. SPURGEON regained his strength and throughout his life remembered the writer's impulsive tenderness. But common-sense Protestantism, like many other common-sense theories, lost its interest for Mr. RUSKIN, and indeed a clergyman who was indifferent to art had little chance of prevailing with him. He acknowledged that he would have accepted the teaching of the Catholics if their clergy had shown more respect for masterpieces of painting. But questions of doctrine could not overcome Mr. RUSKIN'S good nature, and he would be as moved by the sight of a sick monk as he was by that of the Surrey pastor.

THERE does not appear to be much progress made in the arrangements for the new Salle des Séances in the French Chambre des Députés. A committee of eleven members has been formed and an architect appointed, but the plans have not yet obtained approval. It was necessary to study foreign legislative buildings, and to undertake a series of soundings. Preliminary inquiries always are tedious, and it is not anticipated the works can be commenced before next year. It will be remembered that the new salle is to be erected in the Cour de Bourgogne, the existing salle being converted into a conference hall. The galleries, to which the public are now admitted, will not be required for that purpose hereafter, for the deputies would not gain by deliberating before the crowd, so it is intended to use them as an annexe to the libraries. Works which are rarely consulted can be placed there. The new salle will be adorned by the foremost painters of Paris, but it is premature to consider decoration when the ground remains unexcavated for the foundations.

SOUTHWELL CATHEDRAL.

IT will take some time before Southwell Cathedral is as familiar a title as Southwell Minster. We may also add that the view of restored building, and especially the spires with which the western towers are now crowned, and the low roof, will appear less attractive than vanished view. Old associations count for much in judging an English church, and Southwell Minster in its former condition was accepted as one of the most interesting examples of architecture in England. Any changes which have taken place were required in order to adapt the building to cathedral purposes and to increase its durability, but none the less the works which were carried out altered the character of a building that by many people was accepted as approaching the ideal of its class.

Southwell was a collegiate church, and its privileges as such appear to have existed at least from the ninth century. They may have had an earlier origin. Tradition assumes that a church was founded on the site by St. Paulinus, which was collegiate as well as parochial. The Roman missionary appears to have traversed the district in which Southwell stands, and might therefore select a site which then, as now, possessed many advantages. But the creation of a collegiate establishment was hardly feasible in a new district in the seventh century. That would mean the possession of capital in some form, most likely landed property, while the early missionaries appear to have lived from hand to mouth among their flocks. At the



time of the Reformation the representatives of the church claimed that the foundation dated from the reign of "the Righte famous of memorye Edgare the Kinge ma^{ties} moste noble p'genitor." Edgar came to the throne in 959, and the collegiate foundation at Southwell probably was not of older date.

But the institution existed before Christianity. In ancient Rome a collegium, or corpus, was a legalised association consisting at least of three members. It was necessary to obtain the sanction of the senate or of the emperor. Each association could possess property and receive legacies or gifts. The worshipful companies of London retain many of the characteristics of the old Roman collegia. But some were for religious purposes, and it has been assumed by German archæologists that the Christians in Rome were allowed to take advantage of the conditions in order to have meetings for divine service. The Roman origin was suggested when the canonists insisted on having at least three canons attached to every collegiate church. Southwell could therefore start when a provision for that number of clergy was secured. But if so, there was soon an increase. At the Conquest Southwell possessed ten prebends, and at the end of the thirteenth century there were sixteen. A collegiate church was an auxiliary to a cathedral, and having several able men must often have been a centre where counsel was to be obtained without the necessity of a long and toilsome journey to the cathedral. It is known that on one occasion the Archbishop of York announced that the duty of the annual visitation could be performed by the people of Nottinghamshire through a visit to Southwell equally well as by a visit to York. A concession of that kind is evidence of the importance which was recognised as belonging to the collegiate church. The prebendaries were invested with episcopal privileges, and they were even authorised to excommunicate all those who injured them or their property. They were likewise exempted from many of the onerous duties which devolved upon the possessors of landed property by English law. What is more remarkable, the hardships of the forest laws did not afflict them, for they were allowed to have the woods of their prebends in their own hands and custody, and the king's foresters were forbidden to take or sell anything found under the trees.

There appears to be no peculiar cause for the power of the canons of Southwell Church. The building was not the scene of any remarkable event. It did not possess extraordinary relics. Princes or great nobles were not numbered among its clergy. Yet there can be no doubt the collegiate body was wealthy and influential. Let us suppose the members were careful in attending to their duties and were sympathetic with all the sorrows which were found in the district, or in other words, that canonries were bestowed only on such men as by repute were model priests.

The church by itself is the best memorial of the power of the clergy. It is manifestly a costly building, and no one can doubt that it was adapted to become a nineteenth-century cathedral. The laity of the district must have provided the funds required for its construction. Apparently the greater part was erected in the early years of the twelfth century, and it is believed the work was carried out during the episcopate of Thomas II., Archbishop of York, 1109-14. Some parts of earlier buildings have been exhumed from time to time. There seems to be little doubt that in the building which preceded the existing structure the aisles, if not the nave, terminated with semicircular apses, and the flooring of the apses was much below the level of the aisles. The choir of the nave, on the contrary, must have had a floor on a higher level. At Southwell we have advanced Norman, and the style has little of that heaviness if not clumsiness which made Gothic so welcome an innovation.

The question of floor levels was one which received much attention when the restoration of the building was undertaken. The late Mr. Ewan Christian, who was entrusted with the work by the Ecclesiastical Commissioners, considered it was difficult to decide what was the original level, although he had no doubt the present floor had remained in *statu quo*, the pavement being very ancient. It was, he said, generally supposed that the floors of old churches had sunk below the level of the churchyards simply because the latter had risen. No doubt that was so to a certain extent, but it was impossible for churchyards to have risen to such an extent as he had seen in some places. In old times the floors of churches

often were laid below the level of the adjacent ground, and he believed the church at Southwell was an example. No doubt a great deal of mischief had been done in modern churches by lifting up the floors. There were many churches in the country the floors of which rose or fell according to the level of the ground, notably in St. David's Cathedral, which was built into a hill, and where there was a strong slope from one end of the church to the other of 3 feet 6 inches. In Southwell, as in many other cases, the bases of the pillars showed that they had been built upon a slope to suit the level of the ground.

The choir is Early English, and is believed to have been erected during the time when WALTER GREY ruled the See of York. Apparently the funds possessed by the canons were not able to meet the expenses, and it was necessary for the archbishop to appeal to the whole diocese for aid. The canons, it must be said, arranged to contribute one-fifteenth of their incomes towards the work. The choir would, therefore, appear to be erected between 1230 and 1250. There is a deed dated 1241 relating to a chantry which is said to be in the new work "in novo opere," and the words are taken to mean the choir. In the thirteenth century there was enthusiasm for building from which Southwell could not escape. Although there appeared to be some difficulty in finding money for the choir, that work was scarcely concluded when the *custos* arranged for the undertaking of other parts. A general resolution was therefore come to which stipulated that the *custos* was not to commence any new work in the church or outside without the consent of a convocation of the other canons. As it is believed from the character of the work that the north transept chapel, the cloister and the chapter-house and vestibule all belong to the thirteenth century, we cannot believe that the convocations of Southwell were opposed to new works, although it might be considered desirable to exercise control over the *custos*. According to Mr. PARKER the choir and chapter-house of Southwell "contain some of the richest and most beautiful details of Early English and Early Decorated work that we have remaining."

The rood-screen was constructed in the fourteenth century, and windows were inserted in the nave aisles. The west window is supposed to date from A.D. 1430, and BOOTH'S Chapel (which was taken down in 1847) from 1440.

SAINT PIERRE SUR DIVES.

By JOHN A. RANDOLPH.

IT is worth the tedium of the journey *viâ* Havre, the direct route, to visit this rather out of the way place.

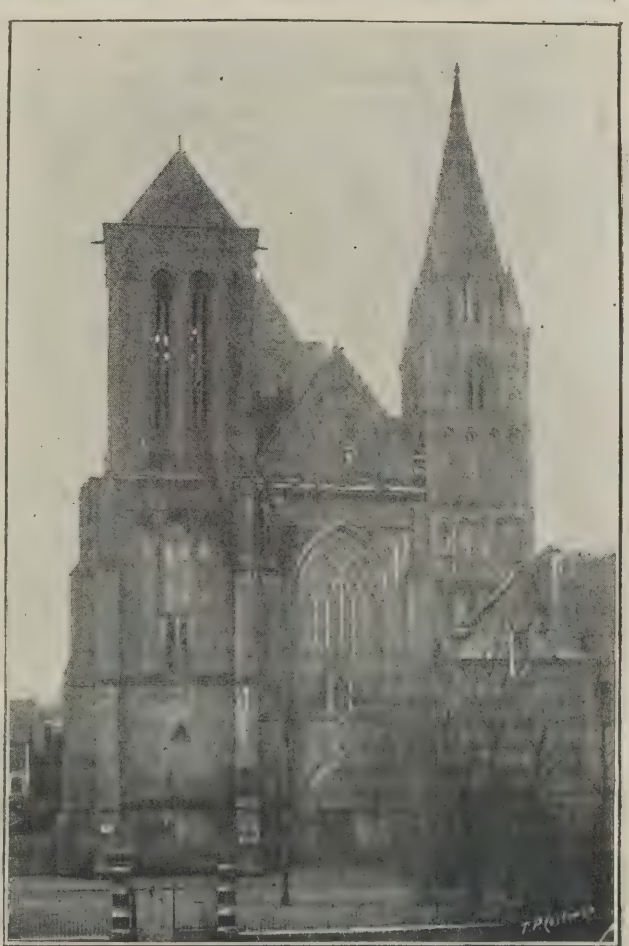
Lisieux is well known to architects who have "done" their Normandy, but those who have failed to see the church of St. Pierre sur Dives have failed to make themselves acquainted with what is in all probability the largest



—and certainly the finest—village church of the whole of France.

It is now the village church, but formerly belonged to the abbey, part of whose buildings, simple and of solid construction, still remain, but adapted as modern habitations for a not wealthy set of the villagers. This part abuts on and partly masks the lower half of the south-west tower, and faces a very narrow and atrociously paved thoroughfare of about 60 yards, or perhaps 70 long, leading into a small open space in front of the great church, possessing a few





healthy trees. The south-west tower, as it clears the roof of the abbey remains, shows three storeys of Romanesque

style with shallow arcading, two in fives and one in four. Above this is a stage of thirteenth-century date, having a small twin-light belfry window under a deeply recessed shafted arch, and two ornamented round panels on each side. A set of small brackets supports the cornice, and the whole is surmounted by a stone spire with stone corner spirelets. The west gable, which is minus its cross, was crocketed, but those ornaments on one side are nearly all gone. There is a beautiful bit of blind tracery, not unlike a window in Lincoln Cathedral, over a deep and ornate string-course over the Flamboyant west window. At the base of this window is a Late Gothic niche, with the MADONNA placed on the great sill of the window. The west doorway is thirteenth century, ornate and shallow. The north-west tower is very plain in its lowest stage, but the storey above has three sets of cusped lancets, the two outside ones being under large three-cusped heads, and the centre one under three small-cusped circles, the whole forming blind tracery and under a straight head. The top stage of this tower is a replica of the north-west tower of St. Pierre at Lisieux. At the junction of the nave, choir and transepts rises a magnificent square tower of two storeys, with shallow buttresses to the tower stage only, and the upper stage ornamentation being almost identical with that of the north-west tower, only not so high. It is surmounted by an equilateral roof.

The choir is apsidal and of three bays, with Late Gothic tracery in the upper windows. The chancel arch is pointed, but that from the nave to the transepts is a richly-moulded round arch. The nave vault is cross-ribbed, with the key-stones carved and the cross-ribs painted ornamentally for about a clear yard. The clerestory has traceried windows, but the nave arches and triforium are of an early date in the thirteenth century. The aisles are narrow and simple. The church sadly needs repair.

The fittings and the tone of the organ are positively distracting, as also the singing, especially after that of St. Pierre at Lisieux.

The "Halles," at a short distance east of the church, has probably the largest timber roof in the world, but the building is low and very plain.

THE BRITISH ASSOCIATION.

ON Wednesday the British Association for the Advancement of Science met for the third time in its history in Bristol. The former meetings were in 1836 and 1875. The address which was delivered by Sir William Crookes, the president, on Wednesday, was mainly occupied with the important question of the supply of bread to the inhabitants of these islands. It was a scientific upholding of the theory of Malthus, which was derived from Hume and Price, that population increases in a different ratio to the means of subsistence. Sir William Crookes admitted that his statements were of the alarmist order and were certainly depressing, but they were founded on stubborn facts. They were intended to show that England and all civilised nations stand in deadly peril of not having enough to eat. The wheat-producing soil is totally unequal to the strain put upon it. The way out of the colossal dilemma would be shown when the chemist came to the rescue of the threatened communities. It was through the laboratory that starvation might ultimately be turned into plenty. In connection with this subject the President drew attention to the startling fact that in the United Kingdom we are content to hurry down our drains and water-courses, into the sea, fixed nitrogen to the value of no less than 16,000,000*l.* per annum. This unspeakable waste continues, and no effective and universal method is yet contrived of converting sewage into corn. Of this barbaric waste of manurial constituents Liebig, nearly half a century ago, wrote in these prophetic words:—"Nothing will more certainly consummate the ruin of England than a scarcity of fertilisers—it means a scarcity of food. It is impossible that such a sinful violation of the divine laws of nature should for ever remain unpunished; and the time will probably come for England sooner than for any other country when, with all her wealth in gold, iron and coal, she will be unable to buy one-thousandth part of the food which she has, during hundreds of years, thrown recklessly away."

In conclusion the President said:—

These, then, are some of the subjects, weighty and far-reaching, on which my own attention has been chiefly concentrated. Upon one other interest I have not yet touched—to me the weightiest and the farthest reaching of all.

No incident in my scientific career is more widely known than the part I took many years ago in certain psychic researches. Thirty years have passed since I published an account of experiments tending to show that outside our scientific knowledge there exists a force exercised by intelligence differing from the ordinary intelligence common to mortals. This fact in my life is of course well understood by those who honoured me with the invitation to become your President. Perhaps among my audience some may feel curious as to whether I shall speak out or be silent. I elect to speak, although briefly. To enter at length on a still debatable subject would be unduly to insist on a topic which—as Wallace, Lodge and Barrett have already shown—though not unfitted for discussion at these meetings, does not yet enlist the interest of the majority of my scientific brethren. To ignore the subject would be an act of cowardice—an act of cowardice I feel no temptation to commit.

To stop short in any research that bids fair to widen the gates of knowledge, to recoil from fear of difficulty or adverse criticism, is to bring reproach on science. There is nothing for the investigator to do but to go straight on, "to explore up and down, inch by inch, with the taper his reason;" to follow the light wherever it may lead, even should it at times resemble a will-o'-the-wisp. I have nothing to retract. I adhere to my already published statements. Indeed, I might add much thereto.

Confirmation of telepathic phenomena is afforded by many converging experiments, and by many spontaneous occurrences only thus intelligible. The most varied proof, perhaps, is drawn from analysis of the sub-conscious workings of the mind, when these, whether by accident or design, are brought into conscious survey. Evidence of a region below the threshold of consciousness has been presented since its first inception in the "Proceedings of the Society for Psychical Research," and its various aspects are being interpreted and welded into a comprehensive whole by the pertinacious genius of F. W. H. Myers. Concurrently, our knowledge of the facts in this obscure region has received valuable additions at the hands of labourers in other countries. To mention a few names out of many, the observations of Richet, Pierre Janet and Binet (in France), of Breuer and Freud (in Austria), of William James (in America), have strikingly illustrated the extent to which patient experimentation can probe subliminal processes, and can thus learn the lessons of alternating personalities and abnormal states. Whilst it is clear that our knowledge of subconscious mentation is still to be developed, we must beware of rashly assuming that all variations from the normal waking condition are necessarily morbid. The human race has reached no fixed or changeless ideal; in every direction there is evolution as well as disintegration. It would be hard to find instances of more rapid progress, moral and physical, than in certain important cases of cure by suggestion—again to cite a few names out of many—by Liébeault, Bernheim, the late Auguste Voisin, Bérillon, (in France), Schrenck-Notzing (in Germany), Forel (in Switzerland), Van Eeden (in Holland), Wetterstrand (in Sweden), Milne-Bramwell and Lloyd Tuckey (in England). This is not the place for details, but the *vis medicatrix* thus evoked, as it were, from the depths of the organism is of good omen for the upward evolution of mankind.

A formidable range of phenomena must be scientifically sifted before we effectually grasp a faculty so strange, so bewildering and for ages so inscrutable as the direct action of mind on mind. This delicate task needs a rigorous employment of the method of exclusion—a constant setting aside of irrelevant phenomena that could be explained by known causes, including those far too familiar causes, conscious and unconscious fraud. The inquiry unites the difficulties inherent in all experimentation connected with mind, with tangled human temperaments and with observations dependent less on automatic record than on personal testimony. But difficulties are things to be overcome even in the elusory branch of research known as experimental psychology. It has been characteristic of the leaders among the group of inquirers constituting the Society of Psychical Research to combine critical and negative work with work leading to positive discovery. To the penetration and scrupulous fairmindedness of Professor Henry Sidgwick and of the late Edmund Gurney is largely due the establishment of canons of evidence in psychical research, which strengthen while they narrow the path of subsequent explorers. To the detective genius of Dr. Richard Hodgson we owe a convincing demonstration of the narrow limits of human continuous observation.

It has been said that "nothing worth the proving can be proved nor yet disproved." True though this may have been in the past, it is true no longer. The science of our century has forged weapons of observation and analysis by which the veriest tyro may profit. Science has trained and fashioned the average mind into habits of exactitude and disciplined perception, and in so doing has fortified itself for tasks higher, wider and incomparably more wonderful than even the wisest among our ancestors imagined. Like the souls in Plato's myth that follow the chariot of Zeus, it has ascended to a point of

vision far above the earth. It is henceforth open to science to transcend all we now think we know of matter, and to gain new glimpses of a profounder scheme of cosmic law.

An eminent predecessor in this chair declared that "by an intellectual necessity he crossed the boundary of experimental evidence and discerned in that matter, which we in our ignorance of its latent powers, and notwithstanding our professed reverence for its Creator, have hitherto covered with opprobrium, the potency and promise of all terrestrial life." I should prefer to reverse the apophthegm and to say that in life I see the promise and potency of all forms of matter.

In old Egyptian days a well-known inscription was carved over the portal of the temple of Isis:—"I am whatever hath been, is, or ever will be; and my veil no man hath yet lifted." Not thus do modern seekers after truth confront nature—the word that stands for the baffling mysteries of the universe. Steadily, unflinchingly, we strive to pierce the inmost heart of nature, from what she is to reconstruct what she has been, and to prophesy what she yet shall be. Veil after veil we have lifted, and her face grows more beautiful, august and wonderful with every barrier that is withdrawn.

ITALIAN, FRENCH AND GERMAN BINDINGS.*

THE chief difference between the books of the latter half of the fifteenth century and those that preceded them is that caused by the introduction of printing, and although to some extent the tradition of rich jewelled and enamelled bindings was carried on in England in the form of books bound in velvet and adorned richly with small pearls, enamels and rare jewels, generally speaking the bindings became far simpler. But, as has been shown, these simple bindings in leather paved the way for the developments of the beautiful art of gold tooling, which, used in an elementary and accessory way by the Orientals, in the hands of their Italian copyists reached a high point of art and technique. It is generally considered that the gold tooling on early Italian books was first done on those issued from the press of Aldus Manutius, but there seems little doubt that the art was known and practised by Italian binders before him. Indeed it is difficult to say positively whether Aldus bound any of his books himself. On one of those attributed to him occurs, in blind, the device of a dolphin, and on many what is known as the Arabic knot. This knot, copied directly from Oriental work, is sometimes impressed in blind and sometimes in gold. The early Venetian and Florentine bindings are remarkable for the consummate skill and taste with which the few tools used upon them are designed. They have, I think, never been surpassed in these qualities, although later work is technically of greater excellence. Many of the borders found on early Italian bindings are repeated and modified again and again, both in English and French work.

So much cannot be said for the Italian bindings made with sunk panels, also after an Oriental pattern. In these instances the Italian love of colour has resulted in work that is very brilliant, but often over-coloured. The boards are not of wood, but pasteboard, and the sunk panels are often made by means of double boards, the upper of which is pierced. The edges of the double boards often show a depression along their centres where the two boards join, and curiously enough this depression is often artificially produced in later Italian, French and English work as a decorative feature in itself. The ornamentation upon these books is frequently finished by hand painting in gold and colours, and on such of them as contain official documents the lion of St. Mark is often shown in the centre oval. The art of the Venetian binders, however, is considered to have reached its highest point in the bindings made for Jean Grolier, Vicomte d'Aguisy, who spent some time in Italy as ambassador from Francis I. to Pope Clement VII., and was afterwards Treasurer-General of France. He was a scholar and a man of taste, and is well known as being not only the first great collector of books, but also the first amateur to have his books bound for himself in a particular manner. The designer of his bindings is unknown. It has been suggested that Geoffrey Tory may have had something to do with them, and it has also been thought that Grolier himself gave the general idea of the decoration. The earlier "Groliers" were no doubt bound in Italy, and on them the small fleurons and tools are cut solid. At a later time the tools were cut with lines across them; these are usually considered to be French work, but it is difficult to decide, as it is likely that Grolier took an Italian finisher with him on his return to France. The backs of Grolier's books are sometimes ornamentally treated. On one board, at the lower part, is the legend "Io. Grolierii et amicorvm," and on the other board are usually the words "Portio mea domine sit in terra viventium" stamped in the centre. Many of the brown morocco bindings are marbled with a dark stain, and at the beginning and end of each volume is a section of vellum, making the joint very strong, and sometimes stiff to open. The fillets on some of Grolier's bindings are stained black, but with this exception no colour besides the gold is used on any of his Italian bindings, although red and blue occur on some French examples.

Tommaso Maioli, another great collector, used a similar inscription to that of Jean Grolier, and put on most of his books the words "Tho. Maioli et amicorvm," and on some of his books inlays of coloured leather are found; one, a copy of the "Hypnerotomachia Poliphili," printed in Venice in 1499, but bound later, is in dark blue morocco with the centre panel of the upper board inlaid with citron morocco. Several of the simpler bindings made for Maioli have the grain of the morocco slightly filled in with gold, and the leathers are sometimes marbled with a dark stain. Many of his bindings are picked out with background thickly powdered with small gold dots.

The early Italian bindings are sometimes ornamented with "cameo" impressions on the leather. These impressions are themselves often made in a hollow cut or dressed into the side of the board. One of the most tasteful instances of the use of this kind of ornament occurs on the red morocco binding of a Greek "Anthology," printed at Florence in 1490. On one side, in a circular hollow, is a cameo portrait of Alexander the Great, and on the other Philip of Macedon—the gold and blind tooling in this book is most charming. Other instances of portraits made in a similar way are found, but the best known are the stamps found on books which belonged to Demetrio Canevari, physician to Pope Urban VII. These stamps vary in size according to the shape and size of the books on which they are used—the bindings were probably made in Venice between 1534 and 1560—the rest of the gold tooling is distinctly of Venetian character, but they were not made for Canevari himself, who was not born until 1559.

The design on the "Canevari" stamps represents Apollo driving a golden chariot, with a white and a black horse, towards a hill on which is a silver Pegasus, the colour being added by hand. Apollo has a golden helmet and a golden cloak, and holds a golden whip in his hand. On the larger stamps some silver clouds are shown in the sky, but these do not occur on the smaller stamps. Round the stamps on a ribbon are the words "ORTHOS KAI ME LOXOS," and gold tooled work of fine design usually encloses the whole, with sometimes the title of the book in an ornamental cartouche. The colouring on the cameo is frequently very faint, but some of it can generally be found in protected corners. Traces of all the original colour can be still seen in the splendid copy of "Polydorus Vergilius de Historia Anglica," now exhibited in one of the binding show-cases in the King's Library at the British Museum.

The later Italian bindings are largely heraldic. From the interesting sixteenth-century embroidered book with the arms of Cardinal Perretti, afterwards Pope Sixtus V., to those made for Henry Benedict, Cardinal York, there are numerous examples. The papal bindings are, some of them, decorative enough, with the tiara and cross keys, the arms in each case being those of the family of the Pope. But generally the art of decorative bindings in Italy, from the sixteenth century onwards, suffered a rapid and remarkable fall, which it has never recovered. The Italian work not heraldic of this period is frittered away in minute stamps, inferior in design and weak in combination. A little inlay of coloured leather is sometimes found, and also there are instances of stained and painted leathers.

2. *France.*

In France the art of bookbinding has been highly appreciated for a long time, and many beautifully illustrated books treat of the subject.

Heraldry plays an important part in the history of French bookbinding, and for this division of book decoration a most valuable text-book exists in the "Armorial du Bibliophile" by J. Guigard.

Such a book of reference for English "super libros" is much wanted. To French workmen we in England owe, no doubt, much of our excellence in book decoration, as in many instances there have been large accessions to our native workmen, due to the immigration of Frenchmen, especially about the time of the revocation of the Edict of Nantes in 1685, and these workmen prospered here so well that I believe without exception they came to stay.

From 1401 until 1791 there existed in Paris a guild known as that of St. Jean Latran—an account of it will be found in Thoinan's "Les Relieurs Français"—and no doubt the encouragement given to "booksellers, printers, scribes, illuminators and binders" by this guild has largely contributed to the generally high level of French bookbinding, both from the technical and decorative points of view. An interesting outcome of the existence of this guild, which was equivalent to our trade unions, was the fact that the art, its secrets and special styles, were often preserved from father to son in the same family continuously for several generations.

* A Cantor lecture on "Decorative Bookbinding," by Cyril Davenport, published in the *Journal of the Society of Arts.*

The early sixteenth-century French bindings are generally in calf, stamped in blind. The smaller stamps are often arranged in perpendicular lines, and this characteristic is found in the few existing bindings made for Louis XII. A commoner form is the large panel stamp, usually of some scriptural subject, and often bearing the name of the binder on a border. Such are the works executed by Jean Norins, Louis Bloc, André Boule, R. Macé and several others, and in these bindings, always in blind, is no sign of Italian influence.

But from the earliest introduction of gold tooling in French bindings the designs are strongly of Italian character, the actual workmanship rapidly becoming of the highest technical excellence.

Francis I. possessed several fine bindings ornamented with gold toolings; they bear his badge of a salamander, and often also his crowned initial. They are sometimes supposed to have been bound by the artist Geoffrey Tory, who was "engraver and royal printer," and also bound books ornamented in gold with his own special designs, largely taken from Italian models, but nevertheless characteristic of himself. Whether Tory bound any of the fine bindings of Francis I. is not certain, but he is credited with having to some extent designed for Grolier. Indeed, in his "Champfleury" he mentions that he had been employed by Grolier to design some letters. On Tory's bindings is sometimes found his badge of a vase "qui est cassé, par lequel passe ung toret," the "toret," a play upon his name, being the instrument with which the china was pierced previous to putting in the rivets.

The French bindings executed for Jean Grolier are like the Italian ones, but have some small differences—the most notable being that the small leaf-shaped tools which are "solid" in the Italian examples are "azurés" or scored across with lines in the French. Another peculiarity is that the fillets in ribbons which interlace so effectively in many of these bindings are sometimes marked in the French examples with colour, black, red or blue.

The love of colour probably reached its strongest manifestation in the bindings made for Henry II., Catherine de Médicis, and Diane de Poictiers, Duchesse de Valentinois. On the bindings of each of these collectors the heraldic element enters largely. The colour is some kind of enamel when used simply as an additional ornament to the gold tooling, but when an entire coat of arms is painted, as in the case of Catherine de Médicis's copy of the works of Dionysius Areopagita, printed in Paris in 1562, now in the British Museum, then simple oil colours alone are used. On the bindings made for Diane de Poictiers her design of an arrow with laurel and a tomb often is found, with sometimes her coat of arms, "Bérzé impaling Poictiers." On the later bindings, however, are generally found bows, arrows, quivers, interlaced crescents and the cypher of the two D's reversed, the solution of the monogram being still unsolved, and generally there is a preponderance of white in the colouring.

On the bindings of books for all these three personages occur monograms, much resembling each other, concerning which there has been much controversy. On those bound for Henry II. are two D's reversed crossed by a bar, probably standing for "Henri Deux." On those bound for Catherine are H and C interlaced, and on those bound for Diane are simply two D's reversed. But on most of the bindings made for all these three personages the king's monogram with crown occurs as well as the others.

The "semis" or powdering of a small tool symmetrically over the field is found first in French books bound for Charles IX., and these were probably executed by Claude Piques, his "binder in ordinary." On some of Charles IX.'s books the royal coat of arms is painted in oils in the centre, and the "semis" is of crowned C's. At Lyons during the sixteenth century, and later, were produced numbers of beautifully coloured bindings, usually small, of interlacing fillets painted in some kind of enamel.

All the children of Henry II. and Catherine de Médicis seem to have liked fine bindings, and it is even said that Henry III. was himself an amateur in the art. His bindings often have upon them a death's head and religious mottoes. In his reign lived Nicholas Eve, one of whose bindings is in the British Museum. This binding covers a copy of the Statutes of the Order of the Saint Esprit, instituted by Henry III. It is one of the forty-two copies bound "et couverts de maroquin orenge du Levant, enrichis d'un costé des armoires de Sa Majesté pleines dorées, de l'autre de France et de Pologne, et aux quatre coins de chiffres, et le reste de flammes, avec leur fermoirs de ruban orenge et blue, suivant l'ordonnance de M. le Chancelier, du 26 et quittance du 27 déc. 1579."

The orange of the leather of this book is now faded, and the ties of orange and blue are nearly worn off, otherwise the book is in perfect condition. It is curious that the general style of decoration attributed to the Eves is not like that in this book, but is the kind known as "à la fanfare," richly and thickly covered with curving sprays of laurel and palm, spirals of conventional foliage and arabesques of graceful forms.

The workmanship of these bindings is very skilled, but the design is usually too full, and not always as consistent as it might be. There is very rarely any colour found in them. The style seems to be common during the time when Nicholas Eve was "Relieur du Roy," and in Thoinan's "Les Relieurs Français" there are given several names of binders of the time who may have used it, as also may Clovis Eve, the next royal binder but one to Nicholas.

Several very fine instances of elaborate bindings in the "fanfare" style were made for Jaques Auguste de Thou, president of the Parliament of Paris in the sixteenth century; for him the largest specimens I have ever seen were done. De Thou was a great collector of books, and besides the magnificent bindings, usually credited to Clovis Eve, that were made for him were numerous simpler ones, nevertheless most charmingly bound in splendid leathers, the colours of which were, to some extent, chosen according to the subject of the books they covered.

The centre ornament of these books is the coat-of-arms of their owner. At first the paternal coat alone, a chevron between three gadflies, and below it a monogram; then two coats, his own and that of his first wife, Marie Barbançon, with again a monogram, but this time containing an M in addition to the I.A.T.; and lastly, again two coats, his own and that of his second wife, Gasparde de la Chastre, and a monogram containing her initials as well as that of her husband.

In the seventeenth century appeared the binders Le Gascon and Florimond Badier, particularly. Their work and methods were very similar—indeed, some authorities consider them to be the same man. As far as I have been able to see, however, Badier's work is coarser than that of Le Gascon. Badier fortunately sometimes signed his work, so that his manner can be distinctly ascertained. Le Gascon is mentioned in the register of the Guild of St. Jean Latran in 1622. Badier married the daughter of Jean Gillede, binder, in 1645. Mr. Herbert P. Horne in the "Binding of Books" thinks it not unlikely that Gillede was "Le Gascon." There is no doubt that most exquisite work was done, usually on small books, by some very skilled workmen who invented a new style between about 1630 to 1665. The chief peculiarity from the finisher's point of view about the designs in these bindings is the use of "dots." Not only are "dots" effectively used by themselves, but even the smallest tools, which were hitherto used solid, are scored across so that the impression instead, for instance, of being a consecutive one-line spiral, becomes a spiral of brilliant points. The result is an effect of glittering lacework, and no style in all the history of decorative ideas applied to bookbinding has been so much copied as this of Le Gascon.

His moroccos are sometimes clouded and sometimes in mosaic, the edges of the leaves being generally gilt, sometimes with marbling under the gold, and sometimes painted. There is a strong resemblance in the "pointillé" curves to work executed in silver filigree with twisted wires, but whether this gave the idea to Le Gascon is an open question—I think very likely it was so.

The Ruettes—father and son—bound much in the style of Le Gascon, but without the mosaics.

The Count de Hoym had several of his bindings made by Boyet, whose work is notable for its excellent technical qualities, as well as for the doublures, or inner ornamentation, with which they are often decorated. This binder is also supposed to have bound for Hilaire Bernard de Requeleyne, Baron de Longepierre, an amateur writer of plays, one of which only reached some amount of popularity. This was called "Medea," and in allusion to it his books usually have upon them a charmingly cut stamp of a golden fleece. Du Seuil, although his name occurs in many sale lists, and he was actually one of the binders in ordinary to Louis XV., has left no instance of work that can positively be known as his.

The family of the Padeloups gave five generations of binders to the world; the most celebrated of them was Antoine Michel, called "le jeune." He was appointed binder in ordinary to Louis XV. in 1633, in conjunction with Du Seuil, who had married his cousin, and he was one of the wardens of the Guild of St. Jean. Padeloup le jeune often attached his ticket to his bindings, so that we can sometimes in his case be quite sure of the binder. He invented what is called the "dentelle" bindings, the borders being very broad and extending inwards from the outer edges of the boards towards the centres in an irregular manner, somewhat resembling a piece of lace edging. Padeloup also decorated several of his books with symmetrical patterns repeated all over each board with small inlays of coloured leather. The taste for these inlaid or mosaic bindings rapidly spread in France. Among the best of the many excellent workmen who made them during the eighteenth century may be mentioned Le Monnier, who recovered his freedom in 1757, Jacques Antoine Derome, and Nicholas Denis Derome. The Deromes's bindings resemble those of Padeloup in many particulars, the dentelle style of border especially is often used, and often the stamp of a little

bird with outstretched wings is worked into it; when this occurs it is called "dentelle à l'oiseau." There were about fifteen members of the family of the Deromes who were binders, but the two mentioned are best known, the latter being called "le jeune." Derome le jeune often put tickets in his books; he is considered to have sinned in the technical peculiarity of having cut the edges of his book too far inwards towards the text—this is called "cropping." He is also generally supposed to have been the first great binder to use the saw in the backs of his books, so as to sink the bands to more easily produce the flat backs. This plan was, however, actually used in England on embroidered books in the seventeenth century.

The Le Monniers, twenty of which family are known binders, were all excellent workmen, the best known being a father and son—Louis François and Jean Charles; the younger of these two used sometimes a ticket inside the book, and sometimes the name "Le Monnier" stamped on the outside of the bindings themselves.

One exquisite specimen of a Le Monnier binding is exhibited in one of the binding showcases in the King's Library at the British Museum. It is a copy of the Bible printed at Cologne in 1739, the design being the same on each side. The binding itself is red morocco, and on each board is a gracefully vandyked border inlaid with cream-coloured calf, in the corners and spaces on which are small flower groups with leaves all inlaid in differently coloured pieces of morocco, on which is delicate gold tooling, the lines of junction of the little pieces of leather being always carefully covered with a gold line. In the red space within the border is a very graceful spray of conventional flowers with buds and leaves all inlaid in a similar way, and gold tooled as well. On the rib of one of the larger leaves is the word "MONNIER," and it is also on the lower edge of the books impressed in gold. The whole of the red ground is covered with a series of gold dots.

The books which belonged to the three daughters of Louis XV. are sometimes met with out of large museums. They are simply and prettily bound with the same Royal coat of arms, but are remarkable because they are bound in leather of distinctive colours—those which belonged to Madame Adélaïde being in red, those which were the property of Madame Sophie and Madame Victoire respectively being in citron and olive.

Later, the tradition of fine bindings among the French has been well maintained by the fine work of such binders as Duru, Thouvenin, Trautz-Bauzonnet, Capé and many others, technically of the highest excellence, but from the artistic aspect wanting in originality and life.

3. *Germany.*

As a whole the most noticeable peculiarity about the German bindings from the sixteenth century onwards is the prevalence of panel stamps with portraits. On the earlier cut-leather work exist several figures—saints and monks; but the identity of these, I think, is not known. It is, indeed, possible they are not portraits at all, but the large majority of the panel-stamped portraits are named. Dates are also often found on them, and they are always on calf, vellum or pigskin.

The gold used on German bindings of all periods is curiously inferior. It has often changed colour completely, and is now quite black; at other times it has a strong coppery tinge, and again is very pale. The decorators of these books trusted to the fine impressions on the leather to impart distinction and beauty to their work, and in many cases they were fully justified.

Several German bindings bear portraits of personages connected more or less closely with the Augsburg Confession, proclaimed at Augsburg in 1530 by John, Elector of Saxony, whose portrait occurs in gold on a copy of the Confession itself, surrounded by small stamps in blind of Moses, St. Paul, the Agnus Dei, &c. The portrait of another strong adherent of the "Confessio des Glaubens," Graf Churfurst Friedrich Pfalcz, adorns another binding dated 1561. He is surrounded by a roll stamp, on which are portraits of Erasmus, Martin Luther, Philip Melanchthon and John Huss, some of them bearing the dates 1554 and 1559. Besides the roll are other rather larger stamps with representations of David with a harp, St. Paul, the Ancient of Days and allegorical figures of Hope, Prudence, Faith and Justice. This Churfurst Friedrich was an important person. He promulgated a "Confession of Faith" of his own, and took part in the election of the Emperor Maximilian II., who afterwards summoned him before him to justify some of his religious opinions.

Certainly one of the finest panel stamps used on German bindings is one of the Emperor Charles V. The emperor is in full armour, with a sword in his right hand and an orb in his left. His helmet is by his side. Above his head are the arms of Germany, and in the corners the arms of Aragon, Aragon-Sicily and Spain, of which countries Charles was king. On the columns on each side of him winds a ribbon with the words "Plus ultra Carol Quint," and beneath in a long-shaped panel the inscription, "Carole, mortales dubitant Homo sisne Deusve. Sunt tua sceptra hominis sed tua facta Dei." The engraving of this panel is wonderfully fine; it is like a medal in leather.

Charles resigned his crown in 1556, and in 1557 he became a monk in the monastery of St. Just in Estremadura, his chief amusement being to try to make two clocks of his own workmanship keep perfect time together. On books ornamented with this stamp, an equally fine one, probably cut by the same artist, of John Frederick II., Duke of Saxony, occurs on the other side.

Luther and Melanchthon have perhaps been more represented on bookbindings than any other persons. Portraits of them, of all sizes, from full-length to very small roll stamps, are commonly found sometimes in gold but usually plain, and very frequently with dates added; the stamps themselves are not of particularly good workmanship, and they are impressed both on calf and pigskin. A very fine panel stamp exists of Maximilian II., Emperor of Germany, who died in 1576. This stamp, as far as I know, is always on vellum or pigskin. The emperor is crowned, and is in royal robes over armour. He carries a sceptre in his right hand and an orb in his left, and round his neck the jewel of the Order of the Golden Fleece. At the top are two escutcheons, one bearing the double-headed eagle of Germany, the other the arms of Spain quartered with Sicily. Beneath in an oblong panel are the words, "MAXIMILIANVS II. D. G. ROM. IMP. SEM. AVGVS. GERMA. HVNGA. BOHEMI. ETC. REX. ARCHID. AVSTRI. DVX SILESIE."

Besides these great people, there are hosts of others represented in a similar kind of way, from simple preachers like "Primus Truber Carnio" to grandees like Louis the Pious, Duke of Würtemberg, with very often on the other side elaborate coats-of-arms with many quarterings and many crests.

Some of the sixteenth-century German bindings have chains attached to them; no doubt they were chained to the shelves or desks on or in which they were kept. Others, again, have long projecting tags of leather with a button at the end to fasten to a belt.

Bindings in metal were made to a considerable extent in Germany, some of fine workmanship. An especially good example covers a copy of Bassiere's "Flosculi Historiarum," now in the British Museum. On each side is a delicate panel of filigree silver-work over gilt, having in the centre an elongated silver oval with niello designs upon it in dark grey. The borders are also ornamented with niello. This binding is probably sixteenth-century work, earlier than the work it now covers. A fine seventeenth-century example of pierced and engraved metal-work, with a curiously jointed double back, is a copy of Orteln's "Frauenzimmer Spiegel." It is gilt over satin, and has flat metal caps over the inner edges of the leaves at the head and tail of the book.

In the eighteenth century many bindings in silver, much alloyed, were made in Germany. They are usually repoussé, or stamped up in a more or less artistic manner, and often have portraits of eminent personages upon them. They are best when only arabesque or floral designs are on them, and are much like Dutch work, indeed, it is often difficult to say whether they are really Dutch or German.

At all times there are many names of German binders upon the bindings themselves. These names are generally upon a short ribbon. The best known among them are perhaps John Sulczpach, Johannes Hagmeyer, Ambrose Keller and Johannes Vogel, all early binders. Besides these full names are many initials. Later Dutch bindings are often ornamented with water-colour silver paint in addition to the gold tooling.

The Dutch imitated, with marked success, most of the well-known styles of binding. Magnus and Poncyn, both of Amsterdam, are amongst the best imitators of Le Gascon. The English embroidered books have been more copied by the Dutch than any other nation. Many of the edges of Dutch books are very elaborately painted. In Holland, however, one style seems to have been invented, namely, the very decorative bindings in tortoise-shell, or, as it should be called, turtle-shell. They are usually strengthened with metal clasps and corners, and if in good condition are very decorative. In Spain also tortoise-shell was used with fine effect, the metal-work being of a finer kind than the Dutch. Little is known in this country about Spanish bindings. Those that are to be found in our great libraries are usually heraldic and decorative and of good design and workmanship. The same may be said of Portuguese bindings. In the East, in comparatively recent times, an interesting kind of work was invented, probably originating in Persia somewhere about the beginning of the sixteenth century. These bindings are of paper boards, covered with some kind of white paste, on which are paintings of more or less delicacy, which were when finished varnished thickly with a yellowish glaze. Some of the earliest of these Persian bindings are of great delicacy and beauty, often representing hunting scenes, but through the excessive darkening of the varnish upon them, they are almost impossible to see, and, as far as I have found, quite impossible to photograph. The style was quickly taken up in India, and bindings of this kind are common enough.

NOTES AND COMMENTS.

THE sub-committee for fine arts of the Brighton Corporation have arrived at the following resolutions about the collections in the Gallery:—"That students wishing to copy the historical water-colours at the Corporation Gallery shall be admitted on the mornings of Mondays, Wednesdays and Fridays, from 10 A.M. to 1 P.M. Application to be made to the curator, accompanied by a specimen of the applicant's work, or, in the case of School of Art students, a note from the art master. That Mr. DE PARIS's generous offer to give a course of lectures in the Art Gallery, explaining the rise and development of water-colour painting in England, as illustrated by the collection, be accepted, and that the lectures be given on Wednesday evenings, from 8 to 10 o'clock. That the autumn exhibition of oil colours commence on Saturday, November 5—the last day for sending in to the London agent being Saturday, October 22. That the chairman be empowered to take the necessary steps for securing a loan from the Science and Art Department of the second series of historical water-colours for June 1900—the earliest date at which they will be available."

THE interest which must always be attached to the name of DRYDEN has not been diminished while borne by Sir HENRY, the present possessor of Canons Ashby. He has upheld archæology with the loyalty of a cavalier ancestor. Sir HENRY DRYDEN has not only helped archæologists with his knowledge, but he has enabled them to use collections which, as he says, have cost him much time, money and miles. Sir HENRY has put a crown on his life-work by offering his large collection of drawings, both measured and freehand, of antiques, buildings of various kinds, views, &c., relating to England, and especially to Northamptonshire, to the public library and museums committee of the Town Council of Northampton. He is naturally anxious that these should be preserved for the information of persons interested in such matters. No place is so fit a repository as the county town. The antiques found in the county are already in the museum. A few others at Canons Ashby would go with the drawings, as well as some seals and coins and tokens. The papers consist of (1) rolls of plans, rubbings, &c., some 5 feet long; (2) flat papers in portfolios of various sizes, from 4 feet 5 inches by 2 feet 8 inches to 6 inches by 4 inches (mainly ½ imperial and ¼ imperial), of which some are water-colours and others freehand outlines, but most are scale drawings; (3) portfolios and boxes of notes and extracts (classified) of various sizes, but mainly foolscap 4to, relating to various parts of England and various subjects; (4) deeds and old documents or copies of them; (5) prints in portfolios of various sizes; (6) ordnance maps and other maps; (7) "squeezes" or paper casts; (8) letters concerning antiquarian matters (arranged). Assuming, first, that these collections are of value, and especially in the county, Sir HENRY DRYDEN wishes the committee of the museum to consider whether they can and will accept them on the condition of keeping them dry and in such a way that they could be inspected and consulted with security. At the present time there is no such accommodation, nor would the addition of a room to the reference library, as proposed, be sufficient. Besides, the committee should not look on the gift as a finite acquisition but as the beginning of a great county collection. The committee have, of course, gladly accepted so valuable a gift, and space will be provided for the Dryden collection. It is rarely that similar records are obtainable. Pictures and curiosities can be purchased at any time, but there are few archæologists who resemble Sir HENRY DRYDEN, and without devotion to the past such as he has displayed it is impossible to secure so much evidence about English archæology.

SIR CHARLES LYELL long ago printed as a motto on the title-page of one of his treatises on geology a sentence from MACAULAY on the Baconian philosophy, which he considered to be peculiarly applicable to geological science. It ran thus:—"It is a philosophy which never rests, which is never perfect. Its law is progress. A point which yesterday was invisible is its goal to-day, and will be its starting-post to-morrow." The difficulty of attaining perfection, which is only another word for accuracy, in geology is suggested by the remarks made by Mr. HUDDLESTON in his address to the Geological Section at Bristol. He took for his subject the region in which Bristol stands, between the British and the English Channels, which on account of WILLIAM SMITH having resided there he claimed to be the birthplace of stratigraphical palæontology and the original home of systematic geological survey. That region is shown on two of the Geological Survey's sheets. But it will be found that the mapping of the formations is undergoing continual changes. "Ever since the days of JUKES," said the President, "that region has been fruitful in what I must continue to regard as heresy," and the geological surveyors are no more able to reveal what is truth than the unofficial inquirers. In the new index map the culm-measures are placed below the carboniferous limestone, although apparently they belong to the latter. A series of beds hitherto described as trias are shown as permian. Dolomitic conglomerate and red marl are now included under the same symbol and colour. At one time from the map inferior oolite was supposed to rest directly on lower lias at Dundry. Now it is proved that middle and upper lias beds intervene. All these changes may seem of little importance to the uninitiated. But there are industrial problems which are to be solved in different ways according to the character of the formation which is involved. There is, for instance, much speculation about the likelihood of obtaining coal eastward of Bath and elsewhere in the district. The determination of the position of a bed in one or other series would make exploration a hopeful or a hopeless operation.

IT is proposed as a matter of course that a statue of CHARLES GARNIER should be erected in Paris. Several men of note have agreed to join the committee, but as yet subscriptions have not come in. The Société Centrale des Architectes suggest that the most eligible site would be in the open space before the Opera House. M. SARCEY, who is accepted as embodying French good sense, and who is a member of the committee, is, however, not only opposed to that site, but he says that neither Madame GARNIER nor her son would approve of it. They would say that the late architect always combatted all schemes which contemplated the erection of any work that would interfere with the perspective of the façade. The most fitting place, according to M. SARCEY, would be somewhere within the building, where there are busts already of SCRIBE and PERRIN.

IT is difficult to represent geological phenomena by drawings on a small scale, as the details of a Gothic cathedral. As a consequence there is commonly much scepticism about the accuracy of the diagrams in books on geology. In the "Geology for Beginners" by Mr. W. W. WATTS, F.G.S. (MACMILLAN & Co.), reproductions of photographs are employed most liberally, and the little volume by that means has an aspect of reality which distinguishes it from similar manuals. Views are printed of phenomena in many parts of Great Britain and Ireland. In addition, copies are given of microscopic sections. Petrology and lithology are therefore as well represented as it is possible to have them in a book. Mr. WATTS's treatise testifies to varied experience, and for anyone who wishes to know something of the latest tendencies of geological science the book is well adapted. The questions are carefully selected from a variety of examination papers.

ARCHITECTURAL competitions appear to be coming into more general favour in Germany. The latest instance is one for the Museum in Magdeburg, which will have to contain most valuable collections of works of art. A competition was arranged and prizes of 4,500, 2,000 and 1,000 marks were offered. Seventy-nine designs were sent in. The judges were Professor WALLOT, of Dresden; Professor VON THIERSCH, of Munich; Herr LICHT, the city architect of Leipzig; and Burgomaster SCHNEIDER, of Magdeburg. The first prize was awarded to the firm of KUDER & MÜLLER, of Strassburg; second prizes were awarded to Herr RISSE, of Dresden, and SCHMIDT & HESSEMER, of Munich; third prizes were gained by MEIER & WERLE, of Berlin, and F. THYRIOT, of Berlin. It was recommended that three other designs should be purchased.

ILLUSTRATIONS.

BANK BUILDINGS, WELLINGTON CLUB, ETC., READING.

THE principal portions of these buildings have recently been erected at the corner of Friar Street and Station Road. The ground floor and basement of corner block will be occupied by the Metropolitan Bank, Limited, the accommodation being a large strong-room in basement, with lavatories, &c., a hydraulic lift connecting it with the rooms on the next floor. The ground floor consists of a large telling-room, with public entrance at the corner, and the usual private offices used for banking purposes.

The return front to the Station Road is occupied by the large block of buildings called the Wellington Club, a Conservative and Unionist Club that has been in existence for nearly twenty years. In the new club the requirements of both town and country members have been admirably provided for, viz. the basement consists of large kitchen, servants' hall, scullery, extensive cellars and the usual domestic offices. The ground floor consists of large entrance hall and hat and coat lobby, a second entrance lower down the road for cyclist members leading to a cycle house, with an additional hat and coat lobby. There are two large billiard-rooms, reading-room with bay window, smoking-room, card-room, large smoking lounge, lavatories, &c., and a half-covered court for American bowls. The first floor comprises a large dining-room with bay window and a small room as an annexe for private tables. The dining-room is connected by a lift and separate service staircase. A room for the secretary is also provided. There are various other rooms on this floor which are available if required. The staircase is very handsome, and of teak and walnut.

The second floor has a private dining room connected by means of the service-lift and staircase. There are various rooms on this floor to be let as bedrooms to members. A large bath-room is available on this floor, with the usual lavatory accommodation. The third floor consists of various rooms for the private use of the steward, and a sitting-room and various bedrooms for the staff.

The shops, when erected, will extend to the Great Western Hotel, as shown by the view. The front is of the best selected red bricks and buff terra-cotta. The entrances are of polished granite of various tints.

The whole of the buildings have been carried out from the designs and under the superintendence of the joint architects, Messrs. F. W. ALBURY, F.R.I.B.A., and GEO. W. WEBB, F.R.I.B.A., of Reading. The contractors are Messrs. G. S. LEWIS & BROTHER, of Castle Street, Reading, and the clerk of the works Mr. WALKER. The chairman of the Club Company, Limited, Mr. F. J. FERGUSON, has given much time and attention to the various details connected with the undertaking.

CATHEDRAL SERIES.—SOUTHWELL: FROM NORTH-WEST.

ADDITIONS TO A HOUSE AT WEST FINCHLEY.

A DECORATIVE PANEL.

THIS plate is reproduced from a drawing exhibited this year at the Royal Academy.

PROGRESS IN PREHISTORIC PERIODS.

THE presidential address in the Anthropological Section of the British Association was delivered by Mr. E. W. Brabrook, C.B., F.S.A. In the course of it he said :—

Great as is the diversity of the anthropological sciences, their unity is still more remarkable. The student of man must study the whole man. No true knowledge of any human group, any more than of a human individual, is obtained by observation of physical characters alone. Modes of thought, language, arts and history must also be investigated. This simultaneous investigation involves in each case the same logical methods and processes. It will in general be attended with the same results. If it be true that the order of the universe is expressed in continuity, and not in cataclysm, we shall find the same slow but sure progress evident in each branch of the inquiry. We shall find that nothing is lost, that no race is absolutely destroyed, that everything that has been still exists in a modified form, and contributes some of its elements to that which is. We shall find that this, which no one doubts in regard to physical matters, is equally true of modes of thought. We may trace these to their germs in the small brain of the palæolithic flint-worker, or, if we care to do so, still farther back. This principle has, as I understand, been fully accepted in geology and biology, and throughout the domain of physical science—what should hinder its application to anthropology? It supplies a formula of universal validity, and cannot but add force and sublimity to our imagination of the wisdom of the Creator. It is little more than has been expressed in the familiar words of Tennyson :—

> Yet I doubt not thro' the ages one increasing purpose runs,
> And the thoughts of men are widen'd with the process of the suns.

From the first moment that man recognised the advantage of using a club or a stone in attack or defence, the direct incentive to a higher brain development came into existence. The man who first used a spear tipped with a sharp flint became possessed of an irresistible power. In his expeditions for hunting, fishing, gathering fruit, &c., primitive man's acquaintance with the mechanical powers of nature would be gradually extended; and thus from this vantage point of the possession of a hand, language, thought, reasoning, abstract ideas would gradually be acquired, and the functions of the hand and the brain be developed in a corresponding manner. I do injustice to Dr. Munro's masterly argument by stating it thus crudely and briefly. It amounts to this—once the erect position is obtained, the action of the man being controlled by a progressive brain, everything follows in due course.

The next stage which we are yet able to mark with certainty is the palæolithic, but there must have been a great many intermediate stages. Before man began to make any implements at all, there must have been a stage of more or less length, during which he used any stick or stone that came to his hands without attempting to fashion the one or the other. Before he acquired the art of fashioning so elaborate an implement as the ordinary palæolithic axe or hammer, there must have been other stages in which he would have been content with such an improvement on the natural block of flint as a single fracture would produce, and would proceed to two or three or more fractures by degrees. It must have been long before he could have acquired the eye for symmetry and the sense of design, of adaptation of means to end, which are expressed in the fashioning of a complete palæolithic implement. It is probable that such rude implements as he would construct in this interval would be in general hardly distinguishable from flints naturally fractured. Hence the uncertainty that attaches to such discoveries of the kind as have hitherto been made public. Professor McKenny Hughes, who speaks with very high authority, concludes a masterly paper in the *Archæological Journal* with the statement that he has "never yet seen any evidence which would justify the inference that any implements older than palæolithic have yet been found." The name "palæotalith," which had been suggested for prepalæolithic implements, seems to him unnecessary at present, as there is nothing to which it can be applied, and as it will be long before it can be asserted that we have discovered the very earliest traces of man, he thinks it will probably be long before the word is wanted. An elaborate work on the ruder forms of implement, just published by M. A. Thieullen, of Paris, who has for many years been engaged in collecting these objects, adds materially to our knowledge of the subject. The question is one of great interest, and I hope it will come up for discussion in the present meeting.

Another line of argument bearing strongly in the same direction is afforded by the discovery in various places of works of art fabricated by early man. The statuettes from Brassempouy, the sculptures representing animals from the Bruniquel, the well-known figure of the mammoth engraved on a piece of ivory from Périgord, and many other specimens of early art attest a facility that it is not possible to associate with the dawn of human intelligence. M. Salomon Reinach tells an amusing story. A statuette in steatite of a woman, resembling in some respects those of Brassempouy, was discovered in one of the caverns of Mentone as far back as 1884, but when the discoverer showed it to a personage in the locality, that authority advised him not to let it be seen lest it should take away from the belief in the antiquity of the caves, it being then thought too artistic to be consistent with early man. The finder acted on this advice, in ignorance of the real interest of the statuette, until April 1896, when he showed it to M. Reinach and M. Villenoisy, who promptly interviewed the sage adviser in question, and obtained a confirmation of the statement. Some interesting additions to our gallery of prehistoric art have been recently made by M. Emile Rivière and M. Berthoumeyrou at Cro-Magnon, in the Dordogne. These are a drawing of a bison and another of a human female in profile. Among the other objects found in the same place were some flint implements brought to a fine point, suitable for engraving on bone or horn.

The idea of making in any form a graphic representation of anything seen has never, so far as I know, occurred to any lower animal, and it could hardly have been among the first

ideas formed in the gradually developing human brain. When that idea is found carried out with remarkable artistic skill by means of implements well adapted for the purpose, we may surely assume that the result was not obtained till after a long interval of time, and was approached by gradual steps marked by progress in other faculties, as well as in the artistic faculty. It may be that some day all uncertainty on this head will be removed by decisive discoveries.

The interval between the palæolithic and neolithic periods rests in the like condition of incertitude. That by some means, and somewhere on the face of the globe, the one period gradually passed into the other we cannot but believe. That the transition between them may have involved innumerable degrees is also highly probable. Where and when and how each step was taken we do not know at present, and possibly never shall know. The problem is not satisfactorily solved by the production of palæolithic implements resembling neolithic forms, or neolithic implements resembling palæolithic forms, inasmuch as between the one period and the other an interval of time involving geological and other changes has to be accounted for.

In this respect, also, our best authorities are the most cautious and conservative. In the excellent address which Professor Boyd Dawkins delivered to the Royal Archæological Institute at the Dorchester meeting last year on the present phase of prehistoric archæology, he contrasted the few primitive arts, such as sewing and the manufacture of personal ornaments and rude implements of the chase, possessed by the palæolithic hunters—apart from their great proficiency in the delineation of animals—with the variety of arts, such as husbandry, gardening, spinning, weaving, carpentry, boat-building, mining and pottery-making, possessed by the neolithic herdsmen, and held that between the two there is a great gulf fixed. Somewhere that gulf must be bridged over. Professor Boyd Dawkins says that the bridge is not to be found in the caverns of the South of France. It is difficult to meet his argument that the presence of grains of barley and stones of the cultivated plum at Mas d'Azil are evidences of neolithic civilisation. His objections to other discoveries are not so strong as this, but are strong enough to make us pause. The tall, long-headed people, whose remains were found at Cro-Magnon, he holds to be early neolithic and not palæolithic, to stand on the near side and not on the far side of the great gulf.

These considerations lend importance to the discoveries which have been laid before this Association at previous meetings by Mr. Seton-Kerr, and which have also been commented upon by Professor Flinders Petrie and Sir John Evans. If we are compelled to admit a breach of continuity in Europe, is it in Africa that we shall find the missing links? That is another of the great problems yet unsolved, upon which I hope the discussions at the present meeting may throw some light. The evidence we want relates to events which took place at so great a distance of time that we may well wait patiently for it, assured that somewhere or other these missing links in the chain of continuity must have existed and probably are still to be found.

The next stage, which comprises the interval between the neolithic and the historic periods, was so ably dealt with by Mr. Arthur J. Evans in his address to this section at the Liverpool meeting that it does not call for any observations from me. Two committees appointed by the Association in connection with this section touch upon this interval, the committee for investigating the lake dwelling at Glastonbury and the committee for co-operating with the explorers of Silchester in their well-conducted and fruitful investigation of the influence of Roman civilisation on a poor provincial population. I pass on to consider the very great progress that has been made of late years in some of the branches of anthropology other than physical and prehistoric, and especially in that of folk-lore. I do this the more readily because I do not recollect that folk-lore has ever before been prominently referred to in an address to this section. It is beginning to assert itself here, and will in time acquire the conspicuous position to which it is becoming entitled, for the British Association is sensitive to every scientific movement, and responds readily to the demands of a novel investigation. Already, for three or four years, a day has been given at our meetings to folk-lore papers; and at the Liverpool meeting an exceedingly philosophic, and at the same time practical, paper was read by Mr. Gomme, and is printed *in extenso* in the proceedings as an appendix to the report of the ethnographic survey committee. The term "folk-lore" itself is not without a certain charm. It is refreshing to find a science described by two English syllables instead of by some compound Greek word. The late Mr. W. J. Thoms had a happy inspiration when he invented the name. It is just twenty years since the Folk-lore Society was established under his direction. It has accumulated a vast amount of material and published a considerable literature; it is now rightly passing from the stage of collection to that of systematisation, and the works of Mr. J. G Frazer, Mr. E. Sidney Hartland and others are pointing the way towards researches of the most absorbing interest and the greatest practical importance.

A generalisation for which we are fast accumulating material in folk-lore is that of the tendency of mankind to develop the like fancies and ideas at the like stage of intellectual infancy. This is akin to the generalisation that the stages of the life of an individual man present a marked analogy to the corresponding stages in the history of mankind at large, and to the generalisation that existing savage races present in their intellectual development a marked analogy to the condition of the earlier races of mankind. The fancies and ideas of the child resemble closely the fancies and ideas of the savage, and the fancies and ideas of primitive man.

An extensive study of children's games, which had been entered into and pursued by Mrs. Gomme, has been rewarded by the discovery of many facts bearing upon these views. A great number of these games consist of dramatic representations of marriage by capture and marriage by purchase—the idea of exogamy is distinctly embodied in them. You will see a body of children separate themselves into two hostile tribes, establish a boundary line between them, demand the one from the other a selected maiden, and then engage in conflict to determine whether the aggressors can carry her across the boundary or the defenders retain her within it.

There can be little doubt that these games go back to a high antiquity, and there is much probability that they are founded upon customs actually existing, or just passing away at the time they were first played. Games of this kind pass down with little change from age to age. Each successive generation of childhood is short; the child who this year is a novice in a game becomes next year a proficient and the year after an expert, capable of teaching others, and proud of the ability to do so. Even the adult recollects the games of childhood and watches over the purity of the tradition. The child is ever a strong conservative.

Upon the same principle, next to children's games children's stories claim our attention. Miss Roalfe Cox has collected, abstracted and tabulated not fewer than 345 variants of Cinderella, Catskin and Cap o' Rushes. These come from all four quarters of the globe, and some of them are recorded as early as the middle of the sixteenth century. These elaborate stories are still being handed down from generation to generation of children, as they have been for countless generations in the past. Full of detail as they are, they may be reduced to a few primitive ideas. If we view them in their wealth of detail, we shall deem it impossible that they could have been disseminated over the world as they are otherwise than by actual contact of the several peoples with each other. If we view them in their simplicity of idea we shall be more disposed to think that the mind of man naturally produces the same result in the like circumstances, and that it is not necessary to postulate any communication between the peoples to account for the identity. It does not surprise us that the same complicated physical operations should be performed by far distant peoples without any communication with each other; why should it be more surprising that mental operations not nearly so complex should be produced in the same order by different peoples without any such communication? Where communication is proved or probable it may be accepted as a sufficient explanation; where it is not provable there is no need that we should assume its existence.

The simple ideas which are traceable in so many places and so far back are largely in relation with that branch of mythology which personifies the operations of nature. Far be it from me to attempt to define the particular phase of it which is embodied in the figure of Cinderella as she sits among the ashes by the hearth, or to join in the chase after the solar myth in popular tradition. The form of legend which represents some of the forces of nature under the image of a real or fictitious hero capable of working wonders appears to be widely distributed.

Lord Bacon, who says "The earliest antiquity lies buried in silence and oblivion. . . . This silence was succeeded by poetical fables, and these at length by the writings we now enjoy; so that the concealed and secret learning of the ancients seems separated from the history and knowledge of the following ages by a veil or partition-wall of fables interposing between the things that are lost and those that remain," has shown in his "Wisdom of the Ancients" that classical mythology was in truth a vast system of nature-worship, and in so doing has done more than even he knew, for he has affiliated it to those ideas which have been so commonly formed among rude and primitive peoples. It is true, he says, fables in general are composed of ductile matter that may be drawn into great variety by a witty talent or an inventive genius, and be delivered of plausible meanings which they never contained. But the argument of most weight with him, he continues, "is that many of these fables by no means appear to have been invented by the persons who relate and divulge them, whether Homer, Hesiod, or others; but whoever attentively considers the thing will find that these fables are delivered down and related by those

writers, not as matters then first invented and proposed, but as things received and embraced in earlier ages. The relators drew from the common stock of ancient tradition and varied but in point of embellishment, which is their own. This principally raises my esteem of these fables, which I receive, not as the product of the age or invention of the poets, but as sacred relics, gentle whispers and the breath of better times, that from the traditions of more ancient nations came at length into the flutes and trumpets of the Greeks."

Except that he supposes them to be a relic of better times, the poet's dream of a golden age no doubt still ringing in his ears, Bacon had in this as in many other matters a clear insight into the meaning of things.

To return. If continuity be the key that unlocks the receptacle where lie the secrets of man's history—physical, industrial, mental and moral; if in each of these respects the like processes are going on, it follows, as I have already said, that the only satisfactory study of man is a study of the whole man. It is for this reason that I ask you to take especial interest in the proceedings of one of the committees of this section, which has adopted such a comprehensive study as the guiding principle of its work. I mean the ethnographical survey committee. I have so often addressed this section and the Conference of Corresponding Societies on the matter since the committee was first appointed at the Edinburgh meeting, on the suggestion of my friend Professor Haddon, that I can hardly now refer to it without repeating what has been already said, or forestalling what will be said when its report is presented to you, but its programme so fully realises that which has been in my mind in all that I have endeavoured to say that I must make one more effort to enlist your active interest in its work.

The scheme of the committee includes the simultaneous recording in various districts of the physical characters, by measurement and by photography, the current traditions and beliefs, the peculiarities of dialect, the monuments and other remains of ancient culture, and the external history of the people. The places in the United Kingdom where this can be done with advantage are such only as have remained unaffected by the great movements of population that have occurred, especially of late years. It might have been thought that such places would be very few; but the preliminary inquiries of the committee resulted in the formation of a list of between 300 and 400. So far, therefore, as the testimony of the very competent persons whose advice was sought by them is to be relied on, it is evident that there is ample scope for their work. At the same time, the process of migration from country to town is going on so rapidly that every year diminishes the number of such places. One thinks with regret how much easier the work would have been one or two or three generations ago; but that consideration should only induce us to put it off no longer. The work done by the lamented Dr. Walter Gregor for this committee in Dumfriesshire and other parts of Scotland is an excellent type of the way in which such work should be done. His collections of physical measurements and of folk-lore have been published in the fourth and fifth reports of the committee. There can be no doubt that few men possess the faculty he had of drawing forth the confidence of the villagers and getting them to tell him their superstitions and their old customs. He succeeded in recording from their lips not fewer than 733 items of folk-lore. They not merely form exceedingly pleasant reading, such as is perhaps not often met with in a British Association report, but they also will be found to throw considerable light on the views which I have ventured to lay before you. It is much to be wished that others who have the like faculty, if even in a lesser degree, could be induced to take up similar work in other districts, now that Dr. Gregor has so well shown the way in which it ought to be done.

SOMERSET ARCHÆOLOGICAL SOCIETY.

THE fiftieth annual meetings of the Somersetshire Archæological and Natural History Society commenced at Taunton on August 31, and extended over four days. In order to celebrate the jubilee by a permanent memorial, says the *Somerset County Gazette*, it is proposed to restore the ancient hall of Taunton Castle, the property of the Society and the locale of the county museum. In the year 1873 the Society obtained possession of the castle by purchase for the sum of 2,850*l.*, and subsequently an adjoining property intimately connected with the castle, and forming part of the original grounds, was acquired at an additional cost of 460*l.* The Society is indebted to the late Colonel Pinney, of Somerton Erleigh (who has just bequeathed 300*l.* to the Castle Restoration Fund), for having presented a piece of garden ground on the north-east of the main property. To discharge the purchase money and the expense of certain repairs then immediately required, 2,000*l.* was raised by public subscription amongst the members of the Society and others interested in the county, who were desirous that so important an historical building should be preserved in the hands of a public Society, and the remainder, 1,500*l.*, was lent upon the security of the property. The whole of this has since been discharged from similar sources, and the property has for some years been practically free from debt. But although various absolutely necessary repairs have from time to time been carried out, in particular the entire reroofing of the western portion of the building (in which the more valuable part of the Society's collections is stored) and the very recent reroofing and reflooring of the entrance gateway, the Society's funds have never admitted of its undertaking any but the most necessary incidental repairs in perhaps the most important part of the buildings, the ancient hall. This from its size, 120 feet by 31 feet, and 20 feet in height, the roof covering an area of 3,720 square feet, renders any general dealing with it a matter of considerable expense. It is proposed that the hall should be put in thorough order and utilised for the preservation and exhibition of the very important natural history and other collections now from want of space crowded away in cupboards and boxes and practically unavailable for any useful purpose. As to the history of the castle, it may be observed that the fortress was founded by Ina, King of the West Saxons, in 702, a period nearly 200 years earlier than any other fortress mentioned in the Saxon Chronicle. It was destroyed in a rebellion in 722, and afterwards rebuilt. In the following reign, then a royal residence, it was given with the Manor of Taunton Deane to the church of Winchester. Most of the present buildings were erected by Bishop Gifford in the reign of Henry I., and added to by subsequent bishops. In 1496 the castle was seized by the Cornish rebels, who here murdered the Provost of Penrhyn, and in the following year it was again occupied by the rebels under Perkin Warbeck. The castle played a very important part in the Civil War in the reign of Charles I., being taken and retaken by both parties, and ultimately held by the renowned Robert Blake, "Admiral and General at sea," against a very superior Royalist force. The notorious Judge Jeffreys held his "Bloody Assize" in the great hall.

Local Loan Exhibition.

An interesting loan exhibition of local objects was formed and laid out in the castle hall. This included old prints of Taunton, portraits of old Tauntonians, old election addresses and squibs, two ancient carved oak doors supposed to have come from Taunton Priory, play-bills of the old Taunton Theatre (including some of the great Kean's) and many other things. Among the Taunton election addresses was that of Benjamin Disraeli, who, "young and alone, is engaged in a not inglorious struggle with the most powerful person in Europe who does not wear a crown," this being Daniel O'Connell, who on this occasion described the future Prime Minister of England as the heir-at-law of the impenitent thief who reviled the great Founder of the Christian religion.

The meetings commenced with a reception by the mayor (Alderman W. Potter) at the Municipal Hall, where by permission of the Town Council the annual general meeting of the Society was afterwards held.

Mr. E. J. Stanley, M.P., presided. He said that probably some of them were surprised to see him occupying the chair at their annual meeting for the second time in succession, but unfortunately the Council to whom was deputed the duty of electing the President for the year had unanimously conferred the position upon him again.

Taunton Castle.

A move was first made to Taunton Castle, where from the courtyard Mr. Buckle gave a description of the ancient building. He said that the castle was a very curious building in many ways, and from the courtyard one saw a number of rough walls, which were for the most part full of modern windows. The first idea that struck the observer on looking at the exterior of the castle was that there was really nothing left but a modern production of the old structure. The more one looked into it the more would one find that there was a great deal of work in the castle of various dates, and some of it was of very great antiquity. The site of the castle lay very low, it was only just above the level of the river Tone, and the rise was very slight indeed. But so long as the position chosen for the castle was not lower than any of the ground immediately around it, that was sufficient for the purposes of a Mediæval fortress. The situation chosen was one upon the edge of the river, and it occupied a position in the middle of a broad, flat valley, with high hills all round, and the spot must have been in early times to a large extent a marsh. There appeared to have been a natural stream coming from the Blackdown Hills, and this stream formed the outer moat. What was now called Corporation Street was just inside the moat, and they would observe that the backyards of the street had a decided fall, which formed the moat. The moat went along nearly to the main street of the town and then went into the river. The market-place formed the outer court of the castle, and the principal entrance was by the existing gateway or arch

at Clarke's Hotel. What was now the Winchester Arms Hotel was a portion of the other gateway to the castle, though there was now nothing left there of the original building except a rough piece of wall. There was and still remained a mill stream which ran parallel to the river Tone, and there was very little doubt that the mill itself, which occupied a position on the stream, was a building of very great antiquity. It must have been originally placed there for the purpose of providing the inhabitants of the castle with bread. The earliest mention that they had of the castle was recorded in the Saxon Chronicle in the year 722. It was said that Queen Ethelburga took Taunton, which was then in the hands of the rebels, and destroyed works which King Ina had built. From that they knew that King Ina did some building there in the year 722, and the popular idea was that the king fortified the position by throwing up a great mound of earth and putting up a palisade. After King Ina, Bishop Gifford, in the time of Henry I., built a castle there, which was the principal building now existing. This castle was the principal house of the manor of Taunton Deane, which was sometimes said to be the largest manor in England. It formerly belonged to the Bishop of Winchester. Bishop Gifford built the Norman keep of the castle. The structure was continually being altered and added to by successive Bishops of Winchester, but the only one who had left his name there in connection with work of the Mediæval period was Bishop Langton about the year 1500. Over the archway to the courtyard of the castle were to be seen the arms of the bishop, with the date underneath, 1495, which some persons made a mistake in reading, owing to the peculiar formation of the figures. Over the archway was a room called the exchequer chamber, in which was kept the manor rolls. The great hall, with the exception that the outer side was Norman, seemed to be of the date of Queen Mary, and it was a building of considerable merit, and the portico would have made a very pretty one.

Mr. E. Sloper next made a few remarks. He said that the common opinion was that King Ina built a castle there, but the Saxons never built castles at all. Neither in the speaker's opinion did Bishop Gifford build the castle. The founder of the building was Henri of Blois, Bishop of Winchester, in the year 1136.

Mr. Buckle and the party afterwards made a tour of the outer walls of the castle, which he briefly described.

The Municipal Buildings.

The next place visited was the council chamber of the Municipal Buildings, where the party were received by the Mayor, who showed the visitors the original charter of the borough granted by Charles I. It was lost at the time of the Restoration, but in the year 1677, at the instance of Bishop New, the charter was restored. In the year 1792, however, it was again lost, because the town failed to comply with the conditions on which the charter was granted. He (the Mayor) was given to understand that even in those days Taunton was not noted for unanimity among its councillors. As they knew, the charter was again restored, and it had been in existence for the past twenty-one years. The Mayor drew attention to the spacious mayoral chair, which, he said, was of Taunton manufacture. It was made from an old oak tree found in the bed of the river Tone, from which the chair was made by Mr. Steevens of that town. The Borough arms in needlework made from an altar cloth in St. Mary's Church, and presented by Dr. Cottle, were next shown, also an address from Taunton in America received in the year 1885. They sent an invitation for representatives of Taunton borough to be present to celebrate their 250th anniversary. It was found not convenient for any representative to go from the county town of Somerset, so the Town Council sent an address of congratulation, and that hanging in the council chamber was the reply received from Taunton in America. It was interesting to note that the frame was made out of timbers of the *Hawk*, which ship went out with the *Mayflower*, which took out the Puritan Fathers. The present council chamber was originally the dormitory of the old grammar school, and the hall they had met in at the opening of the proceedings was the schoolroom. He might mention that that was the first meeting which had been held in it since its restoration.

The Old White Hart Hotel.

A visit was next made to view the façade of the West Somerset Stores, which was originally the Old White Hart Hotel, where the notorious Judge Jeffreys lodged during the time of the "Bloody Assize" held in Taunton. The building, as most Tauntonians know, is in excellent preservation, and bears the date of 1578.

St. Mary's Church.

The beautiful old church of St. Mary Magdalene was next visited, and its fine proportions, elaborate decorations and interesting features were much admired. Taking up a position at the lectern, Mr. Buckle gave a description of the church. Beginning by stating that they would all agree that was an exceptionally fine church, Mr. Buckle went on to say that the plan was rather curious, because on either side of the nave was a narrow aisle, and then beyond that a very wide aisle. The natural assumption, therefore, was that the church originally consisted of the nave and a narrow aisle on one side, but that when it became desirable to enlarge the church it was decided to build other and larger aisles outside the original aisles. Speaking generally, St. Mary's Church might be called a Perpendicular church of two dates. The windows of the north aisle and three arches on the south were for the greater part of the Perpendicular period, and the clerestory was of the rich and elaborate style which developed at the beginning of the sixteenth century. The arcade on the north side was of a very much earlier and simpler style, and it had been the habit to describe that as the oldest part of the church. He did not believe that the arcade was genuine, that was to say, it was rebuilt during the Perpendicular period at one of the times when the church had a great enlargement, and that those pillars and arches were taken from some other part of the church and rebuilt as they saw them now. The bases and capitals, which belonged to a later period than the pillars, seemed to prove this. The earlier rebuilding of the church seemed to have included the whole of the north aisle, the lower part of the chancel and the eastern half of the south aisle. There was a great rebuilding at a subsequent period. On the right-hand side of the south porch there was a date—1508—and the greater portion of the church as it now stands was erected then—including the nave and clerestory and angel capitals, and the very handsome roof. And not only so, but the tower was rebuilt at the same time. In regard to the chancel, it was remarkable that there was no provision for a rood-screen, and there was no doubt that this part of the church was raised at the time of the great rebuilding. The east window was curious in regard to the arrangement of the tracery. There was a small window in the middle of the big window, the three centre lights and the tracery above forming in themselves a complete window and the other tracery filled in all around. The painted glass of the windows was mostly of fifteenth-century work, and in the centre light of the west window were the initials "R.B." with a merchant's mark underneath it. In the tower there were also four initials—"R.B." "A.S."—which had given rise to considerable conjecture as to what they meant. There were two persons of note living at that period—Richard Bere, abbot of Glastonbury, whose initials were to be found on St. Margaret's Hospital, just outside Taunton; and Sir Reginald Bray, about whom there was a tradition that he was architect to Henry VII., by whom it was thought by some the great towers of Somerset were built. But St. Margaret's Hospital was in the parish of West Monkton, and the Abbot of Glastonbury had nothing to do with Taunton, and it was extremely improbable that a great soldier like Sir Reginald Bray was also a great architect. He (Mr. Buckle) thought they might put down the initials to two benefactors, and the shield with the merchant's mark made it clear that "R. B." was a merchant of Taunton. On either side of the western entrance were fonts for holy water, and in the spandrels over the doorway were two elaborate pieces of carving which, however, had been very much restored. The subject of the one appeared to be the miracle of St. Gregory's mass and the other represented the appearance of our Lord to Mary Magdalene in the Garden of Gethsemane. A figure of the patron saint (St. Mary Magdalene) occupied a niche on the ground-floor in one of the north side columns. As to the tower it was one of the grandest in the county. It was 131 feet high and the pinnacles 32 feet, making a total of 163 feet high. It was covered with elaborate carving from the bottom right up to the top. It was emphatically built in the Somersetshire style, and a vast amount of money and effort must have been spent upon it, but not with such complete success as they could wish. The upper portion of the tower was much more beautiful than the other portions, and perhaps on that account it was a pity that Hammet Street had been opened up so as to expose the whole of the tower to view. On the north wall of the church was a life-size figure of Robert Gray, the founder of the almshouses in East Street, and under it were the quaint lines beginning "Taunton bore him, London bred him."

The party then responded to the invitation of the vicar, Rev. Prebendary Askwith, M.A., to inspect the registers and old plate in the vestry. There were two old registers on view, the one belonging to Queen Elizabeth's reign, and the other used during the time of Monmouth's rebellion. A note in the latter records the fact that burials were interrupted during Monmouth's rebellion, and it was interesting to observe that Monmouth's followers were invariably called "rebels" in the registers. The holy vessels, which are still in regular use, consist of two silver gilt flagons presented in 1639, two silver gilt chalices given in 1630 and 1639, and a silver salver, with a Latin inscription surrounding an engraving of the castle. These vessels were after the landing of William, Prince of Orange, at Torbay, buried to preserve them from the hands of spoilers.

The party next proceeded to St. James's Church, passing on the way through St. Mary's vicarage grounds, where they had an opportunity of seeing the only remains that are left of the earthwork that was put up around Taunton during the siege.

St. James's Church.

The above church Mr. Buckle described as a very great contrast to that of St. Mary's. It was, however, a straightforward example of a Perpendicular church of about the fifteenth century. The nave and the aisles appeared to have been entirely rebuilt about that time, but the chancel was entirely modern. It was a type of church which was rather unusual in Somerset on account of the width between the columns and the wide open roof. The enormously wide arch at the east end of the arcade was a very remarkable feature, and the purpose presumably was to enable a larger number of people to see into the chancel. There was a very elaborate font under the tower, which, he was sorry to say, had been restored so that it was difficult to say what parts of the carving were original and what parts modern. It was octagonal in shape with three figures on each side, so that altogether there were twenty-four figures, including the twelve Apostles. Above the font they saw the fine vault of the tower. It was a singularly beautiful tower, and was almost identical with the one at Bishop's Lydeard, but the latter was in one sense more perfect because it had the original parapet and pinnacles on the top. The outline and general effect of the tower were remarkably beautiful, and deserved to be looked at from many points of view, particularly from the bridge over the Tone. In his opinion that tower was an infinitely greater work of art than the great tower of St. Mary Magdalene, although nothing like the same amount of money had been spent upon it.

The Priory Barn.

A move was next made to what is known as the Priory Barn, one of the old farm buildings belonging to the Priory which in olden times stood in that part of the town. Little or nothing of the original building remains, and in the one end two windows taken from the Priory itself have been inserted.

Mr. E. Sloper gave some particulars of the old Priory, from which it appears that it was founded in 1125, but he thought there must have been an earlier monastery at Taunton—that was, before the Norman Conquest. It had always been a puzzle to him where that monastery could have been situated. In the town there was a street called Paul Street, and further on there was a farm called Pool Farm, where Roman remains were to be seen on the west side of the farm building. That he regarded as the site of the earlier monastery, which was absorbed by the greater monasteries prior to the Conquest. It was not mentioned in Domesday, but it was alluded to in charters and especially mentioned in connection with rendering certain things to the king in the eleventh century. The word Pool in regard to Pool Farm was, he might add, a corruption of Paul.

Gray's Almshouses.

A visit was next paid to Gray's Almshouses in East Street, which were founded, as a tablet on the front records, in the year 1635, by Robert Gray, whose virtues are described on a tablet to his memory in St. Mary's Church. The quaint old rooms were inspected with interest and the chapel in particular attracted much attention. In the chapel is still preserved the old Bible printed in 1634, which was used at the foundation of the almshouses, and the various readers who are appointed by the inmates appear to have utilised the blank pages of the book for the purpose of recording their names. The inspection of this place concluded the tour for the day.

In the evening a meeting was held in the Castle Hall for the hearing of local papers and discussions. The President occupied the chair, and was supported by the Mayor and the Rev. F. W. Weaver.

The President read a paper on "Red Deer on the Quantocks." He said that the origin of his reading that paper was that in his last address as President at Bridgwater he was reported to have used these words:—"There was a general belief that, as on Exmoor, which had been a royal forest from time immemorial, so on the Quantocks red deer had been for centuries. These beautiful animals, however, were claimed to have been first turned out on the Quantocks by Mr. C. E. J. Esdaile's father, and this was confirmed by Lord Ebrington." He would now wish to withdraw Lord Ebrington's confirmation, which was given by him in his book on staghunting, because last winter he met him and asked him about this question, whereupon he told him that he (Mr. Stanley) had been his authority on the question of Mr. Esdaile turning the deer out. He (the President) had thought Lord Ebrington had independent knowledge of his own of what was in the documents belonging to the Esdaile family, but he was quite prepared to take the responsibility upon himself. The Rev. Mr. Greswell wrote a letter to the *Somerset County Gazette* on the subject, and seemed to have to a certain degree convinced the editing secretary of that Society.

The Rev. F. W. Weaver: I am not responsible for all I print.

The President, proceeding, said he was glad to find that the committee cordially agreed with his suggestion that he should read a paper on the red deer on the Quantocks. He hoped they would be very lenient to him, as a study of Domesday was one of the most fearful things that he had ever undergone, and it was very difficult to understand. Mr. Stanley then read his paper, which was of an interesting character, and in which he said there was no proof at all that in old days there were more deer on the Quantocks than in any other part of England, and also asserted that the forest laws did not apply to the Quantocks.

The Rev. F. W. Weaver read extracts from a paper by the Rev. W. Greswell, who was unable to attend, upon the same subject as that of the President's. Mr. Weaver remarked that the paper was very similar to Mr. Greswell's letter which had appeared in the *Somerset County Gazette*.

The Right Rev. Bishop Brownlow read a learned paper on the divisions of the bishoprics of Wessex.

The President cordially thanked Bishop Brownlow for his paper, and expressed pleasure that the late Bishop Clifford's successor showed such ability and willingness to assist them in their discussions.

Preb. Holmes made some remarks on the Bishop's paper, after which

The Rev. Mr. Richardson read a paper on St. Anne's Chapel, Brislington.

This closed the evening's proceedings.

(*To be continued.*)

AN EARLY BRITISH EARTHWORK.*

THE borderland between England and Wales presents the student of the early modes of warfare with a rich field for investigation. It affords examples of every conceivable mode of fortification adopted in past ages. This county, which it is the special business of the Caradoc and Severn Field Club to examine, is not the least interesting portion of the Welsh border. Military camps, both circular and quadrangular, crown the summit of hill and mountain in every direction; not an eminence of any importance, from the lofty Brown Clee, the Caradoc, the Stiperstones and the Wrekin, down to the humbler elevations of Nesscliff, Abery and Bayston Hill, is without some ancient earthwork. Then come the sites and remains of ruined castles of Saxon earls, mostly of small dimensions, and following these in the category are the great Norman and Mediæval structures such as Ludlow, Clun, Whittington and Shrewsbury; and, lastly, the numerous moated dwellings which thickly stud the whole county. In all these we have visible material records written on the face of the land pointing to the checkered history of the nation through British, Roman, Saxon, Danish and Norman times, as well as the troublous periods of later years. It is to some of us a matter of regret that hitherto these have not been carefully scheduled, photographed and described, as has been done in some other counties. Nor can I understand why those engaged in teaching do not take their pupils into the country and point out to them such remains as serve to illustrate some of the more important episodes of British history, just as geologists and botanists take their pupils into the fields and to the hills to study the rocks and plants as they occur in nature.

On this occasion we have come to inspect a very remarkable British earthwork, which has occupied the attention of our ablest historians, and about which much has been written. It is a striking example of a place chosen for its natural advantages, which, artificial work being added, formed an almost impregnable fortress in face of such means of assault as at the time of its occupation could be brought against it. When Julius Cæsar invaded Britain he tells us that envoys were sent to him from some of the tribes which sought peace, and the envoys informed him "that the town of Cassivellaunus was not far off, surrounded by woods and marshes and occupied by a large number of men and cattle. The Britons call by the name of town a place in the fastnesses of the woods surrounded by a mound and trench, and calculated to afford them a retreat and protection from hostile invasion." In the "Berth" we have just such a position as Cæsar describes. Among the several accounts of the "Berth" that our local historians have written, that of Hartshorn, in his "Salopia Antiqua," is the fullest and the best, and I cannot do better than give it you:—

The works at the "Berth" consist of two distinct fortresses, lying in a morass, but which are connected with each other by an artificially raised causeway, 150 yards long and 12 feet wide, formed with vast labour of stones. Though this traverses the bog at present on a level with it, yet it is distinctly marked by the yellowness of its herbage, notwithstanding all

* A paper read by Mr. W. Phillips at the excursion of the Carado and Severn Valley Field Club to the "Berth."

the drainage which the land has undergone. Besides this, there is another causeway that takes a sinuous line across the bog towards the higher ground at Marton. This was the road of general communication with the main land; the other was merely a passage of intercourse between the two camps. They are each of them built with stones, brought from a gravel pit a quarter of a mile distant.

The Upper Work occupies a circular eminence of three acres, and rises about 45 feet above the level of the land at its base. It is strengthened on three sides by a morass; upon the south, or fourth side, by a deep pool of water, covering eight acres. A concentric trench and vallum encircle the whole work; in some parts this is still tolerably perfect, chiefly so on the north side, but having been formed of stones according to the British method of construction, the greater portion of it is destroyed, and what remains is daily growing less conspicuous in consequence of the materials being used for draining the surrounding wet land. The fosse was at first as much as 10 feet wide. The crest of the vallum is at present about 20 feet above the level of the marsh. On the north north-east side are remains of the original entrance. The gorge or gangway is 7 feet wide. It had a tower on either side, or some erection which answered the same purpose, for there are two great heaps of stones still on the surface, notwithstanding the thousands of loads that my informant told me had been buried in the surrounding bog, or carried away to mend the neighbouring roads. The work of destruction was proceeding when I was on the spot, but happily it will take many years still to complete. A stream runs round this side of the work that cuts off the causeway from reaching to the very entrance. There is no doubt that this was intentional, and served the purpose of preventing all approach to the superior fortress, unless its inhabitants let down a plank or drawbridge to allow their friends to come over.

Proceeding along the Causeway for 225 yards we are stopped by a high, thick hedge, and obliged to make a little deviation from a straight line, so as to fall in with it again on the other side. Following it for 25 yards further, we enter the Inferior Work between two slightly elevated mounds, which formed the original gate of admission.

The interior fortress is of an elliptical form. It was defended by a morass on all sides, and even intersected by a ditch that was supplied with water to render all access to it still more difficult. The works on the side next the superior fortress are considerably higher than those in the other quarters. They are so faint and uncertain on the north side of the intersecting ditch that it is questionable whether this side of the entrenchment ever had any other defence than the morass, the treacherous nature of which, even now (1838), makes it troublesome to cross. It would have been a measure easily resorted to if the Britons, when attacked, had dammed up the two streams which now tend to drain the bog, and this would have at once converted each of these fastnesses into an island. Yet if they had confided in the natural advantages alone of their retreat, the protection afforded by the elevated situation of the superior work and the marshy ground around it would have rendered their position extremely formidable. In whatever way we look at these two fortifications, they cannot fail to strike us as most remarkable examples of castrametation for the age when they were constructed. They evince a degree of military knowledge that is highly curious and surprising, whilst they furnish us with a connecting link in the history of martial tactics that is well deserving the attention of the antiquary and the soldier.

This place has been regarded by some as the stronghold of the Welsh Prince Cynddylan, to which he retired from Shrewsbury before the face of the Saxon spoilers when they burnt that town, as they had previously burnt Uriconium. Relying upon a Welsh poet, Megaint, Owen and Blakeway believe that Cynddylan was slain at Withington beyond Haughmond Hill, and trusting to another Welsh poet, Llywarc-Hen, who writes, "The churches of Bassa are enriched this night, containing the departed remains of the pillar of battle," they go so far as to state "it is certain that he was interred at Baschurch." They then allude to the "Berth" in these words:—"It was in this spot as I (*sic*) conceive that Cynddylan, imitating his aboriginal forefathers, who, as we know from Cæsar, fortified themselves in woods and marshes, sought an asylum after his expulsion from Pengwern. Whether he was slain at Withington or Whittington, no reason can be assigned why he should be buried at Baschurch but that his residence was in its immediate vicinity. And it lends some force to this opinion, that Baschurch was in the reign of the Confessor part of the royal demesne of the Crown of England. It is natural to suppose that such demesne was in Mercia derived from the Mercian kings, and it is likely that Offa, in his conquest of western Shropshire, would retain in his own hands all the possessions of the native sovereigns of Powis. Thus the place is connected by no improbable links with the time of Cynddylan." ("History of Shropshire," i. page 8.) Other authorities do not agree with the views taken by these authors as to the date when Llywarc-Hen flourished, considering it to be much later, the names he employs to designate towns and rivers being such as were used by the Saxons. I will conclude these remarks by a quotation from the learned Eyton's "Antiquities of Shropshire," in which the latter view is clearly and briefly expressed:—

"Somewhat more than a mile to the north-east of Baschurch stands the 'Berth,' one of the most remarkable fortresses of a British era to be found in Shropshire or any other county. The existence of such a work has served to make Baschurch and its vicinage the supposed theatre of a tragic story, the merest outline of which contains an element of some suspicion. We are invited to believe that Cynddylan, Prince of Powis, retiring in the sixth century before the superior power of the Saxons, and having already abandoned his ancient dominion of Pengwern, stood at bay among the morasses of this district, and being slain in battle, was buried at Baschurch.

> The churches of Bassa afford a space this night
> To the offspring of Cyndrwyn,
> The grave-house of fair Cynddylan."

The theory which connects the "Berth" with the history and fate of Cynndylan I am not prepared to investigate, but the introduction of Baschurch into the above story is not, I hope, essential to its credibility. Bassa is a Saxon proper name. Baschurch cannot therefore have been founded till long after the era of Cynddylan, for Christianity and churches were unknown in Mercia till the middle of the seventh century.

I am afraid that the obvious result of the above argument goes to question either the antiquity of the era of or the authenticity of the poem assigned to Llywarc. The poem must be the work of a bard who might have known Cynddylan was buried near the place which in his (the bard's) time was called Baschurch; but who did not know that the church of Bassa was non-existent at the era of Cynddylan? (Eyton, x. 129.)

At the conclusion of the paper most of the party walked round the "Berth" while Mr. Phillips pointed out the details he had referred to. The approach to it was defended by a ditch surmounted by a fence of barbed wire, but a small breach in the defences was widened to admit of the passage of the advancing army, most of whom, even the ladies, passed through in safety. The return journey was completed before 8 P.M., thus terminating a most delightful excursion.

NATIONAL PORTRAIT GALLERY, EDINBURGH.

THREE additional niches on the façade of the Portrait Gallery, Queen Street, have been filled, to be followed soon, says the *Scotsman*, by three more. The first of those just placed is James I. of Scotland, called the Poet King. The attitude and accessories suggest the poet, while the robes and sword indicate a knightly personage. The statue gives an excellent realisation of the dual characteristics of the first of the Jameses. The second statue is that of Napier of Merchiston, the inventor of logarithms. It is the gift of the Actuarial Society, Mr. James Meikle having acted as secretary and Mr. Thomas Wallace as treasurer. The attitude of the figure is also suggestive of deep meditation befitting an inventor in so abstruse a department of science, and the costume is the picturesque long-sleeved, fur-lined mantle, doublet and trunk hose worn by men of learning of his time. Both of these statues are from the studio of Mr. D. W. Stevenson, R.S.A., who followed in the portrait of the king a likeness believed to be contemporary and authentic; while that of Napier was chiefly taken from the painting in the possession of Lord Napier of Ettrick. The third figure is that of Alexander III., an early and heroic defender of Scotland's rights. It is from the studio of Mr. W. Grant Stevenson, R.S.A., and, like the others, is 7 feet in height. The idea chosen by the sculptor is to present Alexander as replying to a messenger from the English king asking him to do homage for his crown and kingdom, in terms similar to those used by Wallace:—"To homage for my kingdom of Scotland no one has any right but God alone, nor do I hold it of any but God." The king is represented in the costume of the period, as shown in the State seal, standing firmly on the right leg, with the left advanced. The arms, crossing the body, grasp the sceptre which he means to retain, while the cloak, thrown back over the shoulders, assists in conveying the regal dignity desired. The three figures are admirable additions to the decorative statuary on this national building. Below the figures the corbels have been carved with appropriate coats of arms, and the Board of Manufactures have been experimenting to see the effect on the building of the names of the personages celebrated being emblazoned in gold on a band underneath them. Colour, it is understood, will also be employed in a like experiment on the coats of arms. The three statues just described have been placed in niches at the east end of the building—Napier in the angle turret, and adjoining him the figure of the poet Dunbar will shortly be erected.

TESSERÆ.

Roman Surveyors.

THE name mensores, measurers or surveyors, was given to various classes of persons whose occupation was the measurement of things. 1. It was applied to land surveyors who measured and defined the extent of fields, and appear to have been the same as the agrimensores. 2. To persons who measured in the Roman camps the space to be occupied by the tents. They must be distinguished from the metatores, who selected the place for a camp. 3. To a class of officers during the time of the empire who provided quarters for the soldiers in the towns through which they passed and where they made a temporary stay. They not only assigned to each soldier the house in which he was to be quartered, but also wrote the name of the occupant upon the door-post, and he who effaced or destroyed this name was punished as a *falsi reus*. 4. Mensor ædificiorum is sometimes applied to architects, or more especially to such architects as conducted the erection of public buildings, the plans of which had been drawn up by other architects. 5. Mensores frumentarii was the name of officers who had to measure the corn which was conveyed up the Tiber for the public granaries. They were stationed in the port near Ostia, and were employed under the præfectus annonæ. Their name is mentioned in various ancient inscriptions.

The Argei in Rome.

We learn from Livy that Numa consecrated places for the celebration of religious services, which were called by the pontifices "argei." Varro calls them the chapels of the argei, and says they were twenty-seven in number, distributed in the different districts of the city. We know but little of the particular uses to which they were applied, and that little is unimportant. Thus we are told that they were solemnly visited on the Liberalia, or festival of Bacchus; and also, that whenever the flamen dialis went to them he was to adhere to certain observances. They seem also to have been the depositaries of topographical records. There was a tradition that these argei were named from the chieftains who came with Hercules, the Argive, to Rome, and occupied the Capitoline, or as it was anciently called, Saturnian Hill. It is impossible to say what is the historical value or meaning of this legend; we may, however, notice its conformity with the statement that Rome was founded by the Pelasgians, with whom the name of Argos was connected. The name argei was also given to certain figures thrown into the Tiber from the Sublician Bridge on the Ides of May in every year. This was done by the pontifices, the vestals, the prætors and other citizens, after the performance of the customary sacrifices. The images were thirty in number, made of bulrushes, and in the form of men. Ovid makes various suppositions to account for the origin of this rite; we can only conjecture that it was a symbolical offering to propitiate the gods, and that the number was a representative either of the thirty patrician curæ at Rome, or perhaps of the thirty Latin townships.

Michel Angelo's Method.

On all occasions Michel Angelo avoided a multiplicity of objects and a multiplicity of parts. He knew, as a great critic has judiciously remarked, that in poetry and painting many little things do not make a great one; and he has, therefore, rejected all unnecessary subdivisions and unessential particularities; hence the bold swell and flow of his line, uninterrupted by useless breaks and petty inflections; hence the unencumbered breadth of his surfaces, on which the eye rests unfatigued and unperplexed by impertinent differences and trivial distinctions, and hence the fewness and largeness of the parts, both in respect to his figures and his compositions, at once so simple and so impressive. The same method obtains with him in the intellectual as in the practical parts of the art. In his manner of conceiving his subject and telling his story he equally avoids all petty and commonplace details of circumstances, ingenious artifices, unimportant shades of character, and merely curious varieties of expression, which arrest and distract the attention of the spectator and weaken the force of the general effect; essence, not individuality; sentiment, not incident; man, not men, are his objects; and, like the "Satan and Death" of Milton, he meditates no second stroke, but hastens, by one sure blow, to effect his purpose. As his profound knowledge of the human figure taught him what to reject, so it likewise taught and enabled him to mark the essential forms with unexampled force and precision; possessed himself, he instantly possesses the spectator with the complete idea of his object. As in the drawing of his figures there is more knowledge and precision, so in their actions and attitudes there is more vigour and unity than is seen in those of any other modern painter. By this is meant that the situation and turn of every limb is more correspondent with the whole, is more perfectly informed with the same mind and more exactly bears its part in the general feeling; and hence it is that, though Raphael often exceeds him the variety of his characters, the particular expressions of passions, and what may be called the dramatic effect of his pictures, yet in giving the appearance of thought, capacity and dignity he is altogether unrivalled and unapproached. This perfect unity or concurrence of every feature, joint and limb in the same feeling, united to the breadth and boldness of his style of drawing, is what constitutes the intellectual energy of his figures and gives them that air of inspiration and of belonging to a higher species of beings which Sir Joshua Reynolds notices with such admiration. Rapt and absorbed themselves, they instantly communicate the same sensations to the beholder, who, awe-struck whilst he gazes on them, dares not think them on a level and of the same rank with himself.

Turrets.

Turrets may be described as of two kinds, such as rise immediately from the ground, and those which are formed on the upper part of a building by being carried up loftier than the rest. Of the first-mentioned kind are staircase turrets, which are generally of very narrow proportions and with small windows. Turrets of this kind were frequently attached to the angle of a larger tower, in which case they usually rise above the latter in order to afford access to its platform roof, owing to which circumstance they serve to contrast with the bulkier mass and to produce greater play of outline. Thornbury Castle, Gloucestershire, affords a fine example of an octagon tower and a turret of the same plan thus combined. Gatehouse turrets, or such as flank a gateway, belong to the same class. Turrets which show themselves only on the upper part of a building are either merely carried up higher than the general line of the roof or parapet, or else spring out so as to project and overhang the wall, on which they are supported by corbelling, &c., and in such cases are sometimes distinguished by the name of bartisans, or bartizan turrets. In the ancient Domestic architecture of both France and Scotland circular towers and turrets with conical roofs are frequent and characteristic features, and sometimes are so numerous that the whole structure seems to be composed of a cluster of them. Nearly the same may be said of some examples of our Elizabethan style, where groups of turrets, pinnacles and chimneys produce great picturesqueness of outline. Vanbrugh attempted, not without success, to engraft the same character upon the style he practised, grouping his chimneys together in the form of turrets on the roof, and making them very important, if not exactly the principal features in his compositions.

St. Evasio, Monteferrato.

The church of St. Evasio, at Castle Monteferrato, was founded in 741 by King Luitprand, and consecrated as a cathedral by Pope Pascal II. in 1107. The atrium is full of architectural significance. The material is brick with an irregularly disposed facing of stone; the façade presents a thin coating of stone attached to the wall of brick. The object which subsequently became so paramount in Lombardy, that two strong columns should lean against the outer wall, corresponding to the division of the three naves within, is here apparent. The covering of the atrium forms so weighty a superstructure, that it was deemed necessary to secure the façade by a pair of heavy buttresses. This atrium is (after the principle applied at the Constantinian cathedral of Trèves) covered by means of arches which support a wall, with the flat roof above. The arches are very strong, and those ranged along the length of the building have a span of 16 metres, and rest on colossal sockets. Those carried transversely could not have so great a span, but as they must have had the same height as the rest the architect formed them of a single limb, which, ascending from the eastern side, is supported with its apex against the wall of the façade. Of the two main supporters of these arches one, with four pilasters leaning against it, at the heads of which the Corinthian and cubiform capitals are blended, forms a column. The pilasters against the walls are treated in like manner. To this atrium follows the cathedral itself; the unity of both, as comprised in a single plan, is not to be mistaken. With five aisles, its perfectly fashioned vaults rest upon columns, the design of each of which describes a Greek cross. The form of the cross is not given to the whole; from the eastern wall two semicircular choirs project, giving a limit interiorly to the side-aisles; the nave (and this also has furnished a type to later edifices) breaks through this wall with a completely quadrate vaulted recess, and to this is added the semicircular niche. The fourth vault from the entrance, which is also the fourth from the apse, and thus may be called the heart of the entire edifice, is surmounted by a cupola whose length is greater than its breadth, at the angles of which are pilasters with rudely carved heads. The walls perforated by the windows bear the antique ornaments of foliage, shaped like hearts or arrows, &c., and from some of the columns, which Osten declares to be primæval, start forth the figures of fantastic monsters of the romantic period, among which are especially to be observed the griffins stinging each other with the serpentine and flowery tails in which they terminate.

Treatment of Single Figures and Groups.

When the picture consists of a single figure only, that figure must be contrasted in its limbs and drapery with great variety of lines; it should be as much as possible a composition of itself. It may be remarked that such a complete figure will never unite or make a part of a group, as, on the other hand, no figure of a well-conducted group will stand by itself. A composition where every figure is such as a single figure ought to be, and those likewise contrasted to each other, which is not uncommon in the works of young artists, produces such an assemblage of artifice and affectation as is in the highest degree unnatural and disgustful. There is another circumstance which, though not improper in single figures, ought never to be practised in historical pictures, that of representing any figure as looking out of the picture, that is, looking at the person who views the picture. This conduct in history gives an appearance to that figure of having no connection with the rest, and ought therefore never to be practised except in ludicrous subjects. It is not certain that the variety recommended in a single figure can with equal success be extended to colouring. The difficulty will be in diffusing the colours of the drapery of this single figure to other distant parts of the picture, for this is what harmony requires. This difficulty, however, seems to be evaded in the works of Titian, Vandyke and many others by dressing their single figures in black or white. Vandyke, in the famous portrait of Cardinal Bentivoglio, was confined in his dress to crimson velvet and white linen; he has therefore made the curtain in the background of the same crimson colour, and the white is diffused by a letter which lies on the table, and a bunch of flowers is likewise introduced for the same purpose.

The Vatican.

The assemblage of buildings called by the name of the Vatican, and which extends in an oblong irregular mass north of St. Peter's as far as the town walls, consists mainly of (1) the Papal palace, (2) the court and garden of Belvedere, (3) the library, (4) the museum. The Papal palace contains, among other remarkable objects, the Sistine and Pauline chapels, painted by Michel Angelo. The Sistine Chapel contains the painting of the *Last Judgment*; the four "stanze," or apartments, painted by Raphael; and the "logge," or open galleries, painted by Raphael's pupils under his direction. There are numerous other apartments, with paintings and other objects worthy of notice, which are described in the guide-books. The principal staircase, made by Bernini, is a splendid work of art. The Vatican is said to contain altogether eight great staircases, more than twenty courts, twelve great halls, and several thousand apartments large and small. A corridor, about 1,000 feet long, joins the Papal palace to the building called Belvedere, which serves as a museum. About half-way up this corridor is the entrance to the Vatican library, which was built by the architect Fontana under Sixtus V. Pope Nicholas V. was the founder of the Vatican library, which has been increased by many popes. The libraries of the Duke of Urbino, of the Elector Palatine, of Christina of Sweden, of the family Ottoboni, and others, have been added to it. It contains 80,000 printed volumes and 24,000 MSS., of which 5,000 are in Greek, 16,000 in Latin and 3,000 in the Oriental languages. Partial catalogues of this great store of learning have been published by Assemani, Marini, Mai and other librarians. The museum or collection of works of art, mostly of ancient sculpture, was begun by Clement XIII. and Clement XIV., and greatly increased by Pius VI., who was a man of taste, and who gave it the name of "Museo Pio-Clementino." It was illustrated by Gio. Batta Visconti and his son Ennio L. Visconti, in 7 vols. folio, with plates, Rome 1782. Pius VII., during his troubled pontificate, began a new collection, to which has been given the name of Museo Chiaramonti. The two together, which are distributed along the court, garden and palace of Belvedere, constitute the richest museum in Europe. Another and more extensive garden belonging to the Pope is annexed to the Vatican palace, and extends along the brow of the hill.

Arcades.

Although not so magnificent as colonnades, arcades are of extraordinary beauty when well contrived; they afford shade from the sun and shelter from the rain, and are therefore to be commended for their utility as well as their beauty. The piers of arcades may be decorated with columns, pilasters, niches and apertures of different forms. The arch itself may be turned either with rock-work or plain rustic arch stones or voussoirs, or with an archivolt properly moulded. The key-stone is generally carved in the form of a console, or sculptured with some head or the like. The archivolt springs from an impost or platband, or sometimes from columns, but this is not to be practised except in cases of the most urgent nature, for it makes neither substantial nor beautiful work. In arches that are of large dimensions the keystone should never be omitted; its carving, however, may be dispensed with if expense be an object. When the piers are decorated with disengaged columns the entablature must break round over the columns, and the columns, whether engaged or not, should stand either on a pedestal or high plinth, by which means they will not only be kept dry but their bases will likewise be protected from accidental damage. Arches must always rise from an impost or a platband, and if there be no keystone to the archivolt its summit should be kept down from the underside of the architrave of the accompanying order at least half the distance that it would be were a keystone employed, in order that the disagreeable appearance of the acute angle which it would otherwise form with the architrave may be avoided. The height of arches to the underside of their crowns should not exceed twice their clear width, nor should it be much less. The piers not less than one-third the breadth of the arch, nor more than two-thirds; but the piers at the angles should be wider than the other piers by one-half or one-fourth at least.

GENERAL.

The Old West Gate at Southampton has been restored and is to be used as a museum.

Mr. Percy Adams has prepared plans for new infirmary buildings in connection with the Dorking Workhouse.

Mr. Roberts, who was for several years borough surveyor of Oswestry, has resigned his office on his appointment as engineer of Cape Town.

Plans have been submitted by four local architects to the Smethwick Technical Education Board for the new technical schools in Crockett's Lane.

The Hon. John Macgregor has presented a cheque for 500*l.* as a contribution to the fund that is being raised for the endowment of a Chair of Forestry in the University of Edinburgh.

The Site of the monastery of the Grey friars at Winchester, which has since the Reformation been used as a field or a market garden, is now being utilised for building private houses.

The Local Government Board have sanctioned the borrowing of 100,000*l.* by the Liverpool Corporation, to be expended on the extension of the museum and new technical schools.

Sir David Gamble has presented to the town of St. Helens a marble bust of the Queen by Mr. Onslow Ford, R.A., being a replica of the bust which had received the personal approval of Her Majesty.

Dr. R. Traquair, of Edinburgh University, having been appointed Swiney Lecturer for this year by the trustees of the British Museum, he will deliver a course of lectures during October in the theatre of the South Kensington Museum on the Palæontology of Great Britain.

Mr. Alex. Cullen has designed the plans for the Young Men's Institute which is to be erected in Motherwell, N.B., at a cost of 4,000*l.*

The Trustees of the National Portrait Gallery have received from the Hon. John Collier a portrait of the late Professor Thomas H. Huxley, F.R.S., a full-size replica of the well-known portrait painted by Mr. Collier in 1883. This portrait has been painted by Mr. Collier especially for presentation to the nation.

An Exhibition of some of the French pictures lately seen in the Guildhall will shortly be opened in the Birmingham Art Gallery. Among them are Meissonier's *Friedland*, 1807, Benjamin Constant's *Pastime of the Kalife*, Jules Breton's *First Communion*, and others by Rosa Bonheur, J. L. Gérôme, Corot, Daubigny, Bastien-Lepage, Bouguereau, Delaroche, Isabey, Diaz, Courbet, Courtois and Harpignies.

An Exhibition of Pictures is to be held in the rooms of the Public Library, Ayr, during the coming winter. An influential committee of management has been appointed, with the Right Hon. the Earl of Eglinton and Winton as honorary president, and Mr. C. L. Orr-Ewing, M.P., as hon. vice-president. The proposed date of opening is December 6. Mr. W. G. Stevenson, R.S.A., and Mr. Wm. Young, R.S.W., have consented to hang the pictures.

The Liverpool School Board are about to erect schools in Boaler Street and Lawrence Road. The following local architects have been invited to submit designs:—*Boaler Street School*—Mr. G. Bradbury, Messrs. C. O. Ellison & Son, Messrs. H. & A. P. Fry, Mr. H. Hartley and Mr. C. Wise. *Lawrence Road School*—Mr. C. E. Deacon, Messrs. F. & G. Holme, Mr. E. Kirby, Messrs. T. Mellard Reade & Son and Mr. W. E. Willink. The clerk to the board is to act as adjudicator in the competition.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than 2 P.M. on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xv.

CONTRACTS OPEN.

ALDERSHOT.—Sept. 16.—For erection of two shops, &c., Station Road, Aldershot, for Mr. R. S. Blades. Messrs. Friend & Lloyd, architects, Aldershot.

BARNSTAPLE.—Sept. 12.—For erection of a shop and residence in Boutport Street, Barnstaple. Mr. Fred. W. Petter, architect, Barnstaple.

BATH.—Sept. 12.—For repairs to 33 Paragon. Mr. Charles E. Davis, city architect, Guildhall, Bath.

BELFAST.—Sept. 14.—For erection of new church at Mansfield Street, Belfast. Mr. W. H. Stephens, architect, Donegall Square North, Belfast.

BLACKBURN.—Sept. 12.—For alterations at the slaughter-houses, for the health committee. Mr. William Stubbs, borough engineer, Municipal Offices.

BLAYDON-ON-TYNE.—Sept. 22.—For erection of public offices and technical school at Blaydon, for Urban District Council. Mr. T. C. Nicholson, architect, Blaydon-on-Tyne.

BRADFORD.—Sept. 22.—For erection of a warehouse, stabling for 29 horses, loose boxes, horsekeeper's house, &c., in Preston Street. Messrs. Fairbank & Wall, architects, Craven Bank Chambers, Bradford.

BRAINTREE.—Sept. 17.—For erection and completion of hospital and attendant's house, &c., on the Cressing Road, for the Braintree Joint Hospital Board. Mr. H. H. Nankivell, surveyor.

BRIDLINGTON QUAY.—Sept. 15.—For erection of dwelling-house and shop, west side Manor Street. Mr. J. Earnshaw, architect, Wellington Road, Bridlington Quay.

CARDIFF.—Sept. 12.—For erection of three new pavilions, lodge and contingent works at the sanatorium, for the Corporation. Mr. W. Harpur, borough engineer.

CHEPSTOW.—Sept. 26.—For rebuilding the George Hotel, Chepstow. Messrs. Veall & Sant, architects, Cardiff.

CHOLSEY.—Oct. 20.—For additions to the Berkshire Lunatic Asylum at Cholsey, near Wallingford. Mr. George T. Hine, architect, 35 Parliament Street, Westminster.

CUMBERLAND.—For reslating and lathing of a large mill at Egremont. The Wyndham Mining Company, Limited, Egremont.

DARTFORD.—For building 50 cottage dwellings near Dartford; bricks on the estate, also sand and ballast. Greenhithe Brick and Land Company, Limited, Southampton Row, W.C.

DEWSBURY.—Sept. 12.—For various fittings, counters cases, &c., required for fitting up the drapery and millinery departments, for the Dewsbury Pioneers' Industrial Society, Limited. Messrs. Holtom & Fox, architects, Dewsbury.

DEWSBURY.—For taking-down and rebuilding of St. Paulinus's schools, Dawgreen. Mr. Edward Simpson, architect, 12 Cunliffe Terrace, Manningham, Bradford.

DOVER.—Sept. 13.—For erection of workshop, &c., adjoining car shed at Maxton. Mr. Henry E. Stilgoe, Town Hall, Dover.

DUNGARVAN.—Sept. 17.—For providing baths with hot and cold water supply and water-closets attached, for the infirmary of the workhouse.

ENFIELD.—Sept. 20.—For erection of a junior mixed department and an infants' department at the Board school, Bush Hill Park. Mr. G. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

EPPING.—Sept. 14.—For erection of a new ward at the isolation hospital, Theydon Garnon, and sundry works to existing buildings, with heating and hot-water supply. Mr. E. Egan, architect, Holmdale, Loughton.

EWELL.—For erection of from one to ten eight-roomed villas at Ewell, Surrey. Mr. Percy Field, architect, 11 Victoria Street, S.W.

GILDERSOME.—Sept. 19.—For alterations to house at Turton Hall, Gildersome (Yorks.). Messrs. T. A. Buttery & S. B. Birds, architects, Morley.

GLOUCESTER.—Sept. 19.—For erection of new buildings for electrical works. Mr. G. S. Blakeway, town clerk.



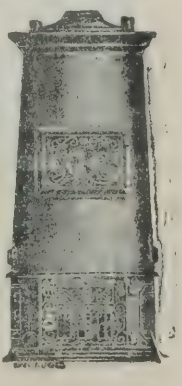
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GODALMING.—Sept. 20.—For erection of cemetery chapels and lodge at new cemetery grounds in Eashing Lane. Messrs. Welman & Street, architects, Church Street, Godalming.

HEMSWORTH.—Sept. 14.—For erection of new schools at Hemsworth, for the School Board. Mr. Walter E. Richardson, architect, Imperial Buildings, Bond Street, Leeds.

IRELAND.—Sept. 20.—For erection of a manse for the committee of the Minterburn Presbyterian church, Caledon. Messrs. Young & Mackenzie, architects, 7 Donegall Square East, Belfast.

KEW.—Oct. 3.—For removal of existing bridge and construction of new masonry bridge over the river Thames, together with alterations of approaches and construction and subsequent removal of temporary bridge over the river. Sir John Wolfe Barry, K.C.B., and Mr. C. A. Brereton, engineers, 21 Delahay Street, Westminster.

LEEK.—Sept. 21.—For erection of municipal science and technical school and county silk school. Messrs. William Sugden & Sons, Leek.

LEWES. — Sept. 23. — For erection of two temporary buildings for 100 patients, and for other works in connection therewith, at the East Sussex County Lunatic Asylum. Mr. Henry Card, county surveyor, County Hall, Lewes.

LONDON.—Sept. 12.—For erection of 12 cottages at Winchmore Hill, N., for the Southgate Urban District Council, from plans by Council's surveyor.

LONDON.—Sept. 17.—For erection of a block of school buildings and appurtenances for infants on site adjoining the existing schools, Cuckoo Lane, Hanwell, Middlesex, for the managers of the Central London School District. Messrs. J. T. Newman & Jacques, architects, 2 Fen Court, London, E.C.

LONDON.—Sept. 20.—For construction of underground conveniences at Queenhithe, for the streets committee of the Corporation.

LONDON —Oct. 12.—For erection of a new laundry at the workhouse in the Fulham Road, West Brompton, S.W. Mr. Edwin T. Hall, architect, 57 Moorgate Street, E.C.

LONDONDERRY.—Sept. 17.—For erection of six dwelling-houses at New Street (Foyle College). Mr. R. Eccles Buchanan, architect, 33 Shipquay Street, Londonderry.

MAYO.—Sept. 15.—For erection of lightkeepers' dwellings at Termoncarragh, co. Mayo, for Eagle Island Lighthouse. Mr. Owen Armstrong, secretary, Irish Lights Office, Dublin.

MENSTON.—Sept. 19.—For erection of a farm residence at the West Riding Asylum, Menston, for the West Riding asylum committee. Mr. J. Vickers Edwards, county surveyor, County Hall, Wakefield.

OUNDLE.—Sept. 12.—For erection of town hall. Mr. J. B. Corby, architect, Stamford.

PETERBOROUGH.—Sept. 22.—For erection of a Liberal club at Boroughbury. Mr. Alan W. Ruddle, architect and surveyor, Peterborough.

PLYMOUTH.—Sept. 21.—For alterations to existing buildings for laundry purposes at the Borough Hospital. Mr. Geo. D. Bellamy, engineer, 6A Courtenay Street, Plymouth.

PONTYPOOL.—Sept. 13.—For erection of offices, &c., at Pontymoile, for the Panteg Urban District Council. Mr. D. J. Lougher, architect, Bank Chambers, Pontypool.

PORT TALBOT (WALES).—Sept. 30.—For erection of the Grand Hotel and stabling, Port Talbot. Mr. G. E. Robinson, architect, Cardiff.

RAWMARSH.—Sept. 19. — For erection of nine dwelling-houses at Ryecroft, for the Kilnhurst Co-operative Society. Mr. J. Platts, architect, Old Bank Buildings, Rotherham.

ROCHFORD.—Sept. 19.—For alterations and additions to the workhouse infirmary at Rochford, for the Guardians of Rochford Union. Mr. E. Wright, architect, Whitegate Road, Southend-on-Sea.

SIBBERTOFT.—Sept. 14.—For erection of a country residence. Messrs. Sheppard & Harrison, architects, 17 Kirkgate, Newark, Notts.

STOKESLEY.—Sept. 13.—For rebuilding Tanton Bridge, near Stokesley, and improving the approaches. Mr. Walker Stead, county surveyor, Northallerton.

SWANSEA.—Sept. 19.—For erection of Manselton school, for the Swansea (U.D.) School Board. Mr. C. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

WALES.—Sept. 30.—For erection of Grand Hotel and stabling, Port Talbot. Mr. George E. Robinson, architect, Cardiff.

WALTHAMSTOW.—Sept. 13.—For erection of school buildings in Queen's Road. Mr. W. A. Longmore, architect, 7 Great Alie Street, E.

WEST BROMPTON.—Oct. 12.—For erection of a laundry at the workhouse, Fulham Road. Mr. Edwin T. Hall, architect, 57 Moorgate Street, E.C.

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WESTBURY-ON-SEVERN.—Oct. 3.—For erecting new kitchen, stores, laundry, committee-room, tramp wards, receiving wards, porter's lodge, &c., at the workhouse, Westbury-on-Severn. Mr. W. Fitzgerald Jones, architect, 21 George Street, Gloucester.

WESTON-SUPER-MARE.—Sept. 13.—For alterations and additions to the Knightstone Baths. Messrs. Price & Wilde, architects, 15 Waterloo Street, Weston-super-Mare.

WIDNES.—Sept. 12.—For erection of relief offices and vaccination station. Mr. J. P. Fraser, architect, 4 Bold Street, Warrington.

WORKINGTON.—Sept. 13.—For erection of two shops and dwellings on the Moss Bay Road. Mr. J. Eden, architect, 58 Pow Street, Workington.

TENDERS.

AYLESBURY.

For alterations and repairs to Walton Villas, Aylesbury, for Mr. T. Horwood. Mr. ERNEST HAZELL, architect, 23 Moorgate Street, E.C.

J. S. Holland	£1,091 0 0
S. Grist, Limited	1,078 0 0
S. Mayne & Son	1,024 0 0
WEBSTER & CANNON (*accepted*)	984 0 0

BIRMINGHAM.

For providing temporary rooms for offices at the workhouse, Gravelly Hill. Mr. COOPER WHITWELL, architect, 23 Temple Row, Birmingham.

W. S. Seamark	£118 0 0
W. Lee & Son	108 0 0
FREEMAN & SON, Birmingham (*accepted*)	95 0 0

BOURNEMOUTH.

For electric lighting of pier, pleasure-grounds and winter gardens.

Crompton & Co., Limited	£1,219 0 0
SIEMENS BROS. & CO. (*accepted*)	1,135 0 0

BRENTWOOD.

For additions to warehouses, Warley Road, for Messrs Cramphorn & Co., Limited. Mr. A. T. G. WOODS, architect, Brentwood.

JOHNSON, Chelmsford (*accepted*)	£538 10 0

BRADFORD.

For erection of conveniences at the workhouse. Mr. FRED HOLLAND, engineer, Bradford.

R. TOWNEND, Croft Street (*accepted*)	£219 0 0

For heating apparatus for the male hospital at the workhouse. Mr. FRED HOLLAND, engineer, Bradford.

R. TOWNEND, Croft Street (*accepted*)	£297 0 0

BURNLEY.

For additions to the workhouse. Mr. S. KEIGHLEY, architect, Burnley. Quantities by the architect.

Smith Bros., mason and bricklayer	£9,940 0 0
Nuttall & Whittaker, joiner	2,139 0 0
George E. Whitehead, plumber	1,434 0 0
Phœnix Fireproof Company, concrete	1,125 0 0
J. Laycock, plasterer	544 0 0
William Staworth, slater	497 0 0
Jas. Holt, painter	210 0 0

CHELTENHAM.

For proposed infectious diseases hospital and works in connection therewith, for the Corporation.

W. Jones	£11,768 0 0
Stephens, Bastow & Co, Limited	11,098 0 0
Collins & Godfrey	10,274 0 0
W. Bowers & Co.*	9,588 0 0

* Recommended for acceptance.

CONGLETON.

For building new stables, loose box and cart-shed, for the Corporation.

T. Brown	£363 0 0
M. Cooke	339 10 0
J. Worrall	318 10 0
A. J. & G. WORRALL (*accepted*)	315 0 0
J. Towers	310 10 0

CORK.

For alterations and improvements to 88 Old George Street, Cork. Mr. D. J. BUCKLEY, architect, Cork.

O'Connell	£235 0 0
Duggan	230 0 0
BUCKLEY, Lancaster Quay (*accepted*)	210 0 0

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For erection of a building at Creigiau. Mr. ARTHUR O. EVANS, architect, Pontypridd.

Evans & Owen	£1,998 7 5
J. Jenkins	1,777 15 0
Williams & James	1,775 0 0
Davies & Lewis	1,700 0 0
M. Julian	1,441 0 0
MORRIS & THOMAS, Pontypridd (*accepted*)	1,376 9 6

DEVONPORT.

For erection of a public convenience at Northcorner Quay. Mr. JOHN F. BURNS, borough surveyor.

J. Healy	£264 0 0
T. Jenkin & Son	229 0 0
S. Rinner	219 0 0
S. PERKINS, Devonport (*accepted*)	198 0 0

DEWSBURY.

For works required in erection of twenty shops in an arcade at Dewsbury. Messrs. JOHN KIRK & SONS, architects, Dewsbury.

Accepted tenders.

W. Oates, mason.
Fothergill & Schofield, carpenter and joiner.
F. Newsome, plumber.
J. M. Thornton, slater.
S. Crawshaw, plasterer.
N. Ramsden, painter.
J. Bagshaw & Sons, ironfounder.
J. Cooke, concretor.
Heywood & Co., patent glazier.
Total, £4,780.

ESSEX.

For erection of villa at Old House Farm. Mr. J. W. DUNFORD, architect, 100C Queen Victoria Street, E.C.

Lawrence	£1,258 0 0
Matthews	1,133 0 0
Burrage	1,036 0 0
Hampton	970 0 0
Fuller	965 0 0
Merridew & Wort	934 0 0
WINCH, Harlow (*accepted*)	830 0 0

DISLEY.

For erection of residence, for Mr. F. Newton Carver. Mr. J. GIBBONS SANKEY, architect, 104 King Street, Manchester.

J. & J. LEE, Stockport (*accepted*).

ETRURIA.

For alterations to Etruria Wesleyan schools, for the trustees. Messrs. R. SCRIVENER & SONS, architects, Hanley.

G. Ellis	£353 10 5
C. Coxener	299 0 0
J. GODWIN, Hanley (*accepted*)	260 15 0

For painting the Wesleyan chapel. Messrs. R. SCRIVENER & SONS, architects, Hanley.

Jones & Jackson	£139 0 0
Bickley & Co.	136 10 0
T. ADAMS, Hanley (*accepted*)	135 0 0
Sparrow & Son	118 8 0
A. Mason	114 10 0
J. W. S. Harrington	114 0 0
Sadler & Whittaker	102 0 0

ETWALL.

For sewerage works at Etwall, for the Repton Rural District Council.

T. Perkins	£89 16 6
PLATTS, Etwall (*accepted*)	85 0 0
W. Ward	84 10 6

GILLINGHAM.

For proposed addition to the technical institute, for the Urban District Council.

J. Saunders & Co.	£2,919 13 9
T. Cornelius	2,199 0 0
J. H. Harris	2,160 0 0
L. Seager	2,145 0 0
H. E. Phillips	1,908 0 0
W. C. Snow	1,800 0 0
G. E. Woollard	1,725 0 0
R. Newnham*	1,724 10 0

* Accepted subject to the approval of the architect.

GLASGOW.

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R. MACLAREN & Co. (*accepted*)	£4,958 8 4
A Philadelphia firm	4,892 1 0

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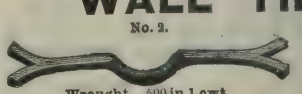
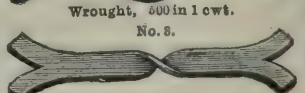
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Stephens, Bastow & Co., Limited	11,098 0 0
Collins & Godfrey	10,274 0 0
WILLIAM BOWERS & Co., Hereford (*accepted*)	9,588 0 0

For supply of apparatus in municipal schools.

PHILIP HARRIS & Co. (*accepted*)	£308 14 0

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ASHWELL & NESBITT (*accepted*)	£750 0 0

For builder's work at municipal schools.

JONES (*accepted*)	£318 17 0

For extension of sewer to Upton Lane, for Board of Guardians.

MEREDITH (*accepted*)	£283 2 2

HEXHAM.

For making-up and paving St. Wilfrid's Road.

M. D. Young	£358 4 0
W. MAUGHAN, Haining Croft (*accepted*)	205 0 0
Surveyor's estimate	250 0 0

HASTINGS.

For additions to the girls' school, for sanitary works, levelling playgrounds, and boundary walls at both girls' and infants' school, Hollington, Hastings, for the School Board. Mr. ARTHUR WELLS, architect and surveyor, Queen's Chambers, Hastings.

J. Lester	£1,577 0 0
J. Cruttenden	1,560 0 0
F. G. Hatton	1,555 0 0
Chapman & Cuff	1,343 0 0
A. H. White	1,223 0 0
Padgham & Hutchinson	1,186 0 0
H. ASHDOWN, Hollington (*accepted*)	1,114 0 0

For additions, sanitary works, levelling playgrounds and other works at Sandown Schools, Old London Road, Hastings, for the School Board. Mr. ARTHUR WELLS, architect and surveyor, Queen's Chambers, Hastings.

John Lester	£2,297 0 0
F. G. Hatton	2,250 10 0
A. H. White	2,190 0 0
Padgham & Hutchinson	2,131 0 0
D. SNOW, Hastings (*accepted*)	1,800 0 0

HASTINGS—*continued.*

For additions and sanitary works at boys' school, Hollington, Hastings, for the School Board. Mr. ARTHUR WELLS, architect and surveyor, Queen's Chambers, Hastings.

J. Cruttenden	£590 0 0
J. Lester	527 0 0
F. G. Hatton	480 0 0
Chapman & Cuff	450 0 0
H. Ashdown	440 0 0
A. H. White	301 0 0
PADGHAM & HUTCHINSON, St. Leonards-on-Sea (*accepted*)	276 0 0

HONITON.

For erection of a new bank for the Devon and Cornwall Banking Company. Messrs. RALLING & TONAR, architects, Exeter.

Williams	£3,400 0 0
Brown	3,173 0 0
Bird & Pippard	3,120 0 0
Wallbridge	3,065 0 0
Nix	2,953 0 0
Turner	2,907 0 0
J. W. & H. CHILDS, Yeovil (*accepted*)	2,879 0 0

ILKLEY.

For erection of a block of three villas at Ilkley. Messrs. ISITT, ADKIN & HILL, architects, Prudential Buildings, Bradford.

Accepted tenders.

G. Smith, mason	£1,318 12 6
Eagle & Howson, joiner	685 17 6
R. Richardson, plasterer	219 2 0
J. Houldsworth, plumber	217 4 0
J. Smithies, slater	101 11 0
J. Hankins, painter	33 0 0

IPPLEPEN.

For extension of the drainage at Ipplepen, for the Newton Rural District Council.

T. Irish	£223 15 0
T. Binmore	192 18 0

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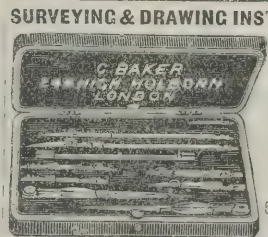
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For erection of a new dormitory annexe and other works at the workhouse.

W. K. Cleere, Kilkenny (*accepted*)	£252 18 9
J. Dowling	243 0 0

KINGSTON-ON-THAMES.

For erection of new offices and disinfecting chambers for the Kingston Union. Mr. Wm. H. Hope, architect, Portsmouth Road, Kingston-on-Thames.

	Offices.	Disinfecting Chambers.
H. J. Shelley	£6,447 0 0	£381 12 6
J. H. Jarvis	6,355 0 0	—
J. W. Brooking	6,354 0 0	358 0 0
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Speechley & Smith	6,289 0 0	354 0 0
General Builders, Limited	6,260 0 0	338 13 7
McCarthy E. Fitt	6,077 0 0	348 0 0
Wm. C. Cheshire	6,046 0 0	350 0 0
Merredew & Wort	5,899 0 0	321 0 0

LANCASTER.

For additions, &c., to Wilson's endowed schools, Over-Kellet. Mr. J. Parkinson, architect, 67 Church Street, Lancaster.

Constable, masonry	£269 0 0
Brearey, joinery	142 11 6
Hall & Son, slating	68 0 0
Billington & Son, plumbing	26 0 0

LIVERPOOL.

For erection of electric sub-station in Lodge Lane for City Council. Mr. Holmes, engineer.

Waring & Sons, West Derby (*accepted*)	£2,635 0 0

LONDON.

For erecting new school buildings for St. John's, Bethnal Green, E., for the Rev. E. R. Hollings. Mr. A. Cox, architect, Baker Street, W. Quantities by Mr. E. Clarke, 35 Vaughan Road, Camberwell, S.E.

McCormick & Sons	£6,830 0 0
Chessum & Son	6,829 0 0
Knight & Son	6,784 0 0
Outhwaite & Son	6,679 0 0
Shurmur	6,666 0 0
Harris & Wardrop	6,537 0 0
Wall & Co.	6,488 0 0

LONDON—*continued.*

For new billiard-room and alterations to the Dartmouth Arms, York Rise, Highgate Road, N.W., for Mr. Greenslade. Mr. A. J. Perriam, architect, 43 Cannon Street, E.C.

Antill & Co.	£1,500 0 0
Eddie	1,380 0 0
Stone	1,323 0 0
Gould & Brand	1,260 0 0
Marchant & Hirst	1,197 0 0

For alterations and additions to laundry, 106 Green Lanes, N., for Mr. Roylance. Mr. A. J. Perriam, architect, 43 Cannon Street, E.C.

Rhodes	£257 0 0
Bloomfield & Evans	180 0 0
W. Green	170 0 0

For alterations at 11 Westbourne Grove, W., for Mr. Nathaniel Abrahams. Messrs. Clark & Hutchinson, architects, 28 John Street, Bedford Row, W.C.

A. P. Mitchell	£553 0 0
R. Smith (*accepted*)	487 0 0
E. Sandon	485 0 0

For work at the Nell Gwynne, Strand. Mr. H. Wakeley, architect.

Lane	£197 0 0
Learman	187 0 0
Leman	183 11 6
A. Bush	180 0 0

For erection of the Blenheim, Cale Street, Chelsea, for the New Westminster Brewery Co. Mr. H. W. Budd, architect, 76 Vincent Square, S.W.

Accepted tenders.

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For new billiard-room and alterations to the Oxford Tavern, Kentish Town Road, N.W. Mr. A. J. PERRIAM, architect, 43 Cannon Street, E.C.

		Alternative Less.
Gould & Brand	£1,993 0 0	£125 0 0
Bloomfield & Evans	1,982 0 0	90 0 0
W. Green	1,935 0 0	90 0 0
Rhodes	1,900 0 0	70 0 0
Green & Smith	1,860 0 0	80 0 0
Marchant & Hirst	1,695 0 0	67 0 0
EDWARDS & MEDWAY (*accepted*)	1,622 0 0	71 0 0

For alterations and repairs to 81 South Audley Street, Piccadilly. Mr. P. A. TODD, architect.

Kelland	£780 0 0
Spiers & Son	719 0 0
Buckeridge	693 0 0

For sundry additions and alterations to the biscuit works, Shadwell, for Messrs. Meredith & Drew, Limited, under the superintendence of Mr. FREDERICK COLYER, architect, 14 Victoria Street, Westminster, S.W.

S. G. Bird	£3,716 0 0
J. T. Robey*	3,555 0 0

* Accepted subject to variations.

LONDONDERRY.

For erection of a new clubhouse at Quay, for the trustees of Foyle Rowing Club. Mr. J. P. M'GRATH, C.E., architect, Commercial Buildings, Foyle Street, Derry.

J. BALLINTINE, Londonderry (*accepted*) . . £500 0 0

MAIDSTONE.

For erection of oak screen in St. Michael's Church. Sir A. W. BLOMFIELD, A.R.A., architect.

A. N. PRYER & CO. (*accepted*) . . . £243 0 0

MERTHYR TYDFIL.

For one-storey vestry-room adjoining Ebenezer chapel. Mr. C. M. DAVIES, architect, Merthyr Tydfil.

J. Jones	£530 10 0
J. Jenkins	488 17 0
W. Jones	483 18 0
J. James	472 10 9
I. Davies	445 0 0
M. WARLOW, Warlow Street (*accepted*)	418 3 10

MORLEY.

For works in connection with the new sewage purification works.

Accepted tenders.

J. Akeroyd & Son, brick culvert and bridge piers	£3,416 7 2
Sumervail & Co., steel bridge	1,316 13 3
Cochrane, Grove & Co., cast-iron pipes	580 10 0

NAZING.

For erection of a villa residence at Old House Farm, Nazing, for Mr. John A. Rufus. Mr. J. WILLIAMS DUNFORD, architect, 100c Queen Victoria Street, E.C.

Lawrence	£1,258 0 0
Matthews	1,133 0 0
Burrage	1,036 0 0
Hampton	970 0 0
Fuller	965 0 0
Merridew & Wort	934 0 0
WINCH (*accepted*)	830 0 0

NEW BROMPTON.

For additions, &c., to their chapel, Canterbury Street, New Brompton, for the trustees of the Wesleyan chapel, New Brompton. Messrs. J. W. NASH & SON, architects, High Street, Rochester.

H. Wyles	£780 0 0
J. E. D. Woollard	660 0 0
T. Cornelius	589 0 0
H. E. PHILLIPS, New Brompton (*accepted*)	580 0 0

NORTHWOOD.

For erection of a house, for Mr. Sumpter. Mr. W. A. AICKMAN, architect, 34 Gresham Street, E.C.

C. EAMES, Watford (*accepted*) . . . £829 0 0

OVER KELLET.

For additions at the Wilson's Endowed School, Over Kellet. Mr. J. PARKINSON, architect, 67 Church Street, Lancaster.

R. T. Constable, Carnforth, mason	£269 0 0
W. Breary, Carnforth, joiner	142 11 6
Hall & Son, Lancaster, slaters	68 0 0
Billington & Son, Carnforth, plumbers	26 0 0

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Also, Testimonials from Dr. Hassall, September 28, 1868; the late Dr. Letheby, February 15 1865, and December 1872.

Price, £1 10s. and upwards. **Portable Filters on this System, £1 5s. to £3.**

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Portable Cistern Filters.



157 STRAND, W.C. (Four Doors from Somerset House), LONDON.

NEWPORT (MON).

For rebuilding of central schools, for the School Board. Messrs. MORGAN & HODGE, architects and surveyors, Newport and Cardiff.

Diamond	£2,885 0 0
Moore	2,845 0 0
Linton	2,725 0 0
Smith Bros.	2,664 0 0
Jordan	2,620 0 0
Linton	2,600 0 0
Moore	2,590 0 0
Charles	2,541 0 0
Richards	2,470 0 0
Phillips & Sons	2,467 0 0
Reed	2,400 0 0
Davies	2,399 0 0
Westacott	2,393 0 0
Jones	2,340 0 0
MORRIS (*accepted*)	2,300 0 0

PAIGNTON.

For conversion of Goodrington cottages into a residence. Messrs. E. APPLETON & SON, architects, Torquay.

Bridgman	£569 0 0
Harris	565 0 0
Webber & Sons	562 0 0
Webber & Maunder	526 0 0
Smaridge	522 0 0
SMARIDGE (*amended*) (*accepted*)	447 10 0

PLYMOUTH.

For rebuilding a store at the rear of George Street. Messrs. KEATS & COATH ADAMS, architects.

Griffin	£749 19 0
Andrews	735 0 0
Pearn & Son	715 0 0
Goad & Co.	700 0 0
LETHBRIDGE & SON (*accepted*)	645 0 0

PORTISHEAD.

For widening the lower portion of West Hill Road, for the Urban District Council. Mr. T. J. MOSS FLOWER, engineer, Carlton Chambers, Bristol.

J. & T. Binns	£468 0 0
E. Monks	249 10 0
J. Woolford	215 3 4
G. BISS & SON, Portishead (*accepted*)	173 0 0

PRESTON.

For additions to the workhouse at Fulwood. Mr. WHITWELL, engineer.

Building.

Hothersall	£1,799 0 0
Topping Bros.	1,670 0 0
Fazackerley	1,627 6 11
Cartmell & Son	1,537 0 0
SHORROCK, Preston (*accepted*)	1,522 0 0

Heating and Ventilation.

Holmes	650 0 0
Darque, Griffiths & Co.	487 11 0
Dawson & Co., Limited	435 0 0
Seward & Co., Preston	422 0 0

RATLEY.

For erecting new classroom, offices, &c., at the Ratley School.

J. Grant	£220 0 0
S. Norton	148 0 0

ROTHERHAM.

For construction of sewers and other works.

Contract No. 1.

BRAITHWAITE & Co., Leeds (*accepted*)	£4,912 0 0

Contract No. 2.

J. BENTLEY, Southport (*accepted*)	9,583 0 0

For supplying gas mains.

MERTON & Co. (*accepted*)	£1,998 11 10

SWANSEA.

For erection of offices in Alexandra Road, Swansea, for the poor-law guardians, Swansea. Mr. HERBERT W. WILLS, architect, Swansea. Quantities by Mr. G. FLEETWOOD, 3 New Court, Carey Street, London.

D. Jenkins	£7,750 0 0
Weaver & Co.	7,000 0 0
Davies Bros.	6,840 0 0
T. Watkins & Co.	6,816 0 0
Gustavus Bros.	6,800 0 0
W. J. Morgan	6,721 0 0
T. Davies	6,650 0 0
T. Richards	6,580 0 0
Bennett Bros.	6,500 0 0
LLOYD BROS. (*accepted*)	6,219 0 0

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SCARBOROUGH.

For works in connection with new college, Filey Road, Scarborough.

Accepted tenders.

Overton & Son, brick, stone and plaster work	£3,780 5 9
G. Scales, carpenter and joiner	2,500 7 5
J. Hargraves, tiler	613 6 6
G. F. Wells, plumber and glazier	500 17 0
Appleby & Brogden, smith and iron work	283 10 1
T. Fidler, painter	139 15 6

SENGHENYDD.

For erection of a chapel for the Calvanistic Methodists.

J. Howells	£1,862 0 0
D. Evans	1,793 0 0
T. Rossiter	1,780 0 0
J. Lewis	1,680 0 0
J. P. WILLIAMS, Senghenith (*accepted*)	1,670 0 0
J. E. Lloyd	1,635 0 0
Spratt Bros.	1,494 0 0

STROOD.

For erection of assembly hall for the Trustees of the Wesleyan Church. Messrs. J. W. NASH & SON, architects, Rochester. Quantities by architects.

Whittell	£1,532 4 6
Seagars	1,460 0 0
Wilford	1,454 0 0
Skinner	1,432 0 0
Filley	1,425 0 0
Phillips	1,405 0 0
Trueman	1,357 0 0
WYLES, Chatham (*accepted*)	1,250 0 0

TAUNTON.

For erection of a technical institute in Corporation Street, for the Town Council.

H. W. Pollard	£2,200 0 0
G. H. Pollard	2,151 0 0
F. W. Rowsell	2,061 18 0
J. Poole	2,040 0 0
J. Morse	1,962 10 0
T. H. MOGGRIDGE, Taunton (*accepted*)	1,851 0 0

TORQUAY.

For erection of dwelling-house, Torhill. Messrs. E. APPLETON & SON, architects, Torquay.

McKellar	£865 0 0
Hawkins	750 0 0
Vanstone & Mumford	736 0 0
Pike	721 0 0
Yeo	690 0 0
Do. amended	600 0 0

TROEDYRHIW (WALES).

For erection of eight houses at Troedyrhiw, for Mr. Edward Stephens, Woodland Cottage, Troedyrhiw. Mr. C. M. Davies, architect, 112 High Street, Merthyr Tydfil.

W. Lloyd	£1,597 12 0
M. Warlow	1,520 0 0
J. Jones	1,520 0 0
D. L. Jones	1,450 0 0
J. James	1,376 0 0
T. W. Davies	1,350 0 0
J. E. JENKINS, Abercynon (*accepted*)	1,120 0 0

WALTHAMSTOW.

For alterations and additions at Victoria Hall, Hoe Street, Walthamstow, and building new Empress Theatre adjoining, for Messrs. O'Malley & Buckland. Mr. BERTIE CREWE, architect, Savoy Mansions, Savoy. Quantities by Mr. HARRY E. POLLARD, 6 York Buildings, Adelphi.

Dearing & Son	£17,366 0 0
Patman & Fotheringham	17,085 0 0
Killby & Gayford	16,950 0 0
Knight & Son	16,813 0 0
Johnson & Co.	16,690 0 0
Bateman	15,997 0 0
Gray, Hill & Co.	15,990 0 0
W. Pattinson & Son	15,743 0 0

WREXHAM.

For extension of sewer at Broughton for the Rural District Council. Mr. PRICE EVANS, engineer.

S. MOSS, Coedpoeth (*accepted*)	£444 0 0
Wilcox & Langley (*withdrawn*)	379 0 0

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Received too late for Classification.

BEXHILL-ON-SEA.

For proposed business premises at the corner of Wilton Road and Marina, for Mr. W. Meads. Mr. WM. COOPER, M.S.A., architect, 21 Havelock Road, Hastings. Quantities by the architect.

H. Noakes	£12,125	0	0
Simmonds & Co.	10,879	0	0
H. Cruttenden	10,897	0	0
J. Martin	10,700	0	0
M. Martin	10,690	0	0
A. H. White	10,538	0	0
Padgham & Hutchinson	10,450	0	0

For excavations and concrete foundations which were executed under separate contract as follows :—

J. Piper	£390	8	3
S. Carey	302	12	6
E. GUTSELL, Silverhill (*accepted*)	289	0	0

ST. LEONARDS-ON-SEA.

For decorations, &c., to the Sussex Hotel, Marina, for the Sussex Hotel Company. Mr. WM. COOPER, architect, 21 Havelock Road, Hastings.

Hot-water service.

A. Willard	£106	16	0
A. A. HART, Hastings (*accepted*)	97	0	0

Decorations.

W. E. Brown	590	0	0
J. & C. Bovis	495	0	0
J. HARVEY, St. Leonards (*accepted*)	492	10	0

ELECTRIC NOTES.

ST. MARTIN'S CHURCH, Birmingham, is to be lighted by electricity. The tender of the Walsall Electrical Company, amounting to 430*l.*, has been accepted for the work.

THE electric lighting committee of the Edinburgh Town Council, in consequence of the greatly increased private demands for the light, have placed their estimate of revenue for the year at 54,000*l.* instead of 51,000*l.*

AN installation of the electric light has been fitted up by the Brush Company at Bo'ness Docks, and on Thursday night a number of the lamps were lighted for the first time. There are twenty lamps altogether at the harbour and docks, sixteen of them being arc lamps of 2,000 candle-power.

THE Aberystwyth Town Council have confirmed an agreement entered into with the Aberystwyth and Chiswick Electricity Supply for a period of two years, beginning on October 1 next, for the supply of electric current and maintenance of the present twenty-eight arc lights at the rate of 17*l.* 17*s.* per annum.

THE Local Government Board have sanctioned the borrowing of 33,000*l.* by the Salford Corporation for electric lighting purposes. Of the sum named 23,000*l.* is for the establishment of three battery sub-stations, and 10,000*l.* for the land for new generating stations. Approval is also given of the use of the basement of the Pendleton Town Hall and the subways around the women's second-class baths at Broughton for the purposes of the Salford Electric Lighting Order, 1890.

IN accordance with a recent decision of the Urban District Council, advertisements are to be at once issued for plans for a combined scheme of electric lighting and dust destruction for Maidstone. The idea of the committee who have the matter in hand is to use a portion of the Lock Meadows as a site for the electric lighting station and dust destructor, and it is proposed to erect stables, &c., for the District Council's horses and appliances on the same spot. It is considered that ample room will be left in the meadows for market and fair purposes.

THE work of lighting Balmoral Castle by electricity has been completed, says the *World*, and when the Queen arrived there were 600 lamps in use. This is a costly improvement, but the introduction of the electric light will be a great advantage, as the illumination by gas of the hall and corridors has usually been very dim, and has made the rooms unpleasantly hot and stuffy. The ballroom has always been like a Turkish bath after it has been lighted up for an hour or two, but in future there will be an incomparably brighter light with a cool atmosphere.

AT a meeting of the Denton District Council on Monday a letter was read from the Ashton-under-Lyne Corporation asking if, in the event of their deciding to promote a Bill in Parliament authorising them to supply electricity outside the borough, the Denton Council would at the same time apply for the usual provisional order under the Electric Lighting Act,

"SALAMANDER" ABSOLUTELY UNINFLAMMABLE! "SALAMANDER"

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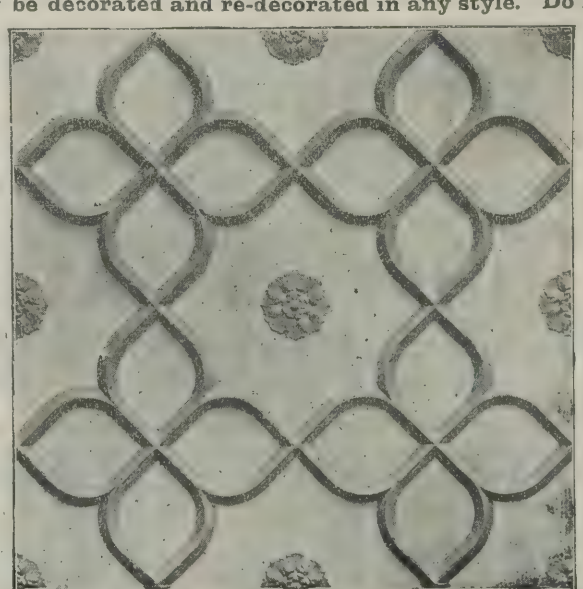
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ADDITIONS TO A HOUSE AT WEST FINCHLEY.

A DECORATIVE PANEL.

and, on the necessary powers being obtained, if they would be willing to enter into an arrangement for being supplied with electricity by the Ashton Corporation. The clerk was instructed to communicate with the Ashton Corporation as to their terms, and also with the Levenshulme Council with regard to the report recently made to them on the question of lighting their district by electricity.

THE electrical engineer to the Birkenhead Corporation (Mr. William Bates) recently drew attention to the lack of reserve power at the central electrical generating station, and was requested by the electrical committee to prepare a report on the plant thereat and as to further extensions which may be necessary. In the report since presented he suggests that tenders for the supply and erection of a further 150 unit steam dynamo should be asked for at the earliest possible date. As to the proposed extension, provision is made to meet all demands for the next two years at a cost of 13,343*l.* A list of thirty-two streets is given for the laying of distributing mains, and it is recommended that provision should be made for service cables, &c., for 150 fresh consumers. The borrowing powers of the Corporation for electricity supply are 41,500*l.* At present there is an excess over that authorised outlay on the cost of the existing works of 1,512*l.* 2*s.* 9*d.* In order to cover this excess and carry out the proposed extension, the committee have resolved to apply to the Local Government Board for power to borrow a sum of 15,000*l.*

VARIETIES.

AN infirmary is to be erected in Alcester at a cost of 5,900*l.*

THE Earl of Derby has presented the site required for the new schools at Haselmere.

A NEW bridge is to be erected across the Buckie Burn at a cost of 1,650*l.*, from plans by Mr. Barron, of Aberdeen.

THE Victorian Government will shortly be coming on the English market for large contracts for rails and fish plates.

PROFESSOR H. ADAMS has issued a syllabus of the comprehensive course of instruction in the engineering department of the City Polytechnic.

THE fire loss of the United States during the year 1897 amounted to 116,354,574 dols., of which the part covered by insurance was 66,722,145 dols.

THE Plasterers' Trade Union at the end of September have decided to give notice that unless the present wage of 10*d.* per hour is increased by 1*d.* the usual means will be resorted to.

A DEPUTATION of the Liverpool library, museum and arts committee will visit the general hospital at Birmingham to inspect the system of ventilation and heating adopted throughout that building.

A STERILISING apparatus has been brought out in New York in order to prevent the spread of disease by means of library books. It consists of a double-walled box of iron, in which are shelves for the reception of the books.

THE valuation returns of the National Provident Institution up to November, 1897, have been issued. The figures are more convincing than words about the stability and security of an office which insures at economical rates and is generous in its bonuses.

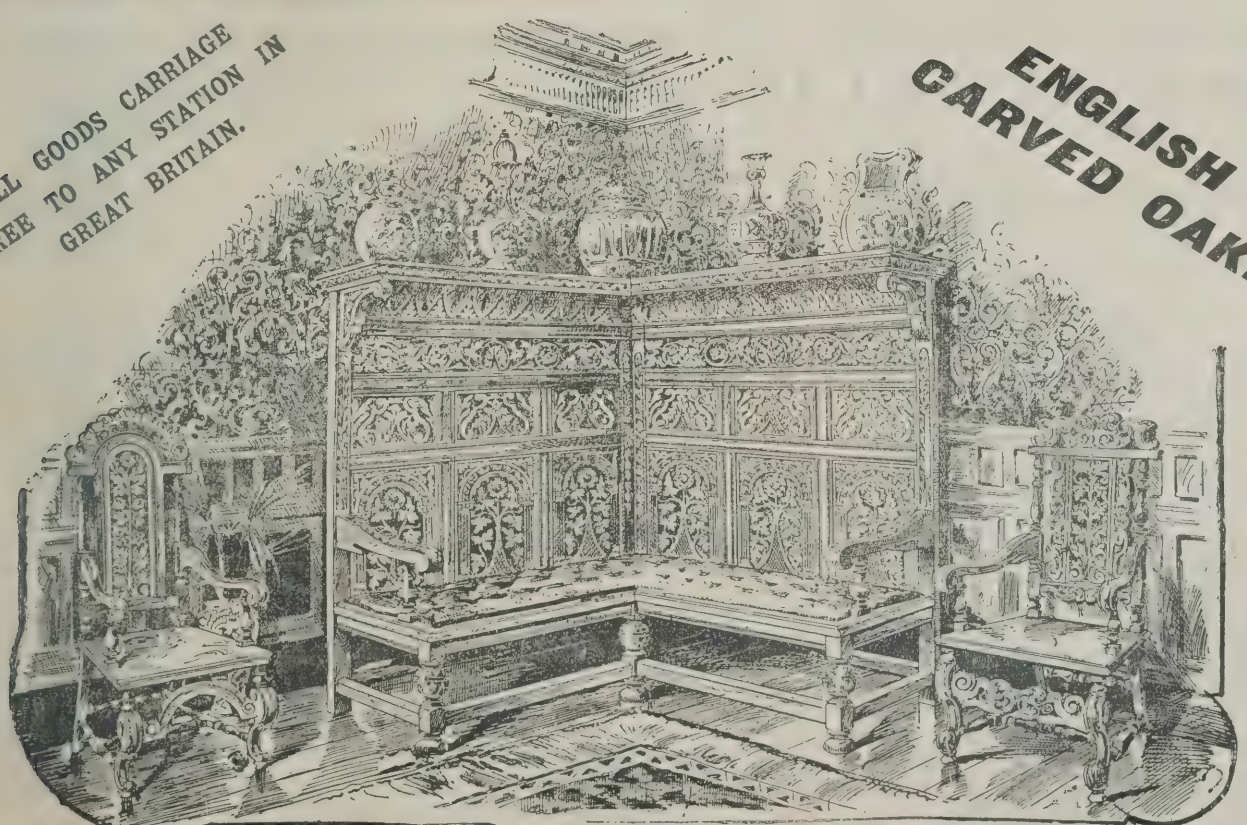
AS slow progress is being made with the construction of the new road round the Castle Hill, Scarborough, the sub-committee have passed a resolution regretting any unnecessary delay on the part of the contractors in not expediting the work, and calling upon them to make the necessary arrangements for commencing operations at the south or east pier end without delay.

A LETTER was read at the meeting of the Stafford School Board on Monday from the Education Department approving of the site for the erection of an infants' school in North Street for 150 children. The architect of the Board was instructed to prepare plans and specifications for the new school, as well as for an addition to the present Board school for 200 children.

THE people of Holland are now in a state of happiness which they are not afraid to display, and there is consequently more satisfaction to be derived from a visit to that country than is usual, although Holland can never fail to be interesting. The Great Eastern Railway Company have made arrangements which will economise the time of tourists and enable much to be seen at a very moderate expense.

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Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations

THE Cabot Tower, Bristol, was opened on Tuesday by Lord Dufferin. The tower, which is 100 feet high, is divided into two stages, each relieved by an ornamental balcony, whilst above rises an octagon spire of 30 feet, surmounted by a globe and figure symbolical of peace. In the panels upon the four sides of the base are appropriate sculptured designs, and also tablets bearing suitable inscriptions.

A SITE for a new parish church at Rugeley has been selected. The present church, which was consecrated in 1821, is situated at the extreme end of the ecclesiastical parish, and is far removed from the centre of population. It is an incommodious building, the interior is disfigured by heavy galleries, and, in the opinion of architectural experts, it is not possible to reconstruct the building. The new site is situated near the Town Hall, and, while being in closer touch with the resident population, is also conveniently near to the Vicarage, the burial grounds and the schools.

A PROJECT is in course of realisation at Fillongley, Warwickshire, which merits commendation. Cottage homes are in course of erection which are intended for aged local Methodist preachers who are unable to work and have no income. The trust deed confers the right of nomination for the cottage homes on each donor of 100*l.*, and any aged or necessitous local preacher's widow in either of the Methodist bodies is eligible for the occupation of a cottage and garden rent free for life. The number of cottages to be erected at Fillongley is seven, and the cost is estimated at 1,160*l.*

THE Charity Commissioners have just issued their scheme for the future administration of Lady Lumley's Charity (Thornton Dale and elsewhere), and the Grammar School (Pickering). These foundations are to be administered as one, by a governing body under the name of Lady Lumley's Grammar School Foundation. A central school is to be provided on the Thornton side of the town of Pickering, suitable for not less than forty day-scholars and 20 boarders, and there are to be fourteen foundation scholarships awarded to boys resident in Sinnington, Thornton Dale and Pickering.

A RAILWAY viaduct, the most gigantic hitherto attempted in India, has been sanctioned, at a height of 300 feet, and stretching for 2,000 feet over the Gahtik gorge on the Mandalay-Kunlou line. Mr. Sykes, who took a prominent part in the erection of the Forth Bridge, and is at present Under-Secretary in the Public Works Department of the Government of India, is likely to superintend the building of this great steel viaduct. The Burmah Railway Company have been authorised by the Secretary of State to construct these two important branch lines—from Meiktila station for 57 miles to Mymingiyan, and from Sagaing station 74½ miles by Monywa to Alon, with a river siding to Mynima.

ACCORDING to the United States Consul at Zurich a new artificial stone or moss has recently made its appearance on the builders' technical market, called papyristite, on account of the ingredients entering into its composition, principal among which is purified paper-pulp obtained from waste-paper. The material is the invention of F. Gehre, a civil engineer of Zurich. It can be used in various ways, but is specially intended to serve as a solid, impermeable and jointless roof or floor, which, when once laid, will present a smooth surface, as if made in one continuous layer. This new material, it is said, is a non-conductor of heat, cold or sound, and, although as hard as stone, has a soft linoleum-like feeling to the foot, and is noiseless.

BUILDING AND BUILDERS.

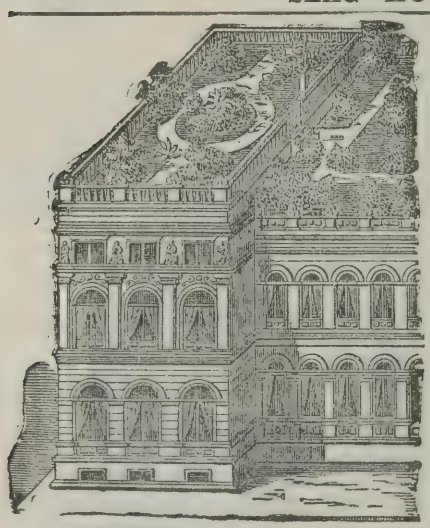
MR. S. E. SMITH, of the firm of Messrs. Smith & Tweedale, architects, Leeds, has given his award in the dispute between Alderman Sherwood, the proprietor of the new Opera House and Theatre at Wakefield, and Messrs. F. W. Denholm & Co., builders and contractors, with reference to the erection of the new building. Mr. Smith finds that after making due allowance for Alderman Sherwood's claim against Messrs. Denholm & Company, there is 260*l.* 5*s.* due to that firm, and he directs Alderman Sherwood to pay that amount, and also the costs incidental to the reference and award.

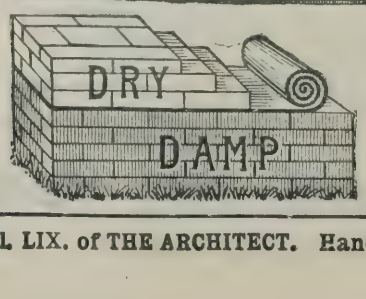
A NEW building for the Royal Caledonian Asylum is to be erected at Bushey. The existing building in the Caledonian Road has been in use since 1828.

THE Duke of Westminster has given instructions for the alteration and enlargement of the Halkyn National school at an estimated cost of upwards of 1,000*l.* The Duke is also erecting a complete set of new school buildings at Rhesycae, a village also on his estate, to replace the present buildings. The contractor for both schools is Mr. A. B. Lloyd, builder, Flint; and the architects are Messrs. Douglas & Minshull, Abbey Square, Chester.

THE remains of Mr. A. Fuller James, a member of a firm of contractors who have carried out many large works at Grimsby and Cleethorpes, were interred in Highgate Cemetery on the 2nd inst.

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TRADE NOTES.

A PUBLIC meeting will be held in the Mayor's Parlour, Manchester, on the 19th inst., at which the Lord Mayor will distribute the prizes, certificates and bronze medal of the Plumbers' Company awarded in connection with the recent exhibition of plumbers' work at Manchester. The meeting will be a large and influential one, and several prominent men are expected to be present. The programme will include a lecture on "The Registration of Plumbers and Domestic Sanitation" by Dr. Mansel-Howe of London.

A LARGE clock with four illuminated dials and striking the hours has just been erected in the Market Hall tower at Towyn, Wales, by Messrs. John Smith & Sons, Midland Clock Works, Derby.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester, have just supplied some more of their patent double-fronted Manchester stoves with descending smoke flues to the new small-pox hospital, Dagenham.

THE BRISTOL DOCKS.*

APART from all the other considerations which so favourably affect this Congress, I think, so far as Section G is concerned, that we are fortunate in meeting in this ancient city, which has so much of special interest for engineers and for others interested in applied science.

I propose, therefore, to say a few introductory words about Bristol and its neighbourhood from the point of view of this section of the Association, but it is far from my intention to either criticise the past work of the Corporation in relation to their dock enterprises or to volunteer advice to them with respect to possible works of improvement.

Bristol is at this moment of great commercial importance, as indicated by the value of its imports and exports, and occupied an even more important relative position among British ports at a time when the ports of Liverpool, Glasgow, Cardiff, or Southampton were almost or altogether undeveloped. So far as Customs revenue is concerned Bristol now stands third, and in regard to the gross value of her seaborne trade she is thirteenth among ports of the United Kingdom.

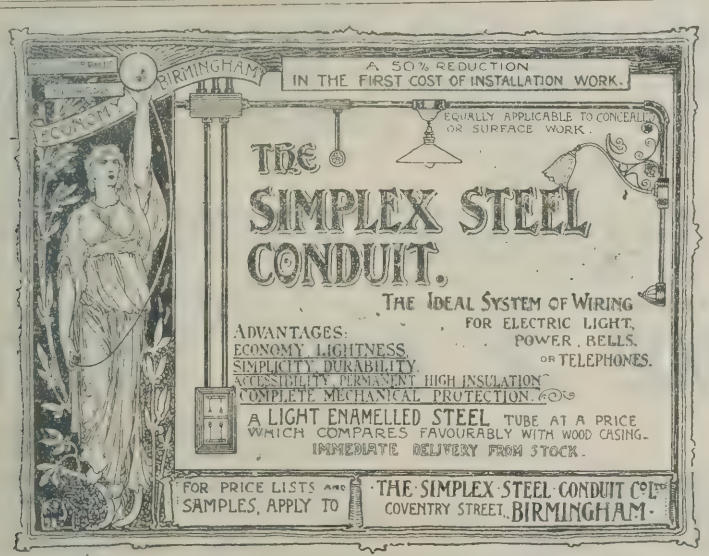
It is unnecessary, and it would be foreign to the objects of Section G, to attempt to trace the economic reasons which caused the long-continued importance of Bristol, or to account for the rapid growth of other ports more or less competitive with it. All such causes are to be found, at least to a great extent, in considerations apart from the merely physical characteristics of the sea, river or land at the various sites, as, for example, in propinquity to markets or centres of production, in situation relatively to population or to means of distribution, in individual or collective enterprise, in enlightened or unenlightened administration.

These circumstances have, in truth, at least as much if not more influence in determining the history and prosperity of ports than what are termed natural advantages of respective sites, by which I mean such matters as protection from winds and currents, depth of water in the port itself and in its approaches from the sea, the possession of soil adapted to the foundations of docks or quays, and ready access to suitable materials for cheap and efficient construction.

While recognising to the full the great advantages of such physical endowments in the development of a great port, one cannot but remember that they form only part of the problem, and that the business of engineers is to modify and direct the great forces and characteristics of nature for the use and convenience of mankind. We have, in fact, to make the best of a locality which may or may not be promising in the first instance, and history shows us that there are few places which are hopeless for our purposes. Thus while on the one hand we see many harbours in this country which inherit from nature every feature to be desired for the establishment of a port, but which remain useless for that object, so, on the other hand, we find many of the great centres of trade established in situations which possessed no such advantages, and where almost everything has had to be supplied by painful exertion and great expenditure.

As examples of these facts I may point to the remarkable progress of many commercial ports situated in localities which were originally the reverse of promising from an engineering point of view—to Glasgow, where 26 millions sterling in value of exports and imports are annually dealt with in ships of the largest draught, though it is placed on a river which only fifty years ago was nearly dry at low water for a distance of 10 miles below the present docks—to Newcastle, with a present

* From the address to the Mechanical Science Section of the British Association for the Advancement of Science, by Sir John Wolfe Barry K.C.B., LL.D., F.R.S., past president Inst.C.E.



"THE BANQUET."

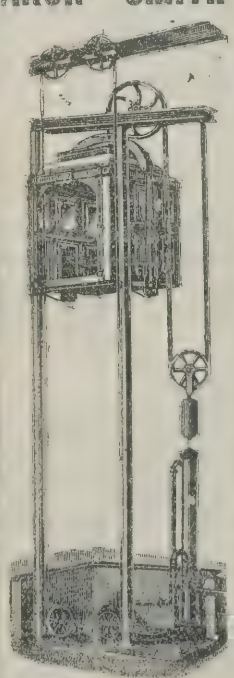
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trade of 13½ millions sterling, which within the memory of this generation was approached by a shallow river, entering a much exposed part of the North Sea over a dangerous sand bar. Sixty years ago the Tyne could only receive (and that only at high water) a small class of coasting vessels, whereas it is now navigable for deep-draughted vessels for a distance of 13 miles from the sea. The breakwaters also at Tynemouth, which have been constructed under great difficulties on a coast without a single natural encouraging characteristic, not only make a valuable harbour of refuge, but have, practically speaking, removed the external bar.

In a similar way, as evidence of the truth of my proposition, I might point to a multitude of other instances—to the great docks of Buenos Ayres, which city, when I knew it twenty years ago, could not be approached within 7 or 8 miles by sea-going ships of 15 or 16 feet draught; to Calcutta, dependent on the dangerous navigation of the Hooghly, including the dreaded James and Mary shoals; to the creation of the port of Manchester, 45 miles from the sea, approached by a tide-locked canal which has cost 13 or 14 millions of money in its construction; to the great recent developments of Rouen, Dunkirk, Antwerp and Amsterdam; to the improvements of the Danube and the Mississippi. In all of these cases the natural characteristics of the localities were quite unsuited to the requirements of an advancing trade in modern vessels, but the inexorable demands of commercial shipping have created the supply, at the hands of engineers, of improvements and modifications of nature, which are so large and important that, to an unprofessional eye, they might now almost appear, at least in some of the cases which I have mentioned, to be physical characteristics of the locality.

I think that we may safely say that trade will produce the required accommodation, and that accommodation in itself will not create or attract trade.

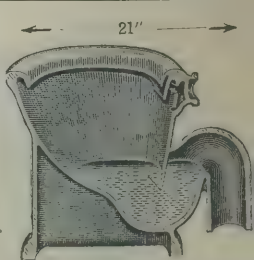
Bristol is a case in point, and it is interesting to us at this meeting to note, however briefly, some of the important works which have altered and are altering its capacity as a port. At the end of last century Bristol and its capabilities were, as they have been almost ever since, the battlefield of civil engineers, and we know that reports and projects were made by most of the men who were then recognised as authorities. The diversion of the river Avon and the construction of the floating harbour of Bristol, which were carried out under the advice of William Jessop in the years from 1804 to 1809, were boldly conceived and ably executed. The result of the diversion of the Avon by means of what is still known as the new cut enabled the old course of the river to be made into a floating harbour of about 71 acres, of which 57 acres are available for vessels of considerable size. The total cost seems to have been about 600,000*l*. Though the greatest draught of water in the floating harbour (some 20 feet), and the dimensions of the original locks (150 feet long and 36 feet wide) may appear to us at the close of the nineteenth century somewhat insignificant, they were, no doubt, up to the estimated requirements of that day, and I think we can recognise in Jessop's work the impress of a great mind.

The Cumberland Basin was deepened and improved, and the lock accommodation was increased by Brunel in 1850 by the construction of a lock, 350 feet long and 62 feet wide, and again by Howard in 1871, who made another lock, 350 fee long, 62 feet wide, with 23 feet of water at high water of neap tides. This is the present limitation of the access of shipping to the town docks, and though we realise its insufficiency for modern vessels, we can appreciate the energy of those who have gone before us, and who found the funds for or designed works which for so many years well fulfilled their purpose.

The approach to Bristol from the sea—that is to say, from King Road in the Bristol Channel—is certainly unpromising for large ships, and indeed, when contemplated at low water, appears not a little forbidding. Something has been done, and more is now in progress, towards straightening, deepening, buoying and lighting the tortuous course of the Avon below Bristol. More, no doubt, would have been undertaken in former years, if the great rise of tide in the river had not provided at spring tides a depth and width for navigation which were sufficient for practical purposes, until the size of modern ships imperatively demanded increased facilities of approach. I think it is a remarkable thing that vessels of 3,000 tons burden, 320 feet in length, and drawing 26 feet of water, succeed in reaching Bristol, and that the trade in the heart of the city continues to increase.

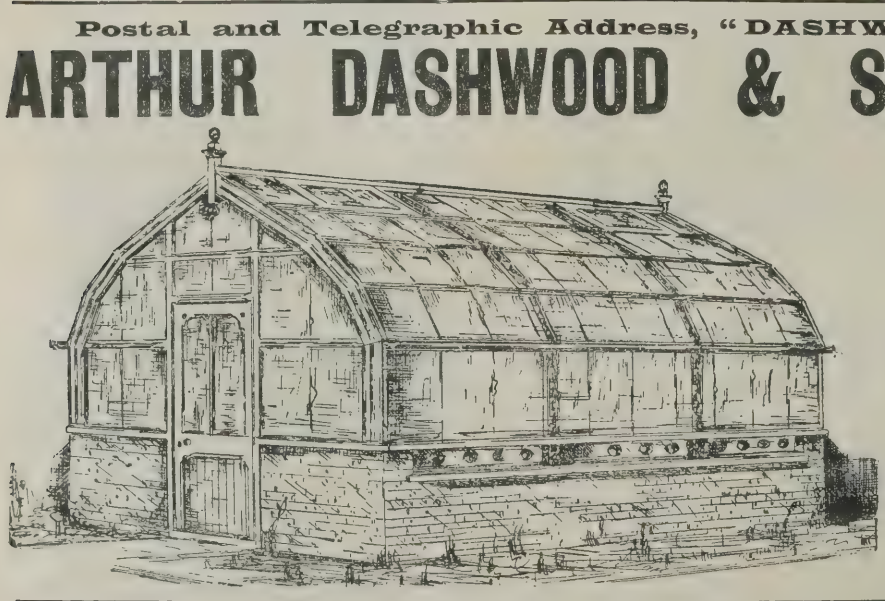
Those acquainted with the strong tides of the Avon, or with its bends, which do not exceed in places a radius of 800 feet, and, lastly, with what might be the consequences of a long vessel grounding in a channel which has only a bottom width of 100 feet, cannot but recognise the skill and nerve of the pilots in navigating large vessels from King Road to Bristol. This is done by night as well as by day, and so successfully that the rate of insurance for Bristol is no more than it is for Avonmouth or Portishead, the entrances of which

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are in the Severn, or than for many ports situated on the open sea.

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To return, however, to Bristol and the Avon; in spite of all efforts to keep pace with trading requirements, the time arrived, in 1868, for providing improved dock accommodation, which would avoid the navigation of the Avon, and at the same time afford deeper locks and more spacious quays than could be given in Bristol itself. The Avonmouth and Portishead docks were accordingly built between 1868 and 1878, and acquired by the Corporation in 1884. Both are fine works for their period; but even in their case the rapid development of modern shipping has occasioned a demand for enlargements of the facilities which they afford. Accordingly, a matter which is again agitating Bristol is still further dock accommodation, and there has been a sharp contention whether this should be effected by what is implied in the somewhat barbarous word "dockising" the Avon, or by new docks at King Road. Dockising implies the construction of a weir and locks at Avonmouth, so that the Avon would be impounded and make one sheet of water nearly six miles long to Bristol, the natural discharge of the river being provided for by outfall sluices, while the alternative of dockising the Avon is to be found in great additions to the docks either at Avonmouth or Portishead.

In the peaceful atmosphere of Section G I will not enter upon the various aspects of these antagonistic proposals, and will merely say that I have no doubt that in some way Bristol will keep ahead of what is wanted, and that I wish the city and the engineer who may carry out any of the ideas which may be eventually adopted every success and satisfaction in such important undertakings.

THE GRANVILLE THEATRE.

THIS new music-hall is proposed to be opened on Monday, September 19, 1898, and will be found to be one of the most unique buildings of its class in London. The site is an important corner one, being situated on the north side of the Broadway, Walham Green, with frontages to Jerdan Place and Vanston Place, and, although small, has been utilised by Mr. Frank Matcham, the architect, in a very careful and clever manner. There is not an inch of room wasted; staircases are found one over the other, saloons and retiring-rooms are placed in positions which do not occupy seating room, and yet are handy of access and of good proportions—in fact, every accommodation is provided, including manager's offices and good roomy dressing-rooms, well lighted and ventilated.

The whole of the ground floor will be carpeted and fitted with comfortably upholstered tip-up chairs. There is no pit, the shilling audience being supplied with a fine roomy balcony, and over this is a large gallery. The entrances and exits are admirably arranged. The holding capacity is calculated at nearly 1,500. Galleries are constructed without columns; a clear and uninterrupted view of the stage is obtained from all parts.

The elevation is a very imposing one, built of red brick and terra-cotta, the corner being very artistically treated with towers and minarets.

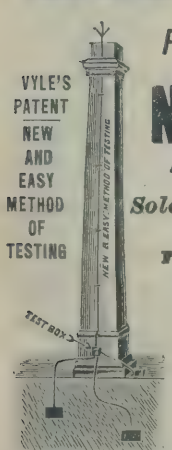
Over the entrances will be handsome iron and glass shelters, filled with painted glass and brilliantly lighted.

The entrances and vestibules are beautifully decorated with raised plaster enriched, the ceilings and walls being panelled out in Louis XVI. ornamentation. This decoration is carried along the walls of the open corridor at sides of stalls, and is finished in blue and gold, with figure paintings in panels, the whole having a most charming effect.

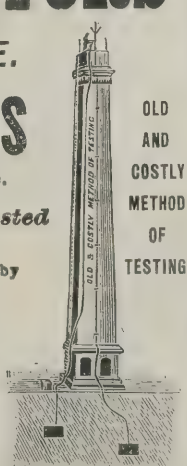
The design and modelling of the work has received great attention, and when the whole decorations are brilliantly illuminated with the electric light (special plant for which is about to be erected), and warmed with the rich copper colour draperies and velvet seats, a most beautiful effect will be obtained.

The greatest novelty in the building is its decorations. Mr. Matcham has introduced eburite faience ware for the whole of the interior embellishments; not only are the walls covered with this material but also the proscenium front, auditorium, ceiling, gallery and balcony fronts, which give a most charming result. It will save a great deal of labour and

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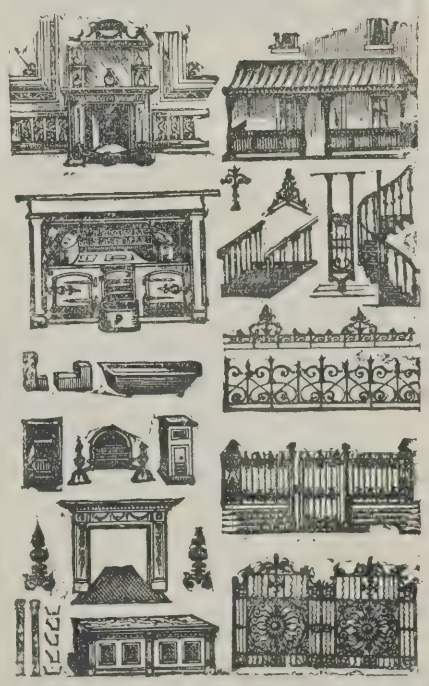
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expense that otherwise would be necessary for the renewal of decorations and keeping clean, as by giving it a rub down periodically with a wet sponge it is always kept bright and clean.

The eburite faience is a special egg-shell glazed material which has been successfully used in other large schemes of decoration by Mr. Alfred Whitehead, of Leeds, the contractor for this work, who has now combined business with the Campbell Tile Company, and who are now carrying it on as Campbell, Whitehead & Co., of Leeds and Stoke-on-Trent.

SANITARY INSPECTORS' ASSOCIATION.

THE second meeting of the season was held on Saturday, the 3rd inst., at the Royal Institution, Liverpool, the president, Dr. Francis Vacher, in the chair. After the nominations of a number of gentlemen as members of the Association had been approved, the President delivered his inaugural address, the object of which was to convey a few useful hints on the preparation of annual reports. Dr. Vacher said it was because he believed in the inspector and his career, and because he knew that he had something to say about his work which the public would be the better for hearing, that the matter of the annual reports so much interested him. Proceeding to point out some defects and make some suggestions for improvement, he emphasised the need of a uniform plan in the preparation of reports, which would render them collectively accessible and form a very valuable assistance and guidance to the whole profession. Speaking of the need for precision in recording facts he said good reports consisted of exact facts, exact deductions and exact opinions. He urged the necessity of a little more care in drafting reports, and the importance of adhering closely to one's subject matter and avoiding "fine writing," or referring to Acts of Parliament after the manner of the lawyers. Another important precaution to be observed was to keep the report within reasonable limits as to length. If a report was to do any good it must be read, and if it was too long people would not read it. He also urged the necessity of more care in the revision of proofs, instancing some very comic errors which had crept into reports from time to time either through bad writing or the idiosyncrasies of the printer. On the motion of Dr. Carter, J.P., seconded by Mr. Mort, Dr. Vacher was heartily thanked for the useful paper. The meeting was attended by representatives from Liverpool, Manchester, St. Helens, Lymm, Crewe, Waterloo, &c.

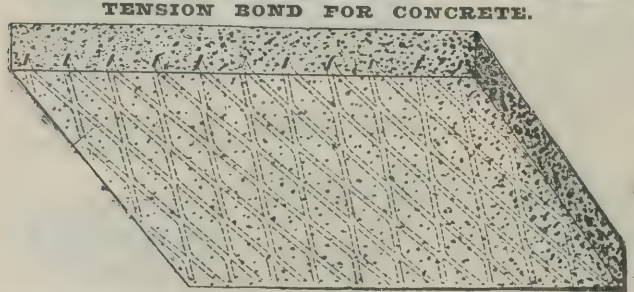
TECHNICAL INSTITUTE, TAUNTON.

THE foundation-stone has been laid of a technical institute, on a site adjoining the municipal buildings in Taunton. The plans were prepared by Mr. C. H. Samson, of Taunton. The style is Elizabethan, and the entire frontage is about 76 feet. In its construction Westleigh stone with Ham Hill stone dressing will be used, and the building will adjoin the terrace of the municipal buildings. The elevation is 42 feet and the roofing will be of red tiles. The building will consist of two storeys, and on the ground floor will be an electrical laboratory 30 feet by 19 in dimension, and the physical laboratory 30 feet by 16, together with a workshop, caretaker's room and entrance-hall. Upstairs will be a drawing office, classrooms, chemical-room and master's room, with a lecture-hall 30 feet by 19, fitted with gallery seats. All the rooms will have matchboard dados, and the walls will be plastered. The tender of Mr. Thos. Moggridge, of Queen Street, at 1,851*l.*, has been accepted for the work, and it is hoped it will be completed in eight months.

THE SHEERNESS NAVAL BARRACKS.

AT the desire of the First Lord of the Admiralty, Mr. Austen Chamberlain, M.P., has addressed a letter to Mr. F. Gorell Barnes, M.P., giving the reasons which have determined the Board of Admiralty to abandon their proposal to build new naval barracks at Sheerness at a cost of 220,000*l.* for the accommodation of 30 officers and 1,000 men of the Naval School of Gunnery. Mr. Chamberlain writes that the question has for some time caused the Admiralty much anxiety, and has received careful consideration. The proposed site at Sheerness was never considered wholly satisfactory, but it was the only one available within reasonable distance of the gunnery establishment, and at the time it was selected it seemed impossible to conduct the work of the gunnery school elsewhere. This difficulty has since been overcome. The reports at present before the Admiralty concerning the Sheerness site were of such a nature that no Board could take the responsibility of building barracks for a large number of men in such a position. The greater portion of the site was below the level of high water, and on account of the nature of the soil, if the barracks were erected, it would be necessary to incur enormous expense in driving piles for the buildings to rest upon, while a thick layer of concrete would have to be put down over the whole area, costing at least 150,000*l.* before the buildings were begun.

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The Board of Admiralty were advised that such a site would be unhealthy. Reference was made to the fact that the site was submerged on the occasion of the disastrous high tide which visited Sheerness on November 29 last. Mr. Chamberlain admits that Sheerness is a healthy town and that the sanitary condition of the existing barracks is satisfactory, but that portion of the district is situated close to the water's edge, exposed to the healthy influence of the winds, and far removed from the unsanitary surroundings and conditions of the site of the proposed new barracks. The suggestion that the barracks should be built in Sheerness Dockyard, where the existing barracks are situated, has been carefully considered, but apart from other objections the Admiralty has found it impossible to provide anything approaching the space which would be required for the purpose. The existing barracks will continue to be used to the full extent of their capacity, but for the necessary extension the Admiralty will have to look elsewhere.

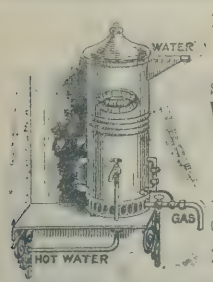
NEW BRIDGE AT GLASGOW.

HITHERTO the building of bridges by the Corporation of Glasgow has been confined to spanning the Clyde and the Kelvin, and within the last decade five or six such structures have been renewed, and two are at present in the course of erection or reconstruction. By the extension of the city on the south side the Corporation now, however, has been brought face to face with the necessity for improved communication across the river Cart. There are several bridges of the old-fashioned, narrow, "sow-backed" description in the neighbourhood of Langside, whose replacement with wider and more convenient structures must be a question of the near future. In the work of improvement and substitution a beginning has, in fact, been already made, the memorial-stone of a new bridge between Langside and the rapidly growing suburb of Newlands having been laid. The old bridge, which has stood for many years, was known as Millbrae bridge, and was only 12 feet wide. The new structure, which is in course of erection alongside of it, is 50 feet wide. It is a joint bridge, and the total cost of 4,523*l.* is borne to the extent of 1,300*l.* by the County Council of Renfrewshire, which shares the responsibility for the bridge along with the Corporation of Glasgow. The bridge is of Locharbriggs red sandstone, with ring heads, springers and parapet of grey granite, and the inside of the arch of white rock. The abutments will be surmounted by ornamental iron railings in extension of the parapet, and the foundations are of concrete, 12 feet below the scour of the river. Messrs. Morrison & Mason, Limited, are the contractors.

CHURCH CONGRESS AT BRADFORD.

THE next Church Congress will meet on September 27-30, in the city of Bradford, which is singularly fortunate with regard to the buildings in which the Congress meetings will be held. In many of the more or less ancient cities or towns in which the Congress has annually assembled since its inauguration in 1860 the accommodation for the principal meetings has been totally inadequate.

On the average 4,000 people come from all parts of the country to the Congress and have to be accommodated. The result therefore has been that temporary buildings have very often been erected in uncentral positions, which have been costly and frequently unsatisfactory with respect to acoustics, ventilation, heating and lighting. But in Bradford the principal meetings will be held in St. George's Hall, which will seat 4,000 people, and provides also reception, reporters' and waiting-rooms. It is centrally situated, and it is admirably adapted in every respect for the Congress meetings. In addition to the general there will be sectional meetings, which will be held in the Technical College, which will accommodate 800, and was erected in 1882 at a cost of 30,000*l.*; in the Mechanics' Institute Hall, near the Town Hall, which will seat 1,500; and in the Central Hall in Manchester Road, with ample space for 900. In the Church Institute, which is a handsome building in North Parade, the secretaries have already a suite of offices. In this building there will be writing, typewriting and general reception-rooms. There will be post, telegraphic and telephonic offices, and a room for postal and other messengers. And last, but not least, the Mayor of Bradford will hold a reception in the Town Hall, which is a magnificent building erected at a cost of 160,000*l.* The tower was partially copied from the tower of the Town Hall of Florence, and possesses one of the finest clocks with chimes in the United Kingdom. The chimes rival in sweetness those in the cathedral of Bruges, and strike every quarter, and are constructed to play a selection of sacred and secular tunes every three hours.



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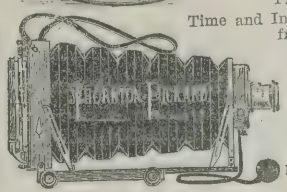
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MAKING VENEERED DOORS.

Visiting a large wood-working factory some time ago in New Haven, Conn., where veneered doors are made in large quantities, says a correspondent of the *Canadian Architect*, I interviewed the foreman with regard to the method of manufacture of these doors, with the following results :—"Our first operation is to take common coarse white pine boards, with sound knots, and which have been well kiln-dried. The stock used is generally 16 feet long, 1 by 12 inches. This stuff is surfaced on both sides by a Daniels planer without regard to thickness, as some boards are thinner than others, while others are warped in drying, and the thickness of the boards is immaterial, perfectly seamed surfaces only being necessary. After the stock is planed up it is cut into such lengths as the bill of doors calls for. They are ready now to be glued up The face board of whatever hardwood to be used is planed generally to $\frac{3}{4}$ of an inch thick, and is also run through a Daniels planer. The stock is now ready to go to the glueing press, and as the Daniels planer makes the best glueing surface in the world, no scratch planing is needed. After properly heating in a box the stock is brought out and carefully glued, the hardwood face parts marked for it. From three to five parts are put in the press at one time, and a pressure of 20 tons, brought down by screws, is put upon these parts. After remaining in the press the proper time they are taken out, and generally remain several days before being worked up, which gives the glue plenty of time to harden. When ready to work again these parts are taken to a Daniels planer and squared up, after which the parts are taken to a very nice cutting table or bench saw, and are cut up to sizes required, leaving them $\frac{1}{8}$ of an inch large for future dressing. It is a positive necessity that the saw cuts free and clear, as heating has a tendency to warp the stock or spring it slightly, which would make it necessary to dress the stuff again. If the saw does not heat, the stiles come out perfectly straight, and these stiles can be laid on a Daniels planer bed and a light shaving taken off. They are now straight, and if the saw table is in good condition, square, the other side may be finished with pony planer or with a Daniels ; I prefer a Daniels, because it makes a better glueing surface, and if the planer is in good shape the work is turned out from the planer perfect, so far as square and surface are concerned. The work is now ready for the veneering, the thickness of which is immaterial, as it may vary from the thickness of thin paper to $\frac{1}{4}$ inch. Heated cauls are now used for the veneer, and the stiles, if heated at all, are just warmed, and the veneer glued on by piling up with a hot caul between each stile. The old-fashioned way of making veneered doors may do very well when only two or three doors are to be made, but in these days of sharp competition we are obliged to adopt the quickest methods compatible with efficiency and good finish. I may say we never make less than fifty doors at a time."

PLYMOUTH WATERWORKS.

On the 21st inst. the Corporation of Plymouth celebrate their annual "Fyshynge Feaste" and the completion of the Burrator reservoir. This reservoir has been constructed by the Corporation. Its main embankment is the third largest stone dam in the country, and is the only one constructed of granite. The engineers for the scheme are Mr. James Mansergh, engineer, of Victoria Street, and Mr. Edward Sandeman, of Plymouth. The waterworks of the Plymouth Corporation are believed to be the oldest waterworks established by a municipality which have been continuously in the ownership and under the control of the municipality since their inception. London, as a municipality, undertook the construction of waterworks before Plymouth, but London has parted with its waterworks undertakings as a municipality, and is now supplied entirely by companies. The Plymouth waterworks have the further additional interest in that they were constructed by Sir Francis Drake, the great navigator, under powers obtained in the reign of Queen Elizabeth, the Act of Parliament showing on its face that they were designed at that day not merely for a local but also for an imperial purpose, viz. "the deepening of the Plymouth harbour, supplying Her Majesty's ships of war, and also for the purpose of extinguishing fires in the town occasioned by the assaults of foreign Powers." The Fyshynge Feaste is an ancient ceremony, which has been continuously observed for upwards of three centuries, and the only two toasts then drunk, and these being drunk in silence, are (1) "To the pious memory of Sir Francis Drake" (this is drunk in water taken from the works); and (2) "May the descendants of him who brought us water never want wine." On this occasion, in celebration of the construction of the great dam, there will be, in addition to the usual Fyshynge Feaste, a banquet in the Guildhall after the event, to which most of the notables in Devon and the adjoining county will be invited The last stone of the dam will be laid on the 21st instant.



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EMPLOYERS AND EMPLOYED.

In the section of Economic Science and Statistics of the British Association the presidential address was delivered by Mr. James Bonar, M.A., LL.D., F.S.S., who contrasted the old and new theories. He said :—

Between the extremes of (*a*) free subjection to a leader and (*b*) the submission of a slave who has no choice in the matter, there are in our society various grades of subjection to others, subjection for their ends chiefly, for our ends partly ; and they cannot be split into two simple groups by a physical test. Industry especially gives plenty of instances of the temporary subjection of one man to another for definite ends and over fixed periods of time. We can hardly cope with nature successfully at all without combining against her under leaders. It is certainly an essential feature of our present industrial system. As a man commits his goods to be used by another for him, so he commits his person to be so used, for another's benefit, but also for his own.

Now that slavery is gone, it has become as hard to prove a complete "expropriation and exploitation" of the labourer in industry as it is hard to prove plagiarism in literature. The degree of the "exploitation" must always be considered. Were the relations of employer and employed those of Prospero and Caliban, or of Prospero and Ariel, or only of Oberon and Puck? There are many degrees, and it is a long way from the top to the bottom of the ladder. In an army the leader is not using the led for his own purposes ; though he has soldiers under him, he himself is a man under authority ; and he is using them for a common cause, which both have at heart. Such service is not servitude if the cause is really at heart on both sides. So it might be, and is sometimes, in industry ; but we have at present, perhaps, more of the worse degrees than of the better. There is little liberty and much servitude when the workmen have no interest but their wages ; they are used directly for another's ends, and only indirectly and accidentally for their own. The leaders and the led can justly say of each other, "They are nothing to us but means to our ends, our profits or our wages."

The old economists took little note of such distinctions. It seemed enough to them that there was a legal contract. Even Burke, who spoke in his first pamphlet (on "Natural Society in 1756") of the "slavery and burdens of the poor," and of nine out of ten of the human race as passing their life in miserable drudgery, speaks in this last pamphlet (in 1795) as if there was no cause for misgivings in this connection ; a contract once made could not be a hardship to either party, for a contract is a compromise, both giving and both taking what seems the best possible equivalent at the time.

Yet in almost all contracts there is what Professor Pantaleoni called lately "economic strength" on the one side ; and there is "economic weakness" on the other. It is where the weakness is great that the contract galls even if it has been the less of two evils ; and there appears to be as much servitude as liberty. The weaker is made the tool of the stronger, the tenant of the landlord, the workman of the employer, the clerk of the merchant. Professor Pantaleoni, with his ingenious casuistry, would persuade us that we can seldom pronounce on which side the economic weakness lies, especially if we look to the future as well as the present. He gives us many instances where the tables can be easily turned. Like the Platonic Socrates arguing in the "Republic" against any sure definition of the interest of the stronger, he hints that the antithesis can hardly be used with confidence at all.

But a broad distinction is not unlawful or useless because there are border cases that elude it. The vegetable world may be broadly distinguished from the animal or from the inanimate, although there are equivocal creatures on the border lines. So here in the industrial world we can make broad distinctions and preserve them with a little care till we come to the border. If we interpret economic strength to mean independence, we find that in most contracts the strength is ascertainably greater on one side or the other ; and it might be argued that contracts are healthiest in proportion as the parties are nearest to equal independence. It is desirable that they should be independent, not indeed of all authority, but of the power of one another, so that neither shall be master, though the one may be leader and the other may agree to follow. A large number of men, perhaps the majority in civilised countries, are without this independence. It belongs, indeed, not only to those of large possessions, but to all of great talents sure of their market. It belongs, in a less degree, to ordinary skilled labour. But it does not belong to the man possessed of an unmarketable talent and no second-rate powers that are marketable. It belongs hardly at all to the day labourer, especially if he has given hostages to fortune ; his dependence is such as practically to fix his fate in the world. "A porter or day labourer," says Adam Smith, "must continue poor for ever." His dependence perpetuates itself.

Some modern economists have been so impressed with this overpowering influence on the poor of their poverty that they



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have been tempted to make it the chief factor of all history. Where there is no land to be had for the asking, they say, or where there is no common ownership of the means of production, there is necessarily weakness or dependence on the side of the employed. The causes of this dependence are the causes that have made civilised nations what they are, with all their institutions, political and social; economic causes are the supreme controlling, and even originating, causes of history.

If this were so, political economy, which began, like all other studies, by being nobody in the world, and after much toil was recognised indeed but only as "slight, unmeritable, meet to be sent on errands," rather as a phase of wisdom than as a branch of science, would end by being the only authority of any consequence. This position, very trying to its natural modesty, is one which it should not be flattered into hastily accepting. We must not carry into science the methods of social revolt, and say with the disinherited, "Since you grant me nothing, I shall claim everything."

It is no question whether economic conditions are one cause, but whether they are the only real cause. That they are one cause is so evident that the earliest theorists have paid regard to them. They have been ignored only in countries where nature has made livelihood easy, and man can with an easy mind take no thought for the morrow, or for food, raiment and dwelling. Elsewhere the struggle for existence has never passed without notice. Wherever there is a marked distinction between rich and poor, the economic factor in human life is sure to acquire great importance; and thoughtful men who are preoccupied with the discomforts of the poor are ready to count the economic factor the most important, the leaven that leavens the whole lump. This preoccupation is at the bottom of nearly all Utopias, even the Greek of Phaleas and Plato. Once arrange the production and distribution of wealth, and all other blessings will be added unto you; that is the tone of them all. Sir Thomas More, whom we might call the Archon Eponymus of modern socialists, would as a devout Christian have disclaimed such materialism; but in his own Utopia the chief peculiarities are the economic. The exaggeration is one into which we easily slip if we gaze only on the truth that circumstances and surroundings greatly influence human life; we become astonished that kings and governments have so often neglected this truth, as if it were the only truth that they have neglected. It was in this way that Robert Owen was led to overstrain the facts; and socialists as a body have taken no special pains to avoid exaggerations which could add a rhetorical force to their claim for a radical change. But it has been left for very recent writers not almost but altogether to ignore the influence of the spiritual environment, and to declare the material surroundings to be not merely a great part but the whole wherever the institutions of society are concerned. This was first done by Marx and Engels. It has been done lately by Professor Loria, and Professor Patten betrays an inclination to follow the same course, though with more caution.

(*To be continued.*)

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C. from whom all particulars and information relating to Patents may be had gratuitously.*]

APPLICATIONS FOR PATENTS.

18174. William Rowland Pedler, for "A method of removing lime from bricks."

18185. Baron Harris, for "A rhomboid chimney-flue brick."

18185. John Mell, for "An improved asphalte roofing for buildings."

18210. Harold Tyrrell Grainger, for "Improvements in bricks or blocks for building."

19969. Leathor, for "Ventilating appliances."

22684. Dalton, for "Presses for the manufacture of and undercutting of tiles, bricks and other articles."

16284. Coe, for "Devices for applying metallic leaf for decorative purposes."

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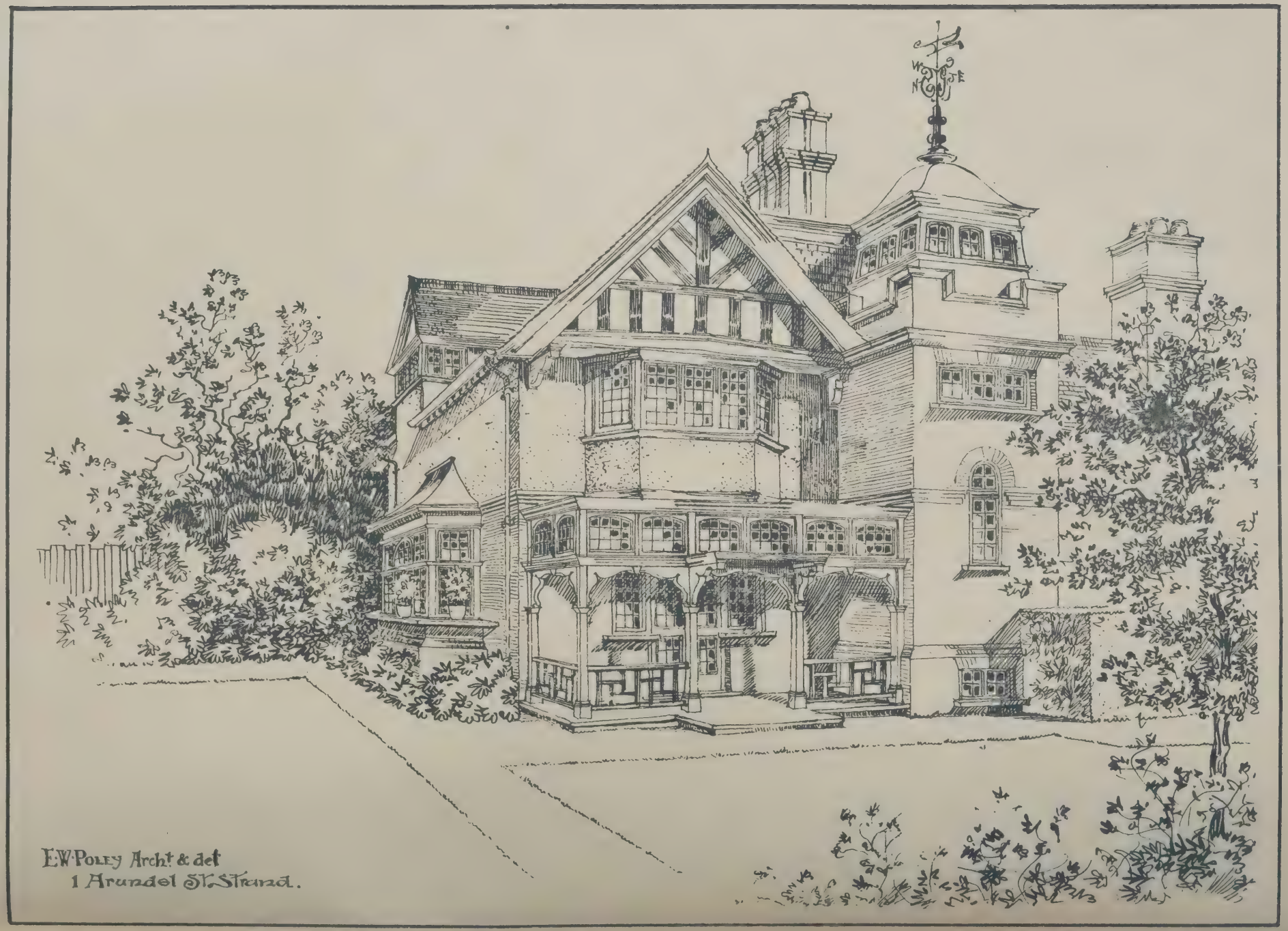
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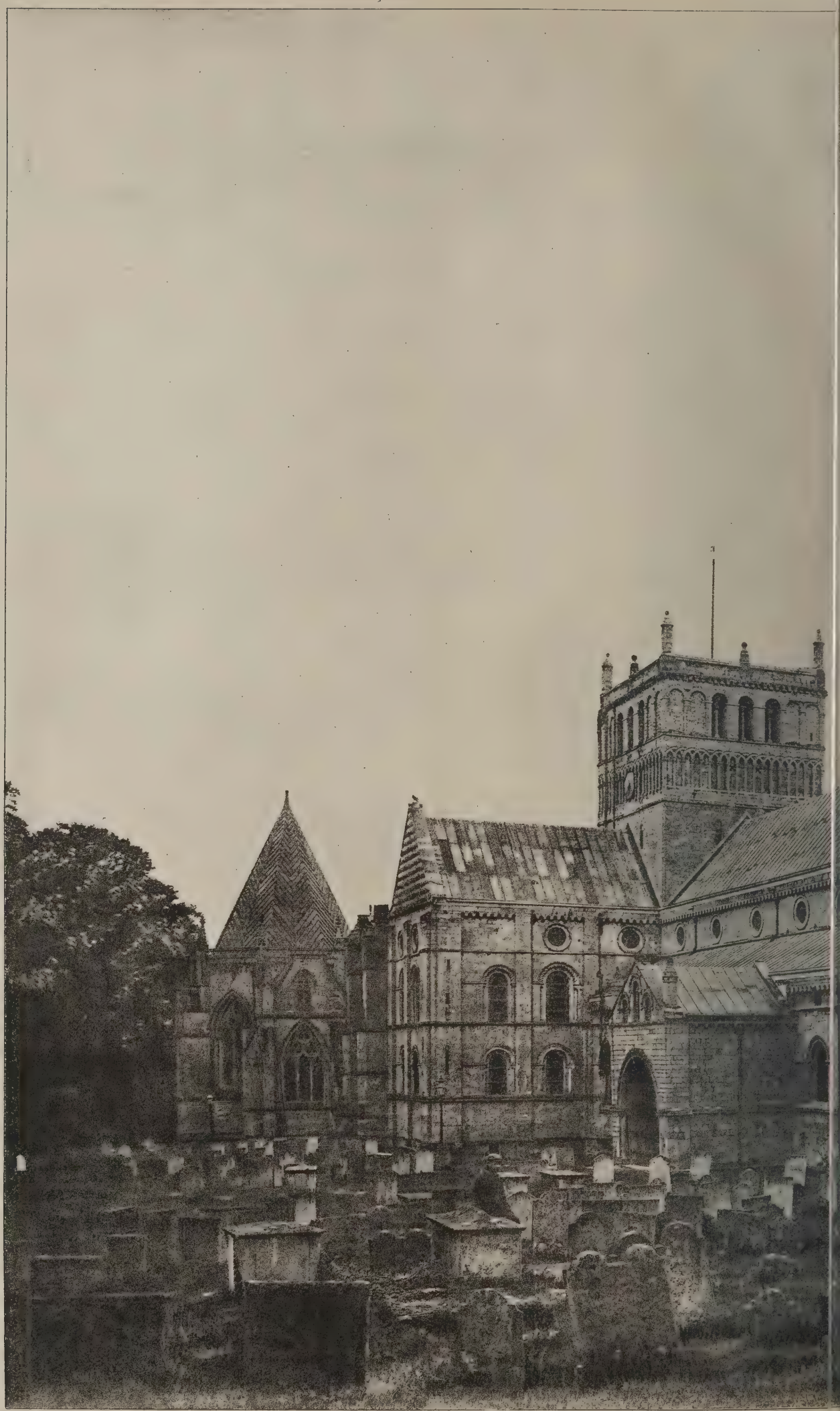


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ADDITIONS TO A HOUSE AT WEST FINCHLEY

E. W. POLEY, Architect.

The Architect, Sept 9th 1898.



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The Architect.

THE WEEK.

The meeting of the British Association at Bristol must have drawn more general attention to the injurious effects which are likely to follow the indiscriminate construction of electric railways of various kinds. It is only to be expected that projectors and engineers will give their sole attention to profits, but there is much else which needs consideration. Mr. W. H. Preece, the Post Office electrician, is not an alarmist, but his observations during the past eight years on the effects of the City and South London Railway are almost enough to give alarm. He told the Association on Tuesday that the whole of London was found to be disturbed by the currents of that line. Electric magnetic induction, the moving of magnetic masses of iron and leakage were among the causes. On one occasion it was found that the potential difference between the two ends of the line passing through the Post Office was as much as 10 volts, with the result that special currents were produced. What might follow from the disturbances was shown by a few examples. In 1889 one of the alternators at the Deptford electric-lighting station came into contact with the earth, and it was felt in every circuit in London, and observed even in Paris. It threw over the block signals on the North-Eastern Railway and was the cause of serious danger. This was remedied, and within the last four or five years they had not observed any traces of disturbance caused by Deptford. Disturbances had been observed in Bristol, Leeds, Liverpool, Blackpool and other places, but many efforts had been made to remedy it and this was not difficult. In conclusion, Mr. Preece declared that the use of the earth was a vested interest for the whole nation. It was the right of scientific observers, and its acquisition by the force or might of those great electrical industries was to be resisted. Professor Fleming, at the same meeting, treated of the electrolytic corrosion of gas and water pipes by the earth-currents from electric railways and tramways. According to him, with street railways having an uninsulated return-circuit, no amount of bonding of the rails would entirely prevent earth-currents, which might be gathered by gas or water pipes. The danger of corrosion of such pipes would generally be greatest when they extended for some distance parallel with the rails, and the current must pass from the pipe into the surrounding soil. In rapidity of destruction a new, clean pipe might possibly succumb even sooner than an old one protected by a dense coating of oxide; but when actual perforation of the pipe did not occur, there might be an ageing action that shortened its life.

The third report of the committee appointed to investigate the Lake Village at Glastonbury was read at the final meeting of the British Association on Wednesday. Since presenting the last report much progress has been made with the exploration. Twelve more dwelling mounds have been examined, as well as the ground between and around them. The southern end of the settlement has been completely explored, and the investigations have yielded much of importance. The timber substructure in this locality was in a better state of preservation and more massively made than in any part of the village hitherto examined, the arrangement of the logs being exceptionally clear. Some of the dwelling mounds were of more than ordinary interest in their construction, and from the various objects found on and around the floors, the following observations in connection with them may be specially noticed. Mounds A, B C and D formed an interesting group, showing the gradual growth of the village and the construction of dwellings from time to time as they were required; this was easily recognised in these mounds by the floor of one mound overlapping the floor of the mound immediately contiguous to it. The clay of mound A overlapped that of C, B and C that of D. Mound A was the latest construction, D the earliest, B and C were of intermediate date, and the dwellings may have been of contemporary erection. Mounds A, B, and C were of medium size; the foundation of wood was strong and well arranged, especially under mound C. Mound D was remarkable for its series of baked clay hearths, and for a circular basin-shaped depression in the floor of the dwelling within a foot or two of one of the uppermost hearths. The sides and base were hard-baked, and it appeared to have had a semicircular moulded rim raised 2 or 3 inches above the level of the floor; it measured 2 feet across the rim, was 9 inches deep, and the sides were nearly straight, sloping downwards and inwards towards the base, which was about 21 inches in diameter. It contained fragments of the fallen sides and a little fire ash and charcoal. A somewhat similar depression was discovered in mound J, and was described in the last report. Dwelling mound D was also noteworthy for the number of bone needles, broken and complete, found with numerous splinters and sharp fragments of bone near them. Mound E was of large size, oval in shape and composed of five layers of clay; it contained two hearths of stone and several of baked clay. In this dwelling-mound there were found the remains of what may have formed a small furnace of baked clay, fragments of several three-cornered crucibles and some small pieces of bronze. Mound F was small and had not the appearance of a dwelling-mound. It contained three remarkable groups of clay hearths, each group consisting of three superimposed hearths. Associated with this mound were quantities of pottery and fire ash. The chief feature in the dwelling mound A A was the thickness of its clay floor, the vertical measurement of its thickest part being 10 feet; the mound was fairly symmetrical in outline and was about 30 feet in diameter. Beneath the lowest part of the clay, and lying in a layer of brushwood and rushes, part of the framework ostensibly of a loom was discovered; judging from its position, and from the worm-eaten condition of the wood, it had evidently been discarded and thrown away before the first dwelling belonging to this mound was erected. Amongst the timber used in the foundation of the mound were many piles and pieces of wood quite disconnected from the purposes originally intended, and evidently belonging to a previous arrangement at another part of the village.

On Saturday the surveyor of works of Bath, Major Davis, described the small leaden cross which was found in the course of the excavations in Bath a few months ago. Several theories of the origin of the relic were propounded after its discovery. According to Major Davis the cross is of Saxon origin and dates from the year 972 or 977. He thought it commemorated the death and burial of an early Saxon queen, the daughter by marriage of Alfred the Great, and the grandmother of the first king of England, a king whose coronation took place in the city of Hot Bathon, and whose memory for hundreds of years was commemorated in Bath by the periodical selection of a citizen, who ruled her pleasures and labours as king of Bath. The city is so associated with Roman remains, there is a peculiar satisfaction in everything which demonstrates that later comers were able to appreciate the advantages of a place on which nature has lavished so many favours.

The Canterbury Town Council have decided to erect municipal buildings at an expense of 20,000*l*. It will, of course, be necessary to obtain the sanction of the Local Government Board for the borrowing of that sum. The plans were prepared by Mr. Campbell, the city surveyor. The delay in carrying out the scheme arose from the difficulty of negotiating with the owners of premises adjoining the site. It is now understood that the work can be completed without any expenses on account of light and air, for there will be no interference with adjoining properties. Some of the members express their disappointment that the plans were not obtained by competition, but the familiar excuse of urgency was brought forward in order to put an end to discussion of the subject.

PREHISTORIC ART.

THE address which Mr. BRABROOK delivered as president of the section of anthropology at the Bristol meeting of the British Association contained a reference to two additional examples of prehistoric art. One represented a figure of a bison, the other was a figure of a woman, both drawn on bone with a sharp-pointed instrument. It is needless to say they are not of great value if considered as works of art. Their interest is based on other grounds. In the first place, like the Bruniquel, Périgord and Kesserloch incised work they afford additional evidence that men practised the art of representation before they attempted conventionalised forms. They also show that men were inspired by pleasure before thinking of purpose. Apparently the prehistoric artists who scratched figures on bones thought only of the satisfaction which was derived from displaying their power and the admiration which was expressed by the men and women who looked on at the performance.

In such attempts at art we have a primitive testimony to the truth of the theory that art at its best is a sort of game or play. The world has changed since the days when the bones were engraved, and there has been evolution to an extent which is almost incomprehensible. But feelings seem to remain in their pristine condition, and modern French and English sculptors are, therefore, not likely to be more happy in the completion of their masterpieces than were the artists who drew the elks and bisons we can see in collections of prehistoric remains. In the early as in the late cases there was satisfaction in the exercise of skill, successful imitation afforded pleasure to those who produced and those who admired, and as men were much alike at all times, the early artists may have expected a reward for their work from those who were ambitious to possess the incised bones. To prehistoric man the simplest attempt at representation must have had an importance which we cannot realise. He could hardly imagine the physiological and other differences which separated him from the wild animals which surrounded him. He was able to kill some of them, but they also possessed a similar power. He was often one of their victims. They showed no disposition to acknowledge him as the "lord of the wide world and wild watery seas." But inferior as he was to the mammoths who were his contemporaries, they were unable to make a sketch of him or of any other animal. The rude engraving was a token of superiority, a revelation of future supremacy. It was almost a title to possession, for the drawing of anything gives us knowledge of its qualities; and to have a view of a reindeer always in a cave or hut was to give opportunities for devising new means for the animal's destruction. We do not believe the representations were produced with an eye to utility or as aids to the hunters, but since hunger was never at a remote distance from primitive man he would not in planning a campaign hesitate to take a hint about the weak points of his prey from a work of art.

Modern curiosity would be gratified if the ancient artists were more varied in the selection of their subjects. An elk or an elephant is interesting enough, but there were simpler things to be seen of which we should like to have a suggestion. The great beasts were however of importance, not only as supplying food, but as means to excite the imagination. If cats were able to draw they would long confine their efforts to representations of mice, and the pictures would recall many a delightful quarter of an hour which was spent in playing with a victim. A figure of a reindeer peacefully browsing would also bring to the minds of a family of hunters the occasions when, after a long ambush, they succeeded in capturing unsuspecting victims.

Among a superstitious people it may also have been believed that a representation was a charm and an aid to the destruction of whatever object was represented; but that is a subject which must always be in doubt, and which we need not consider. It will be better to think of prehistoric art as something which appealed to a peculiarity that belonged to man alone, however wild might be his state, and ministered to his pleasure if not to his profit. For, as far as can be judged, the earliest attempts to represent animals were not aids to men's adornment. The bones were not intended to serve like modern trinkets, and were not sharpened into weapons. They were simply things which could be dispensed with, but on that account acquired more interest. If judged by the law of utility, the most successful of them was not worth a piece of chipped flint.

As we are unable to discover any purpose which the incised bones could serve, we cannot be confident there was any foresight exercised by the artist. Under all the prehistoric representations of men or animals which are known, the judgment that Parson REYNOLDS inscribed on his son JOSHUA'S early attempts might be inscribed, "Done out of pure idleness." When we are able to realise purpose and correspondence between a form and the space it occupies, then we generally have examples of conventionalising. The Indians of North-Western Canada are able to make very serviceable weapons which are adorned with carvings imitated from various kinds of organic life. But commonly it will be found that savage tribes realise that the knobs, hollows and sharp outlines which kill or maim in the shortest time are only to be combined when there is license in the adaptation of natural forms. A reindeer's antler would inflict an ugly wound, but it might become more dangerous to the owner than to his enemy. An adaptation of one on a club would be as death dealing as a sword from VULCAN'S smithy. Many ornamental forms, on which time and later uses have conferred a sort of sanctity, may have had their origin in the weapons which were wielded by prehistoric warriors. The beak head, billet, chevron, dog's-tooth, &c., for example, look as if they were derived from militant rather than contemplative men, and probably were among the first efforts to combine art with utility. The line drawings of the elk and elephant, on the other hand, were suited to afford a sort of quiet enjoyment, to soothe the savage mind for a time, and in that way are allied to the highest art. The conventionalisms which we see on the earliest weapons could never be expected to have such an effect; they were stimulants to action, rude efforts to express the desire for vengeance, spells to delude ignorant men into a belief that they were irresistible. Among the Chinese until a late period there was a belief that hideous faces on shields were able to paralyse adversaries, and the Homeric heroes evidently gave way to a similar superstition. The myth of MEDUSA'S head may have come from a savage's war club or shield.

Much as primitive man may have suffered by the efforts of artists to create forms that would strike terror in his soul, there is some reason for concluding that he could be still more overcome by formlessness. MILTON, who was learned in old superstitions, when he desired to be most impressive became indefinite, and left the reader's susceptibility to create amorphous beings. What artist could illustrate the description of Death, although to many it is not incomprehensible?—

> The other shape,
> If shape it might be call'd, that shape had none
> Distinguishable in member, joint or limb,
> Or substance might be call'd that shadow seem'd,
> For each seem'd either; black it stood as night,
> Fierce as ten furies, terrible as hell,
> And shook a dreadful dart; what seem'd his head
> The likeness of a kingly crown had on.

This is more impressive than would be a very realistic description, for it does not appeal to the understanding or ordinary intellectual powers. The early idols of all lands appear to have had some of the qualities of MILTON'S creation, and to be beyond the criticism that vision justifies. The fear may have come from the spectacle of a meteorite falling from the sky. Professor H. A. MIERS adopts that view, for in a paper he read at Bristol he remarked that "among the various sources to which stone worship is ascribed in anthropological works mention is rarely, if ever, made of the worship of meteorites; it is urged that when meteorites fell in early times—and there is no reason to believe that they fell any less frequently than now—they must have provoked religious awe. Several instances are quoted among recorded falls in which this was certainly the case, and some in which the meteorite became an object of worship."

Who can assert with any confidence that the meteorite was not the precursor of the idol in wood or stone, nay, of the chryselephantine ZEUS, by PHEIDIAS, which was one of

the wonders of Olympia and of the ancient world? If so, it would be reasonable to conclude that modern art has had three sources, viz. the graved lines of animals, the carved lines on weapons, and the mystery which was created by meteoric stones.

THE ARTS UNDER WILLIAM III.

APPARENTLY it was Lord MACAULAY'S intention to have recognised the arts in his "History of England." But he was hardly qualified to treat of the subject. He could write sonorous sentences about pictures, and so learned a man could not neglect reading biographies of artists. There is, however, little in his writings to suggest that he was able to appreciate either form or colour when at its best. From the character of his style it might be supposed he would be an admirer of RUBENS, but as the great Fleming did not work in England during the period to which the History was confined, there was no opportunity offered to MACAULAY for describing the massive draperies and glowing colours of the master.

For an historian who was indifferent to the arts there could not be found a more suitable period than that which commenced with the accession of JAMES II. and ended with the death of WILLIAM III. Under happier circumstances JAMES might have encouraged artists like his brother. He inherited a little of his father's love of pictures, and it is generally supposed that St. Paul's Cathedral embodies some of his notions about architecture. But his favourites were not well adapted to be subjects of fancy portraits like the voluptuous beauties who afforded so much employment to Sir PETER LELY. During his short reign JAMES was so much occupied with plots against the English Constitution and with efforts to punish all those he considered to be enemies, he could not find time to appear as an amateur. WREN was the only Englishman who merited to be considered as worthily representing art while JAMES was on the throne. Foreigners may have anticipated the coming revolution, for they kept away. Among the few who ventured across the Channel LARGILLIERE and CHARLES DE LA FOSSE, the Frenchmen, alone were possessed of a reputation.

King WILLIAM, as a Dutchman, might be supposed to have a little love for art of a domestic kind. In the Hague he submitted to have pictures in his rooms. But a prince who was compelled from his boyhood to engage in a struggle for his own and his country's independence with the warriors and statesmen of France and its allies could not be expected to enjoy the details of cabinet paintings. WILLIAM did not underestimate the value of his victories, but he gave no commissions to have them perpetuated on canvas. He submitted to have an occasional portrait taken of himself, but, judging by the expression, he was likely to have considered his sittings as wasted hours.

It proves WILLIAM'S insight into character when we learn that WREN'S zeal in the service of the public made him a favourite with the king. But WILLIAM cared more for fortifications and barracks than for private buildings. He did not, however, oppose Queen MARY when she proposed to have a fine palace erected at Hampton Court, a place that was supposed to be less unfavourable to sufferers from asthma than London. At her request he prepared several designs, one of which pleased the queen. The king, unhappily, was no admirer of fine architecture, and he insisted on the selection of a design which, as realised, was considered to be unsuitable, until the revival of the Dutch style imparted interest to it. As in St. Paul's, WREN worked under restrictions. He was not satisfied with the palace, but WILLIAM saw something in it which recalled Holland and testified to his domestic sovereignty.

To MARY we are also indebted for the project of Greenwich Hospital, a group of buildings which alone saves the approach to London by water from meanness. But it might not have been erected if MARY had not died unexpectedly. "While she lived," says MACAULAY, "scarcely any step was taken towards the accomplishment of her favourite design. But it should seem that, as soon as her husband had lost her, he began to reproach himself for having neglected her wishes. No time was lost. A plan was furnished by WREN, and soon an edifice, surpassing that asylum which the magnificent LEWIS had provided for his soldiers, rose on the margin of the Thames. Whoever reads the inscription which runs round the frieze of the hall will observe that WILLIAM claims no part of the merit of the design, and that the praise is ascribed to MARY alone. Had the king's life been prolonged till the works were completed, a statue of her who was the real foundress of the institution would have had a conspicuous place in that court which presents two lofty domes and two graceful colonnades to the multitudes who are perpetually passing up and down the imperial river."

In this case also WREN had not a free hand. The queen wished to combine some of the arrangements of the palace of CHARLES II. as well as of the Queen's House. According to HAWKSMOOR, who was clerk of the works, the royal court, which is nearly 300 feet square, is covered on the west with the court of King CHARLES II., and on the east with that of Queen ANNE, equal to it, and on the south the great hall and chapel. The court of Queen ANNE contains the great range, or wing, next the royal court. To the east of this is another range of building and the great pavilion near the Thames, for officers. The court of CHARLES contains the great wing on the west of the royal court.

The two buildings at Hampton Court and Greenwich offered a wide field for wall-decoration. ANTONIO VERRIO was at that time the first artist who would be offered a commission for such work. CHARLES II. employed him largely and JAMES also patronised him. VERRIO looked on WILLIAM as an intruder and declined to paint for the new king. By the persuasion of Lord EXETER he at last condescended to adorn the great staircase at Hampton Court, but he revenged himself by painting figures which helped to bring mural decoration into disrepute. THORNHILL was at a subsequent time engaged for the great hall of Greenwich Hospital, but his charges were disputed, and it is supposed he received no more than 40*s.* per square yard for his paintings, the price he was paid for his work in the cupola of St. Paul's.

Sir GODFREY KNELLER won the favour of WILLIAM III. It is supposed his series of court beauties for Hampton Court—another suggestion of the queen—won him his knighthood, a gold medal and a massive gold chain. WILLIAM was gratified to be spared the infliction of sitting for his portrait. It was in the succeeding reign the painter was most successful. POPE bepraised him and chaffed him alternately. DRYDEN, ADDISON and PRIOR were also among his eulogists. KNELLER was a genial humourist, and was able to hold his own in any assembly of wits. It is a pity he did not find somebody who was competent to write his biography at length, for he must have been as amusing as FUSELI.

KNELLER came from Lübeck, for WILLIAM did not show much preference for his countrymen who were artists. The tribe of VANS came across to England at a later period. SCHALKEN, who was fond of candlelight effects, once drew the king, and made His Majesty hold the candle until the grease ran down the royal fingers. LAROON, another Dutchman, made a drawing of the procession at the coronation of WILLIAM and MARY, and was one of KNELLER'S drapery painters. JOHN VAN WYCK represented some of the battles in which WILLIAM was engaged, but he was said to be more successful in smaller works in the style of WOUVERMANS. Lord SOMERS, who is one of MACAULAY'S idols, appears to have befriended SIMON DUBOIS, and after the painter's death acted as his executor. Another Frenchman named BERCHETT was sent by the king to paint the walls of the palace he erected at Loo. He also painted the staircase in Marshal SCHOMBERG'S house in Pall Mall. CLOSTERMAN, who came to England in 1681, painted portraits during WILLIAM'S reign, and was even supposed to rival KNELLER, but such reputation as he possessed was gained in Queen ANNE'S time. He must have been a brave man, for he resisted SARAH, Duchess of Marlborough. The duke told him it was easier to fight a battle than to reconcile the pair. Sir JOHN MEDINA, the Spaniard, received most of his commissions in Scotland. Apparently he had full-length and half-length figures painted for him, and he carried the canvases about. As he had only to add a head when he received an order, he was able to turn out portraits with unusual expedition.

Among the English portraitists JOHN RILEY was the most successful. Unlike his contemporaries he suffered

from diffidence, and was over fastidious. He might have succeeded LELY as the painter of court beauties if he possessed more worldly tact. He sought truth in his portraits. CHARLES II. exclaimed, when he saw his own portrait by RILEY, "Is this like me? Then, odds fish! I am an ugly fellow." RILEY received an appointment from WILLIAM, but he was never appreciated as he merited. HENRY COOKE was ordered by WILLIAM to repair the cartoons, and he produced portraits, staircases and ceiling paintings. He was a pupil of SALVATOR ROSA, and acquired some of the swagger and combativeness of his master. He killed his man and was obliged to run away and conceal himself in Italy. Another artist who was irregular in his ways was FRANCIS LE PIPER, who was the son of a Kentish gentleman. He drew in black and white and was one of the first of the Western artists to travel to Cairo in search of the picturesque. His studio was generally a tavern, and it was not difficult to obtain an example of his talent. It was only when he squandered his fortune he was obliged to work for money. LE PIPER was one of the most versatile of artists, but he could not guide himself. On his mother's death he inherited another fortune, but he did not long enjoy it.

England is indebted in a great measure to WILLIAM III. for "the authority of law, the security of property, the peace of our streets, the happiness of our homes." To attain those blessings was not the work of a connoisseur. LOUIS XIV. employed artists in abundance, who helped to persuade his subjects he was a god rather than a tyrant. WILLIAM OF ORANGE did not perceive that France derived substantial happiness from the arts, and on the whole it was better for England to have such a ruler than one of the dilettanti STUARTS, who purchased pictures but sold their honour and their country.

ANCIENT EGYPT.

ON Tuesday Professor W. M. Flinders Petrie delivered a lecture before the British Association at Bristol on "Egypt under the First Three Dynasties, in the Light of Recent Discoveries." His object, he said, was to give a summary of the principal discoveries during the last five years that had revealed the rise of Egyptian civilisation. It had been said that the beginning of the fourth Egyptian dynasty—the age of the Pyramids, about 4000 B.C.—was the furthest back that we could go. The puzzle was that there had been no trace of this high civilisation. But now entirely new discoveries during the last three years at Koptos, Nagada, Abydos and Hieracoupolis and various excavations had discovered remains belonging to the ages before 4000 B.C., which had hitherto been the starting point of known history. Beginning with the Libyan stock, with some negro mixture, which occupied Egypt in its earliest civilisation, he showed some of the objects he had found at Nagada—statuettes, games, slate palettes for grinding paint, beautifully ribbed flint knives of extreme delicacy, forked lances and arrows, carved spoons of ivory and bone, harpoons, bracelets and combs. These were at first temporarily assigned to a new race, as we knew nothing more about them; but now they could be safely assigned to the pre-dynastic stock about 5000 B.C, and even earlier. In the graves of this aboriginal race were found bowls of black clay with patterns imprinted upon them. They were of great importance in considering the relation of this civilisation to that of others in the Mediterranean. In each of the countries where this had been found—Spain, Bosnia, Egypt and Hissarlik—it was contemporary with the introduction of metals. Metals had just been introduced, and therefore in all cases this pottery was associated with the same state of civilisation. The proximate date of this was the close of the Neolithic period and the introduction of metals—viz. 5000 B.C.—and that accorded very well with the time necessary for arriving at the high culture attained by 1500 B.C. Therefore those discoveries were of great value in giving the relative state of Egyptian civilisation to that of the rest of the world at the introduction of dynastic rule. There was a wide difference between the people of 5000 B.C. and those of 4000 B.C., but no difference between those of the latter period and modern times. This showed that a different race entered the country about that period. Next came the earliest dynastic remains of the presumed tomb of King Mena, the founder of the dynastic history of about the date of 4700 B.C., then the remains of other royal tombs found at Abydos belonging to the first three dynasties. The skill of flint-working had undoubtedly gone down and was fast dying out. The gradual decay of flint-working between 4500 B.C. and 1500 B.C, as metals came into use and copper was gradually hardened into bronze, had no parallel in the world. Professor Petrie showed diagrams of cylindrical seals as used by the kings of the first three dynasties, and impressions of such cylinders which were vastly more frequently found than the seals themselves. He then showed a case exhibiting the earliest representation of Egyptian mythology and other vases, tablets and slates showing animals and birds, such as the hawk, bull, lion and leopard, which manifested a well-acquired knowledge of these animals, as well as of the ibex, gazelle and antelope. Large numbers of animals, such as the calf, monkey and dog, had been found modelled in green clay, together with a model of a lion in red pottery. These finds were very important, as they showed the skill of clay modelling of the earliest dynasty, the rise of the art of modelling, and the Egyptian ideas and appreciation of the forms of animals and of the human body. These important monuments of the civil life of the early kings proved that glazing was a specialty of the original people, and that Egyptian art reached its high-water mark somewhere before B.C. 4000. Other finds showed the kings in triumph over their enemies, receiving captive kings, opening the public works, or reclaiming the marshes. Others were vessels with dedications written upon them, and stone jars with chambers as storehouses for the king's soul. The handled copper vessels showed the most advanced metal-work found of the first three dynasties. The population of the pre-dynastic age was different in type from that of historical times, and in the early monuments the presence of diverse types was very clear, some being shaven, some bearded, some long-haired. We had at last before us evidence of the close of the period previously considered prehistoric, showing the development of the art, writing and civilisation of Egypt and the composition of a race which had since maintained its character during 6,000 years. The puzzle was how this civilisation arose, and we had discovered evidence to solve this puzzle. Egypt was then an originator in the arts and not a borrower, but ever since then most of the nations of the earth had been borrowers and not originators. Here we were studying the history of a country not borrowing but developing a vast and complex civilisation on its own resources.

Sir John Evans said that during the last few years, as Professor Flinders Petrie had shown, we had been able to unveil the progress of civilisation in Egypt over 1,500 years. The wonderful flint knives shown by slides had been the most important discoveries ever made in Egypt and must have been the culminating point of an art stretching over a vast series of years. He asked himself, Where was all that civilisation of B.C. 5000 developed? He hoped that the recent conquests in Egypt would materially assist us in investigating that matter and discovering more of the wonderful history of which we were now only on the threshold.

Mr. Arthur Evans thought a comparison of the pottery of Crete and Malta and other parts of the Mediterranean basin with that of Egypt helped to form a bridge over the gap which separated early Egypt from the dawn of civilisation in Europe. In respect of chronology he considered that Professor Flinders Petrie would be safe in assigning his discoveries even to an earlier date than he had done.

Professor Flinders Petrie, in his brief reply, said that he himself thought that he was well within the mark, but he chose the date he had fixed in order to be absolutely safe.

THE ART LIBRARY, SOUTH KENSINGTON.

A LETTER has appeared from Major-General Donnelly relating to the errors in the catalogue, of which evidence was given before the Parliamentary committee, such as "H. C. Reneue" and "Mariani Fasti" as the names of authors. He says in the *Times*:—

I am therefore authorised to state that these mistakes do not occur in the inventory catalogue of the art library, that is to say, in the catalogue of the library prepared by its staff from the works themselves when put into the library. They occur in the "Universal Catalogue of Books on Art," which was commenced in 1865 and published—avowedly as "first proofs under revision"—in two volumes in 1875. It was "compiled for the use of the National Art Library and the schools of art in the United Kingdom" from all kinds of English and foreign catalogues and bibliographies by a special staff, distinct from the staff of the library, working under the advice of a very strong committee of English and foreign experts. The catalogue was, as stated in the minute of the Lords of the Committee of Council of October 12, 1865, to "include not only the books in the library, but all books printed and published at the date of the issue of the catalogue that would be required to make the library perfect, that is, to compile a universal record of printed art books which are known to exist up to that period, wherever they may happen to be at the time . . . any reader in the art library of the museum would thus find a

clue not only to the works he was looking for in the actual collections of the library, but to other works . . . which had been ascertained to form part of other libraries, whether public or not, either in our own or in any foreign country, a reference being at the same time given, in the case of rare books, to the library in which they may be found." For the use of readers in the library there is, therefore, besides the inventory catalogue—to which I have already referred—of all the books in it, also another reading-room catalogue containing, in addition to the entries from the library catalogue of the books in the library, the titles of books cut from the Universal Art Catalogue of books outside this library. The difficulties attending the compilation of such a work as the Universal Art Catalogue are obvious, and the probability of its containing mistakes—a certain number of which occur, as is well known, in the most carefully prepared catalogues of libraries "in being"—is rendered far greater, especially in the first proofs, by the difficulty of avoiding the incorporation of mistakes in the excerpts from other catalogues of which it is made up. Of this nature are the mistakes given in the report of the committee of the House of Commons. "Deel," as may be seen from the entry in the Universal Art Catalogue, is taken from the 1864 edition of the "Catalogue of the Library of the Royal Academy of Arts, London." "Reneue" is also only in the Universal Art Catalogue; whence it came has not been traced. But another edition of the work to which the entry refers was properly catalogued in the Art Library Catalogue in 1865. "Fasti Mariani" was also properly treated in the old Art Library Catalogue as an anonymous work. The mistake is in the Universal Art Catalogue. There seems, I may say, some inherent danger in dealing with this book. The book, which the committee say is "on the Marian Annals," is in reality a Roman Catholic almanack of saints' days and holy days, with short notices and engravings edited by the "Congregatio Mariana" of Munich. A leading London paper says :—"'Mariani Fasti' as a proper name is imposing, and to a compiler who did not know Latin or had never read Ovid the suspicion that it was a record of events in Queen Mary's reign might not occur."

I trust, sir, when I add that the mistaken entries "Deel" and "Reneue" had been struck out in Mr. Soden Smith's time in the copy of the "Universal Art Catalogue" in the librarian's room it has been made clear that, whatever mismanagement there may be, the staff of the library—not one of whom was in any way connected with this piece of somewhat ancient history, the "Universal Art Catalogue"—are in no way responsible for the alleged "scandal."

With regard to the statement in the report that there is "at present no junior in the library who knows German, I have to state that of the present staff of the library, consisting of one keeper, two assistant keepers and three junior assistants, one of whom was appointed just before the committee reported, all but one, a junior assistant, have a knowledge of German.

As this letter is written at the request of and in justice to the library staff, it deals only with that portion of your article which directly affected them. I am to add that the more serious matter—the alleged dismissal of Mr. Weale, also referred to in that article—will no doubt be dealt with by the responsible Ministers in Parliament.

ENGLISH BOOKBINDING.*

THE commoner English bookbindings of the early sixteenth century were usually ornamented with impressions, in blind, from large panel stamps, many of which appear to have been of Netherlandish origin. They are largely heraldic, but several of them are illustrative of Biblical subjects or incidents in the lives of saints.

The coat of arms of Henry VIII. with Tudor emblems is commonly found, as is also the coat of Catharine of Aragon, and more rarely that of Anne Boleyn. These coats are generally upheld by two winged angels. On some of the bindings by John Reynes is a curious coat of arms of Jesus Christ, and on several of them occur a stamp bearing a large Tudor rose as a central ornament with a ribbon enclosing it, on which are the words, "Hec Rosa Virtutis de cœlo missa sereno Æternum florens regia sceptra feret." In the upper corners of this design are the coats of arms of St. George and that of the City of London, so it is supposed that the binder who used it was a freeman of the City of London. The initials of the binder often occur in the lower part of the panel. "I.N." probably stands for Julian Notary, "R.L." for Richard Lant, and so on, the binders often being the same as the printers. Although royal coats occur on several of these bindings, it is not at all certain that the books were ever royal property, and they should not be considered so unless their known history confirms such an attribution.

An early official note concerning an English bookbinder occurs in a patent of Henry VIII., dated February 22, 1530, making Thomas Berthelet the king's printer. This Thomas Berthelet also bound the royal books, and was the first English binder to use gold tooling on leather. A bill of his for such work still exists, in which he describes the bindings as being "after the Italian fascion in crymosyn satin," or "covered with black velvet." The note about the "Italian fascion," of course, alludes to the fact that many of Berthelet's early bindings are finished with gold tooling made by means of stamps cut in imitation of several of those used on fifteenth century Italian bindings.

It is, indeed, often difficult to distinguish between an early English gold-tooled binding and an Italian one, but there is one peculiarity about Berthelet's work even when it is most like the Italian originals, and it is that he nearly always used a black dye on the fillets with which these bindings are generally decorated. The black has in many cases worn off, but as it was made by means of some weak acid, the surface of the calf—in which leather the majority of Berthelet's bindings are—is usually eaten away to some extent, and the fact that the stain was originally there can be easily recognised. The Italian bindings on which these are modelled do not have these black fillets.

Berthelet bound books for Henry VIII., Edward VI. and Mary, and besides the calf already mentioned, he used freely white deer skin and vellum—as far as I know, he never used morocco, or, as it would then have been called, goat skin. As to the books recorded by him as having been bound in satin and velvet, there are no data by which they can be identified, but as each of the three sovereigns for whom Berthelet worked have left us specimens of bindings made for them in these materials, it is likely enough that some of them are really Berthelet's work. Because, however, of the utter difference in workmanship between the adornment of a satin or velvet binding as compared with one in leather, we cannot say certainly that, because in the satin and velvet books of the early sixteenth century royal English book we find no design that resembles Berthelet's stamps, they are not his.

The edges of valuable books were decorated with paintings and gildings of various kinds from a very early period, and Berthelet fully appreciated the value and beauty of this addition to the ornamentation of fine bindings. The particular manner in which he usually dealt with the edges of his books was to have them slightly tinted with some pale yellow pigment, and on this to write in gold the inscription, "Rex in Æternum vive." After these words occur, in many instances, the curious word "Nez" or "Neez." Among the several interpretations of this word that I have heard, one of the best is, I think, that of Mr. J. L. Scott, of the Department of Manuscripts in the British Museum. Mr. Scott thinks it may refer to Nebuchadnezzar. In the Book of Daniel these words are addressed to this king, "Nabouchodonosor esaei zethi," and the initial letters of these words make "Nez." The strong probability is that when this inscription is found on the edges of a book that belonged to Henry VIII., it was bound by Thomas Berthelet, the first great English bookbinder whose name is known to us. Berthelet sometimes finished his books with some reference to their subject, one of his on "Geometry" being decorated outside with triangles, &c.

The English binders were not allowed to have a very peaceful time for long, as in 1553 the influx of foreign workmen was so hardly felt that an Act was passed for the special protection of English printers and binders, and it was made unlawful for anyone to buy or sell any book ready bound from abroad, and among the registers of the Stationers' Company may be found several other petitions against the foreign workmen. Among these registers are many curious and interesting items about bookbinders, their apprentices and their methods, all of which are very carefully laid down ; indeed, some of the rules seem too stringent. For instance, in one dated "xxv. March, 1586," it is laid down that "in the volume called folio there maie be bound styched onelie ffortie sheetes and not above. In the volume called octavo twelve sheetes onlie and not above ;" and, further, on the same register it is ordered that no bookseller "shall putt any woorke . . . to be bounde unto or by any fforrayner, stranger or to any person whatsoever that are not freemen of this citie." Of course the foreigners—chiefly Frenchmen—became freemen "of this citie," and so in due time became practically English themselves, and it is very likely due to the taste and skill introduced by these no doubt excellent craftsmen that we owe much of the delicate workmanship that we find all along in English gold-tooled work. The ordinary processes of binding a book, although they are undoubtedly skilled labour, are such as any man with manipulative skill can easily learn, but the art of gold tooling on the finished leather is a very different matter and to be well done requires most delicate care and knowledge and the utmost skill and steadiness of hand. This art the French have certainly excelled in even up to the present day. So that possibly we must not regret too much that the highly skilled French workmen came

* A Cantor lecture from the course on "Decorative Bookbinding," by Cyril Davenport. Published in the *Journal of the Society of Arts.*

over and brought some of their careful finish to the enhancement of the good sewing and forwarding that they doubtless found here from very early times.

Henry VIII. and Elizabeth possessed several small books bound in gold, some of which still exist. They were generally enamelled as well, some of them being very fine specimens of such work. Such books must have been always of great value, and therefore they never became common; but no doubt there were many more of them than we have now left, as mention exists of such presents having been given to Queen Elizabeth's maids of honour. Some of these are still in private hands, but others can be seen at the British Museum, both in the Departments of Manuscripts and Printed Books. But, in fact, during all the Tudor period very decorative bindings were made in England. Berthelet set the fashion, and he, like all great masters, had imitators. More than that, his example encouraged others to strike out lines for themselves. Few names of binders at this time are known. It is supposed that John Day, a printer, bound some of the books that belonged to Queen Elizabeth. These are generally bound in calf, with black fillets imitated from Berthelet, but charmingly ornamented as well with real inlays of white vellum, on which are gold impressions from large blocks. The letters "I.D.P." occur on some of these blocks, and it is supposed that they mean "John Day Printer." I think these stamps have more of a foreign character than English, but it is possible enough that John Day had them cut for him by a foreign workman. The bindings are bold and excellent in design, usually bearing in the centre the royal coat of arms, the field being covered with what the French call a "semis" of triple dots. Some of Elizabeth's books have also a "semis" of roses. It is certain that Matthew Parker, Archbishop of Canterbury, employed bookbinders to bind the books he had printed at his private press at Lambeth. It is not now positively known if any of these bindings still exist, but it is very likely that the copy of his book, "De Antiqvitate Britannicæ Ecclesiæ," printed in 1572, which the archbishop is supposed to have presented to Queen Elizabeth, was bound under his direct auspices. It is bound in green velvet beautifully embroidered, the design being a park, within which are deer and roses, being in fact a play upon the word "Parker."

The most noteworthy collectors of this sixteenth century, as distinct from the binders, whose names and work are known, not counting the sovereigns who have invariably, from the time of Henry VII., been most constant and appreciative lovers of fine bindings, were Henry FitzAlan, Earl of Arundel, Thomas Wotton and Robert Dudley, Earl of Leicester.

Henry FitzAlan took advantage of the suppression of the monasteries in the earlier part of the century and acquired, in consequence, several valuable works which otherwise would never have left the security of the religious walls. Besides these priceless treasures, he also acquired many of the books that had belonged to Archbishop Cranmer, a large number of which bear his signature. The whole of the FitzAlan Library was bequeathed to his son-in-law, Lord Lumley, who was afterwards tutor to Henry Prince of Wales, and by this prince it was purchased in 1609. There seems little doubt that Henry FitzAlan had taste in bindings, the very few instances left as they were in his time being of considerable beauty, and bearing as a central ornament the Arundel badge of a white horse "courant" with a sprig of oak in its mouth. On one beautiful specimen this horse is represented by a little cameo of white leather inlaid on calf, the date of the printing being 1544, that of the binding probably about the same. Lord Lumley generally signed his books, but beyond this he does not appear to have changed them to suit his own fancy; but their next owner, the Prince of Wales, did so very largely—indeed, he rebound almost every book in calf bindings heraldically decorated. The best known of these bindings have in the centre the royal coat of arms with the silver label of the eldest son, and in the corners either the ostrich plumes, crowned roses, lions or fleur-de-lys, designed too largely for good taste. These are always stamped in gold, except the ostrich plumes, which are in silver. The books bearing these stamps are perhaps of the greatest general interest of any old royal English bindings, because they are sometimes to be met with outside the large royal libraries, some of them at some period of their history having been allowed to leave the remainder and get into the open market. Besides these, Prince Henry had others bound which have the Prince of Wales's plumes as a centre ornament; many of these are excellent in taste and pleasing in colour, the smaller ones especially. We owe a great debt of thanks to Prince Henry because he brought together at St. James's Palace all the old books that he could get hold of that had belonged to his royal predecessors, and by his appreciation of them and the additions he made not only by the accession of the libraries just mentioned of the Earl of Arundel and Lord Lumley, but also by that of Isaac Casaubon and a Welshman named Maurice, he actually laid the foundation of the royal library of England, which was ultimately presented to the nation by George II. in 1757, and has been preserved ever since in the British Museum.

Thomas Wotton, the father of the well-known writer, Sir Henry Wotton, was also a celebrated collector of books who had his volumes bound for him in a particular way. He died in 1587. His bindings are always in brown calf, tooled in gold with black fillets, after the style used by Thomas Berthelet. Some of them have a small coat of arms impressed in silver as a centre ornament, and many of them bear the words "THOMÆ WOTTONI ET AMICORVM" on them, being almost the same words as were used by Jean Grolier, Treasurer of France, at an earlier date. In consequence of the occurrence of this motto, as well as some distant similarity in the style of some of the designs used by both collectors, Wotton is known as the "English Grolier."

The decorative badge of the bear and the ragged staff, used by the family of Dudley, Earls of Leicester, is often found on books that belonged to Robert Dudley. The initials "R.D." are often combined with the badge, which is stamped variously in gold, in silver, and in silver and gold. The remaining gold tooling on several of these books is very well designed and decorative. Although the semis, or powdering, of various small kinds over the ground of binding designs occurs in English bindings made for Queen Elizabeth, the idea is considered to be French originally. In England the method of decorating the larger part of a book with a symmetrical repetition of small stamps did not come into any general use until the reign of James I., and under this king the semis was largely used. The most usual stamps used for the powderings are lions, thistles, fleur-de-lys and roses, and in many instances the effect is very rich. In combination with these are used large corner pieces and usually heraldic centres, and the decorative method of binding books in velvet stamped in gold was also made use of in this reign more than in any other, although it was first thought of in the time of Elizabeth, and was also afterwards done at Little Gidding.

John Gibson was appointed king's binder while James was in Scotland, and there is a list of books bound by him in Dibdin's "Decameron." Unfortunately, not one of these has been identified. There is, however, one binding which is likely enough to have been bound by him. It covers the original manuscript by King James of his "Basilikon Duron," written for the benefit of his "dearest son Henry the Prince." The book is very decoratively bound in purple velvet and rarely ornamented with thin plates of gold, engraved with delicate lines. The centre is the ancient coat of Scotland, with the collar and badge of the thistle, unicorn supporters and motto. Above are the initials "I.R.," and the clasp plates and corners are conventional thistles and curves. No other book is ornamented in this way. When James came to England John and Abraham Bateman were his binders, and they probably bound most of the books now left of his, but there is no certainty about any one of them.

During the reign of Charles I. the same style of binding generally prevailed as during his predecessor's time—powderings, heraldic ornaments and large corners; also between 1625 and 1642 were made the curious "Harmonies" of Nicolas Ferrar at Little Gidding. The finest of these were bound in velvet, tooled in gold or silver, with small stamps of peculiar designs. They were nearly always large books, which in those days was rare. One measures 29 by 20 inches, thereby strongly contrasting with the generality of printed books, which had been small ever since the invention of the typographic art. The decoration on most of the Little Gidding bindings consists of a circular ornament in the centre, and in each corner a quarter of the same. The velvet used is blue, purple, or green, and the leather is always black. These bindings are supposed to have been bound by the nieces of Nicholas Ferrar, under the special direction of Mary Collet, taught by a binder from Cambridge, and they have every appearance of having been made by skilled amateurs not possessing too many shop appliances. But for the encouragement of lady bookbinders, it may safely be said that no more splendid bindings have ever been made than those prepared by Mary Collet for King Charles and his sons. Both for size, magnificence of colour and richness of decoration they have never yet been excelled. The finest specimens now left are in the possession of the Marquis of Salisbury, the Earl of Normanton and Captain Gaussen.

An interregnum in bookbinding, as in every other fine art, occurred during the civil wars in England, and the Restoration is marked by the work produced by the second great English bookbinder whose work is known.

In June, 1660, the office of "Royal bookbinder" was conferred upon Samuel Mearne, who died in 1683. The finest of his books were bound for the king, as might be expected, and these have always some royal heraldic mark upon them, often consisting of two interlaced C's crowned, between two palm branches; they are either in red or dark blue morocco. Other of his volumes are charmingly tooled in compartments with delicate pointillé fillings, after the style introduced by the great French binder, Le Gascon. Mearne invented what is known as the "Cottage style" of decoration on a book. Books

ornamented in this way have the lines of an inner panel amplified at each end, upper and lower, into the outline of a gable roof. The lines composing this gable are usually stained black, following again the lead given by Thomas Berthelet, and the spaces that remain are often very richly filled with festoons and masses of very delicate and beautiful gold tooled work executed with small, very finely cut stamps of peculiar designs.

The simpler books bound by Mearne have an inner panel outlined in gold with fleurons or other ornamented designs at each corner. The leather he used was the finest morocco, with a smooth surface. The gilt edges of the finer books bound by Samuel Mearne are sometimes ornamented in a remarkable manner. They are painted in water-colours under the gold. This painting was executed when the leaves were fanned out, then, when finished, the gold was applied as usual. The result is that often enough these painted edges have remained unseen for centuries, as they only show when held in a particular way. Mearne was the first binder to use this kind of ornamentation; he was followed in it by his son and successor, Charles, and, after some interval, by James Edwards, of Halifax.

The influence of Samuel Mearne's art was directly felt for a very long time, and, to some extent, remains with us to the present day; and although he founded much of his work on French models, he ultimately developed a style of his own of which we may well feel proud.

The decline in the art of bookbinding which occurred in England from the death of Samuel Mearne until the coming of Roger Payne, about 1770, would have been worse than it was if it had not been for the long continuance of the styles used by Samuel Mearne. Nearly all the better work done during this time owes what excellence it may possess to his initiative, the cottage style particularly remaining with us, and lending itself to all sorts of modifications and amplifications, many of which are very good.

Among our more original designers must be mentioned Elkanah Settle, a most remarkable man in many ways, eccentric to the last degree. He lived during the latter half of the seventeenth century, and is known as the "City poet." He wrote poems addressed to various people of note, many of which he presumably bound himself and ornamented with heraldic designs and decorative borders. The leather he used was generally bad sheep's skin, sometimes calf, and the ornamentation is done in gold tooling in a rough and ready manner, the various bearings on the coats of arms and the small pieces at the corners being laboriously stamped one by one, colour being added now and then. Although the actual finishing of these books is very faulty, they are not by any means unpleasing generally, and I think they are likely to be more appreciated and valued as time goes on; they certainly have a strong personal interest, as each one is made for some particular patron. The binders of Little Gidding and Elkanah Settle are the only instances in the history of English bookbinding where amateur work has made any lasting mark.

The trade bindings came much to the front with the skilled work done by, or for, Eliot and Chapman. These binders worked for Robert Harley, Earl of Oxford, in the eighteenth century, and used ornamental centre pieces and broad borders. Several books are curiously ornamented with small, finely-engraved stamps cut in emblematic designs by Thomas Pingo, the medallist. These books belonged to Thomas Hollis. They are not uncommon; the leather is usually fine, smooth red morocco, the ornamentation is more curious than beautiful, and is best when there is not much of it.

Towards the end of the century, a bookbinder of the name of Roger Payne came from Windsor and set up in London. He was at first apprenticed to Osborne, a Holborn bookseller, but somewhere about 1770 he set up for himself. He was very poor all his life and addicted to drink, but in spite of these drawbacks his original genius for the ornamentation of books showed itself with such effect that he not only produced some of the very finest English bookbindings existing, but has had a greater influence on the art in England than any other binder except Le Gascon.

Bookbinding is essentially an imitative art, and Roger Payne undoubtedly studied the best work both of Samuel Mearne and Le Gascon. Many of his smaller stamps are copied from one or other of them; but they are always modified, and the general arrangement of his masses of gold work is quite his own.

Most of Payne's books have large ornamental corners worked with very fine stamps, circles and dots, and many of them have ornamental doublures, or insides to the boards. His books are usually sewn with silk, and the backs strengthened with supplementary pieces of leather, making them very strong but stiff to open. His favourite leather was smooth or straight-grained morocco, but often he used russia, an excellent leather to take the impression of the stamps in gold, but a very bad one for lasting. It is said that Roger Payne cut his own stamps—often in iron—and this is likely enough. The gold tooling on most of his books is excellent, bright and strong, and has most probably been regilded several times. He took the greatest interest in each book he bound, and very often added a careful note in his own handwriting saying what he had done to the work and what stamps he used, many of them being, to some extent, chosen according to the subject.

Payne towards the end of his life (he died in 1797) took Richard Wier to be his partner. Wier drank as well as Payne, but nevertheless he and his wife were the first binders in England to study and practise successfully the difficult art of mending and repairing paper. This is now a very important branch of the binder's profession, and it is one that is likely in the future to be of even more importance than it is at the present moment. When much of the paper used now arrives at the stage when mending is necessary, it will tax all the ingenuity of the chemists and paper-menders to the utmost to repair it in such a manner as to preserve the legibility of the printed matter in a satisfactory manner. Indeed already, in my own experience, the greatest difficulty occurs sometimes in quite modern books, which are much used, in the endeavour to keep them together. It is sincerely to be hoped that the endeavours of the committee which has lately been considering this subject will have some practical result.

James Edwards, a bookbinder of Halifax and an artist, who came to London about 1785, invented and patented a curious manner of rendering vellum transparent. He did this by means of pressure and soaking in pearlash, but no doubt there were other ways of producing the same result. He bound his books in white paper, on which he painted delicate designs in water-colours; over all these he placed his transparent vellum, which acts as a complete preservative, so that if the vellum is not torn the paintings under it are as fresh as if done yesterday.

Edwards and another binder, John Whitaker, often used what is known as "Etruscan" designs on their bindings. The Greek fret and classical vases are the most easily recognised of these. Whitaker used with great success the darkening effect of a strong solution of soda upon pale calf. He made stencil-plates and sprinkled the soda through the spaces as required, or actually painted it upon the leather. Some of his bindings are very delicate in graduated browns and pleasing in effect. On some of Edwards's finer books the edges are painted in the same way as Samuel Mearne's. Edwards in all probability did this work himself, and on his books it is always very delicate and pretty. It was imitated to some extent afterwards, but never very extensively, as it is troublesome to execute. It often is found on the edges of small books bound in vellum, where its existence has not been suspected.

The remaining English bookbinders of the eighteenth century, several of whom went on into the beginning of the next, were nearly all close imitators of Roger Payne, but being better workmen their productions are more highly finished and more accurately tooled; in the trade much more admired. At the same time the artistic value, which is so marked in all Roger Payne's work, is wanting in most of the bindings done by Kalthoeber, Charles Lewis, Charles Hering, Walther and others. Charles Lewis was, perhaps, the best of these. He bound well and largely for the Right Hon. Thomas Grenville, and his books are most easily known by the peculiarity they usually possess of broad flat bands on the backs. They also often have excellent decorative work inside the boards. These binders used sometimes tickets in their bindings, and sometimes their names gilded in small letters on the leather.

ART IN BENIN.

A PAPER was read before the British Association by Mr. C. H. Read, which was illustrated by a series of lantern-slides, on "Ancient Works of Art from Benin City." He pointed out that the position of Benin near the great waterway of the Niger had brought it into contact with influences from the north by means of the great trade routes that diverge towards the north from such trading centres as Timbuktu. It was thus possible that here might be found some relics of the ancient civilisations of the Mediterranean, an opinion held by the late Sir Richard Burton. Relations with Abyssinia were founded on the journey of a Franciscan friar from the neighbourhood of Benin to Christian Ethiopia in the fourteenth century, and some corroboration of this was found in the Benin tradition that the king was subject to a powerful prince far to the east. In the hope of finding evidence of these traditions in the loot that came from Benin, Mr. Read said he had made representations to the Government, with the result that a large collection of ancient examples of Benin art had been secured for the British Museum, though it could scarcely be said that they had any direct bearing on the relations of Benin with either the extreme north of Africa or the east. A document of great interest bearing on their origin was a report by Sir Ralph Moor, giving the account of a palaver with seven natives, the Court historian, three Ju-ju men, the master smith, the master wood-carver and the master ivory-carver.

NOTES AND COMMENTS.

There used to be Irish archæologists who maintained that the round towers were of Indian origin, and that the Blarney Stone came from India viâ Tyre and Carthage to Cork. It is a pity those learned worthies could not have had the joy to behold the figure of Buddha which was described to the British Association on Monday. Like so many strange things, it was taken out of a bog. In this case the place of deposit was about fifteen miles from Kells, and was therefore in Leinster. There was some reclamation, for the image was found by a labourer while endeavouring to secure a foundation for a cottage. It is one of the Cingalese types of Buddha. Bogs are admirable places for concealing objects, but it is not easy to discover them afterwards. Sir John Evans considered the image, like many other stolen things, was cast into the bog by a robber who was hard pressed in pursuit. That is a very likely theory. It is not probable Buddhist missionaries brought the figure to Ireland. They might be glad to wander to west, but the variable climate of Western Europe would be an obstacle to their peregrinations.

An American judge recently laid down the following conditions as necessary to be observed by architects who wished to recover their fees in a law-court:—A person who holds himself out to the public in a professional capacity holds himself to be possessed of average ability in such profession, and the law implies that he contracts with his employer (1) that he possesses that requisite degree of learning, skill and experience which is ordinarily possessed by the profession in the same art or science, and which is ordinarily regarded by the community and by those conversant with that employment as necessary and sufficient to qualify him to engage in such business; (2) that he will use reasonable and ordinary care and diligence in the exercise of his skill, in the application of his knowledge, to accomplish the purpose for which he is employed; (3) in stipulating to exert his skill and apply his diligence and care, an architect, like other professional men, contracts to use his best judgment. In the case in question the plaintiff, who was an architect, depended on a verbal agreement. The owner of the building said the architect offered to do the work of preparing plans and specifications without charge, because he considered that as a beginner it would help him if he were able to say he had designed an important building. The defendant also said that the plaintiff's work was faulty, defective and unskilful. The judge, however, charged in favour of the architect, and the jury obeyed him. The defendant appealed to the Supreme Court, where it was held that all that is required in such a case is the exercise of ordinary skill and care, and that the responsibility of an architect does not differ from that of a lawyer or physician. The verdict was therefore upheld.

Some physiologists believe that one of the causes of the greatness of Great Britain is to be found in the mixture of races among the inhabitants. A man who is useful can find a place to exercise his ability no matter where he comes from. That the same principle was acted on in Mediæval times is shown by an examination of the vaults of the church of St. Werburgh in Bristol, which unfortunately has been removed. Dr. Beddoe, who made the investigation, says he found the Mediæval skulls were somewhat short, broad, and, if anything, low, flattish, rounded, with rather small frontal region, but otherwise well filled. The more modern skulls from the churchyard were mostly of quite a different type. They were generally rather large, longish crania, nowise distinguishable from those on the shoulders of their neighbours in Somerset and Gloucestershire. He was disposed to attribute the difference in the skulls to the presence in the earlier or Mediæval series of a larger portion of French blood. For centuries after the Norman conquest natives of France continued to filter into this country. Dr. Beddoe believes the French population in Bristol was 20 per cent. in the time of Edward II. As a reason for the disappearance of the round type Dr. Beddoe conjectures that the conditions of life in Mediæval cities being unfavourable, mortality was excessive, and when Aquitaine was lost the influx of the French was cut off. Welshmen came to settle in Bristol under the Tudors, and people came from Somersetshire and Gloucestershire. The same processes had continued ever since, although there had been more recently a slackening of the influx of people from Wales.

The American Consul at Antwerp is to be pitied. To him the privilege was granted to receive and take care of the preliminary designs sent in for the Californian University, of which Mrs. Phœbe Hearst is the endower. It was arranged by the regents that the plans were to be submitted enclosed in tin cases of uniform size, but when, says *Architecture and Building*, the cases of all shapes and sizes began to pour in on the Consul he grew alarmed, and when one came in a piano box he gave up in despair. As no bank in the city could be found willing to house the plans, the commissioners in charge finally hired a building. The date for the meeting of the judges who are to pass on the plans is September 20.

A lease has been granted to the American Institute of Architects of the Octagon House, Washington. "Lobbying" is indispensable in the States, and architects, like other professions, must accept it. In Washington they will be in touch with Congress. The building was designed by Dr. William Thornton, a West Indian, for Colonel John Tayloe, a wealthy and influential gentleman. It is English in style with the exception of the plan, and was completed in 1800. The Octagon House is leased at an annual rental of 360 dols. for a term of five years, with the privilege of renewal for an additional five years at an annual rental of 500 dols. It is agreed, however, that if at any time during the continuance of this lease the owners desire to sell the premises, they shall first offer them to the Institute at the same figure that they propose to accept from any other purchaser. Should the Institute not decide to purchase the property, then the owners are at liberty to sell it, the Institute having to remove within ninety days. If the sale of the property shall be effected during the first two years of the lease, the owners will have to refund to the Institute the sum of 3,000 dols., provided the repairs have cost that much; if during the third year, the cost of the repairs less 30 per cent.; if during the fourth year, the cost of the repairs less 40 per cent., and so on at a reduction of 10 per cent. per annum during the entire ten years of the lease should the lease be renewed for an additional five years; but should it terminate by limitation, and no sale of the property be made, then no return shall be made by the owners on account of repairs.

The village of Redland, near Bristol, contained several Elizabethan houses which were much admired by strangers. It is believed that during the Civil War they were occupied by officers of both armies, one being Prince Rupert. Two of the houses, called Richmond House and Grenville House, but which formerly were known as the Manor House, were lately sold. According to a correspondent of the *Bristol Times*, there are in Richmond House seven arches, two panelled rooms and one mantel carved in Elizabethan style. The front door is of massive oak, banded and studded with iron, that in Grenville being the postern door but of similar make and style. Almost precisely the same work and finish are to be found in Dartmouth Church door, near Torquay, with date 1611. At Grenville House are the original oak staircase and two bars, which fall back into deep sockets in the wall. They are of great weight and thickness. The buildings are to be demolished, but Mr. C. H. Tucker of Bristol, the new owner, says it is proposed to retain and preserve one of the old carved mantelpieces, some of the ancient doors and wainscotting as well as other portions of this locally-historical property. Up to the 29th inst. the houses can be inspected by those who may care for ancient architecture.

ILLUSTRATIONS.

CATHEDRAL SERIES.—SOUTHWELL: CHOIR, LOOKING WEST.

REREDOS, KINGSTON VALE CHURCH.

THURSTONVILLE, BECKENHAM.

CHURCH OF ST. ETHELWOLD SHOTTON, IN HAWARDEN.



THE foundation-stone of this church was laid by the Hon. Mrs. W. H. Gladstone on Wednesday, September 14.

The first subscriber was the Right Hon. W. E. Gladstone, who, having regard to the rapidly growing population of the district (due in a great measure to the development of the neighbourhood by the new railway, of which he cut the first sod and afterwards inaugurated by opening the "Hawarden Bridge"), gave 1,000*l.* as the nucleus of a fund for erecting, in place of the school-chapel built twenty-five years ago, a new church, desiring that it should be "a beautiful building and available equally for all."

The district lies along the Dee between Connah's Quay and is steadily growing. Recently the large and increasing ironworks of Messrs. Summers and other industries springing up have brought, and will bring, numbers of workpeople from the towns in Lancashire and other counties.

Plans have been prepared by Messrs. Douglas & Minshull, Chester, and a contract for 4,700*l.* (exclusive of the north aisle and tower) let to Messrs. J. Ward & Sons, Uttoxeter. Further expenses, including site, will amount to upwards of 1,000*l.*: 2,800*l.*, with grants, have already been raised in and near Hawarden parish.

The bankers are Messrs. Lloyds Bank, Limited, Hawarden.

Any contributions will be gratefully received by the rector, Rev. S. E. Gladstone, or the churchwardens, Messrs. C. B. Toller and J. Wilcock, Hawarden, near Chester.

SOUTHWELL MINSTER IN 1806.

IN 1806 John Carter, the architect, visited several churches in Lincolnshire, Nottinghamshire and Yorkshire, partly to make drawings of the buildings for publication, but mainly to gratify himself by the sight of Gothic examples which he was never tired in admiring. The following are the notes he jotted down about Southwell:—

The town itself has not anything worthy of notice, therefore attention must be solely directed to the collegiate church, founded 630, being the earliest date, St. Augustine's, Canterbury (605), excepted, we have on record of a building among us now in existence. The church has sustained little alteration otherwise than in some of the windows, which have given place to the pointed ones of the fourteenth century. I own my notes on this fabric were taken not in that general way I could at this time have wished; as surely there are (taking into consideration the very remote date) many particulars of the strongest import. However, I submit my remarks, trusting a second visit (in preparation) will fully recompense the present deficiency. In the surrounding wall of the religious mound and on the north side is a pointed gateway with reducing parapets; the opening has been stopped up. At this spot in point of scenery this gateway occupying the foreground and the chapter-house and north side of the church seen beyond it, has a very picturesque effect. On the west side of the surrounding wall is another gateway, Saxon, and of the plainest architecture, well impressing the belief that the general works here were raised in the sixth century. The parts of this gateway are plain jambs and an abacus supporting a semicircular arch with two fascias by way of architrave. Above the head of the arch has been fixed, probably in the fourteenth century, a recess, with an ogee head (statue gone). Through this gateway a direct view is had of the west front of the church, the chapter-house on the left and some ruined monastic buildings on the right. It is hardly necessary to say the appearance of this scene is at once striking and grand, venerable also from thought, that for more than a thousand years this picture has lasted.

West Front.—Made out by two lofty square towers parcelled off into seven storeys and decorated with windows and arched recesses. Between tower and tower in two storeys is the west doorway and great window. The towers are capped with lofty square spires quite plain; these square finishings I conceive to be far more ancient than those we commonly witness in octangular forms; perhaps they are not coeval with the towers, yet still they have at present their interest in man's eye. The west doorway, two large windows in the towers and the still larger one in the centre of the front, are, as above stated, late insertions, having pointed heads and much tracery work. Over the centre window are battlements, another departure from the first design, which is Saxon, and in its purest dress.

North Side.—Taking in the transepts it is constructed in five storeys; between the windows, breaks or pilasters. The upper storey has remarkable circular windows; the elevation terminates with a parapet, being its own proper completion. The porch on this front is in strict unison with the rest of the parts. The great centre tower is rather low. My judgment may be at fault in this respect, the exceeding lofty towers pressing on the sight in every district of the land must be my apology if I err in this decision. This tower has two tiers of recesses, proper parapet, &c.

The chapter-house (on the north side of the church), in plan is an octagon, bearing strong resemblance to those of Wells and Salisbury. The ruined buildings mentioned in the general view are sumptuous, having large and rich traceried windows. Here are some peculiar chimneys, the tops of which are devised into small chapels, with windows for the dismissal of smoke, &c.

I must again express my concern that memory alone can in anywise help me to say aught about the interior of the edifice with reference to the architecture in the elevations, &c.; but if that faculty of the mind can be depended on I may venture to affirm, the columns, arches, the galleries, windows, groins, mouldings and ornaments are truly genuine and full of that infinite variety that peculiarly characterises and which, perhaps, gives to Southwell a celebrity that cannot be found in any other fabric.

However, that I may not leave this curious church without note of some remarkable remains, I shall with much satisfaction comment on the avenue leading from the church to the chapter-house. The dado parts below the windows have recesses with columns and arches enriched with costumic heads. The pointed windows have pleasing tracery and the groins are light and beautiful. The double entrance into the chapter-room is replete with grace, the ornaments belonging thereto are many and excellent in their kind. Among the above costumic heads are a king, a queen, a bishop, ladies of various degrees, heads of eminent men, &c., the whole collection marking the age of Henry II., as doth the architecture also.

There is another subject which must be minutely described; indeed, panegyric might be exhausted on its merits, and it may be surmised (not without reason) that I was so fascinated with my memoranda that I even forgot and neglected the prime characters of the interior itself. You then that dwell with more than common satisfaction at mention of the architecture of our third Edward's day, hear. The screen entering into the choir

owns the pride of that meridian hour of art. The work to the nave has three large openings in arches, with columns and slender buttresses between them; at each end of the design are appropriate recesses. The several arches are bounded by pediment finishings and a suitable entablature completes the whole. The interior of this screen (adequate description fails me) returns the work of the exterior arches, composing a kind of cloister of three divisions. The ends, north and south, full of the richest and most delightful tracery. The groins, in their ever-consummate proof of ancient geometrical power, are here constructed in a way peculiar to themselves; there are no spandrels to the ribs, they being left to seek their pointed flight independent of any such seeming assistance; in the diagonal line behind the ribs there is open tracery filling in that narrow space. Nothing can exceed the lightness and, it may be said, the magic touch of these vaulted bows. In the front next the choir the principal portion of the design is carried on, and with increased embellishments. The centre arch corresponds with that on the nave front, the spaces right and left are divided into three parts each and into two storeys. The lower storey contains three small arches on each side, the internal work groined and serving as stalls for the dignitaries. The storeys above form galleries with open compartments that are glazed, &c. The minutiæ of mouldings and ornaments are delicate and rich to excess. In fine, this screen may be held as one of the gems of ecclesiastical decoration in this part of the north; a jewel most worthy to be prized, and by those men of taste and discernment who have, to the high honour of this church, so long kept it unsullied and free from all dilapidation or more fatal improvement.

Ye despoilers of Edward's architectural glories, if ever you chance to stumble on this refulgent piece of workmanship, be tender, be merciful; and as some retribution for strokes already inflicted, touch with a gentle hand, your eyes blessed with a new sight, this trembling remains; and should you (which science by her protection permit) see aright, have pity on its matchless properties, and let it still endure. An age to come expects it, therefore once more have mercy.

SOMERSET ARCHÆOLOGICAL SOCIETY.

(*Concluded from last week.*)

Excursion to the Moors.

WEDNESDAY was devoted to an excursion to the moors lying to the east of Taunton, including the parishes o Ruishton, Creech St. Michael, North Curry and Stoke St. Gregory. A start was made at 9.30, about a hundred members taking part in the excursion. The brakes and other vehicles were supplied by Messrs. White & Co., and were turned out in a well-appointed manner. The weather in the early morning was somewhat threatening, but the sky speedily cleared, and a really lovely day followed, the sun shining brilliantly and a refreshing breeze blowing.

Ruishton.

Ruishton was the first place visited, and here the party visited the church. Mr. Buckle drew attention to its charming little tower. They would notice that its general character was similar to a great many round about that part, and particularly it was very like St. James's, in Taunton, and Bishop's Lydeard, only on a smaller scale, and it happened to be in quite a different coloured stone, because there it was built of blue lias, whereas in Taunton they were built of red sandstone, in each case with Ham stone dressings. One remarkable thing was the smallness of the tower and its very small height, while at the same time they had such magnificent and effective richness. The tower was treated in an extremely bold way, although the storeys were not higher than ordinary rooms. It was a remarkable tower in another respect, because they happened to know its date, for in Mr. Weaver's wills they found money left in 1530 and 1533 for its building. Considering the lateness of the date the building was in very pure style, there being nothing to suggest that it was absolutely at the end of the Perpendicular period. The tradition was that the tower was never finished, and this seemed exceedingly likely, but at any rate the parapet and pinnacles were missing now, and if they were ever put up they must have been taken down. There was the fragment of a cross in the churchyard, and at the corner of the church there was a stone on the coign carved with the figure of a priest in the act of benediction. Coming to the interior, Mr. Buckle pointed out the fragment of a Norman doorway. They had parts of the church which went back to a very early period. The chapel and the walls of the chancel were of the Early English period, probably the twelfth century. The east window of the chapel was very charming, and possessed some beautiful tracery. All the rest of the church was, as usual, Perpendicular. They might notice how curiously the church was planned, the chancel being completely out of line with the nave. Mr. Buckle pointed out the doorway leading from the chancel to the chapel. The font was a very remarkable example, and was richly carved all over. In front of the reredos was a beautiful picture, of which he would be glad to hear the history.

Prebendary Askwith said there was a tradition that during the last century the picture was presented to the church by a member of the family of Mr. Murray-Anderdon, of Henlade.

Creech St. Michael.

The party were next driven to Creech St. Michael, where they were received by the vicar, the Rev. James Bownes. Mr. Buckle said that at a first glance they would be inclined to say that that was pretty well a thoroughly Perpendicular church, with the exception of the arches which they came in by, but the contrary was the fact. Almost the entire walls of the church were of the twelfth century, and the large nave was of that date. The transept on the south side did not belong to the early church. In the tower two of the arches were Early English, while that leading into the aisle was a Perpendicular arch, which was knocked through when that aisle was added. The upper part of the early tower remained, but above that a Perpendicular belfry had been added, as was often the case. The Perpendicular lines were very clear all the way round. The most remarkable feature of the chapel on the north was a gallery in the thickness of the wall, from which there was an entrance to the rood-loft. There was a great deal that was very rich about the Perpendicular work there, and there were two very nice niches, besides some elaborate work leading into the transept. The roof was very rich, and had elaborate carvings. A piece of the rood-screen remained, but it had been cut off just above the lower panels. The church contained a monument of the Cuff family. Outside over the west window was a figure of the Trinity. The stocks were still standing in the churchyard under one or two fine old yew trees.

The Rev. J. Bownes exhibited the communion plate and the registers, the latter dating from 1641, and during a discussion on the origin of the name of the parish, Prebendary Askwith suggested that it was derived from "Creek."

North Curry.

From Creech St. Michael the archæologists had a pleasant drive to North Curry, where the church, one of the finest country edifices of its kind in the country, was inspected with great interest by no means unmixed with admiration. Mr. Buckle, in describing its principal architectural features, called attention, first of all, to its remarkably fine octagonal tower. There were, he said, a good many octagonal towers scattered about Somerset—Stoke St. Gregory, South Petherton, Bishop's Hull and Pitminster—but in almost every case they were the work of the twelfth century, very early in the Early English style. Except that one, however, he did not think there was any example in the whole county of a tower of that style which was begun so late. There appeared to be nothing earlier in the church than the beginning of the fourteenth century—somewhere about 1300. The early church was inclined to be Decorated, and the principal part of the tower, the belfry storey and octagon, appeared to be later than that. But the piers and arches that remained in the centre of the church and the transepts were of the beginning of the Decorated period. Thus they had an example of a cruciform church with central octagonal tower at that comparatively early date. The church which was then built had no aisles, and the chancel and nave were the same size as at present. He called attention to the immense size and bold mouldings of the tower pillars, and pointed out that around the base of each ran a stone seat, which it was very unusual to find except in churches built on the cathedral scale. That church was often called the cathedral of the moors on account of its grandeur and of the way in which it overlooked the moor. The church was not built any great length of time before it became desirable to add aisles. The original aisles seemed to have been built about the middle of the fourteenth century, but they were not so lofty as those of to-day. The nave of the original church was the same size as at present, but it was by no means so high and was covered with a pointed roof. When the aisles were added clerestory windows were put in and the position of these windows may now be clearly traced below the present clerestory, while in two places they have been opened, after having been for some time sealed up. At the time that the aisles were added a porch in a rather curious position on the north side immediately to the west of the north transept was destroyed. The second enlargement appeared to have been a heightening, there being no addition to the church unless the south porch was entirely of that date. Outside the porch they would observe three niches. The original window of the south transept was still there, and at the east end of the chancel there were indications of the pointed roof. There were a couple of interesting monuments, one in the north aisle and the other in the chapel, while another striking object was a fine candelabra depending from the roof in the middle of the nave. In the churchyard at the time of the Dissolution there

was a chantry chapel, a separate building which must have been of considerable size and great elaboration. When the chantries were abolished the building materials of the chapel were valued at 15*l.*, which was a very large sum for that period.

Colonel Bramble then gave some particulars of the monuments. He said the one in the chancel would correspond with the Decorated portions of the church. It was an effigy of a civilian in the dress of the latter half of the fourteenth century, about 1360. It had on a long gown with tight sleeves coming to the wrists, over that other sleeves ending just below the elbow, and over that again a kind of tippet. There were a remarkable number of these effigies both in Somersetshire and elsewhere. This effigy had his head resting on a cushion, and at one time there was an angel supporting the figure, but the angel had all been cut away except one hand supporting the head and the other resting on the shoulder. With regard to the other effigy, the Vicar had asked him whether it had come from the Abbey of Athelney, but the fact that it was an emaciated figure, not a skeleton but a cadaver, did not necessarily imply that it came from a monastic establishment. It was the fashion in those days to represent persons in the same way as they were when lying in the tomb. Underneath the effigy were figures dressed as friars telling their beads. It might or might not have come from a monastic establishment.

The Vicar (Prebendary Buller) was next called upon, and he stated that the monument in the chancel had an inscription upon it, which was either John or Thomas of Slough—that was, Slough Farm. He found in the register that Bishop Ralph, of Shrewsbury, in January 1337 gave two licenses to John of Slough, of North Curry, to have divine service celebrated in his oratory at Slough for a year. That effigy might represent the same person.

Mr. Buckle stated that there was a modern reproduction of an old Norman doorway in the north aisle which he had forgotten to mention.

The old parish registers and the communion vessels were then inspected, and there were also shown a couple of pewters which were in use in public-houses at the time of the Commonwealth, and which were introduced into the churches by the Puritans, who wished to show their disregard for the sacredness of ecclesiastical things.

Luncheon at Moredon.

After the inspection of North Curry Church the party proceeded to Moredon, the beautiful residence of Major Barrett, J.P., D.L., where, by the kind invitation of Major and Mrs. Barrett, they partook of a *recherché* luncheon, served in the ball-room.

Slough House.

The next place *en route* was Slough House, which, by the kind permission of the owner, the Hon. H. P. Gore-Langton, and of Mr. Thomas Hembrow, the tenant, was thrown open to inspection. The building is in a very good state of preservation, and it has all the proportions of an Elizabethan manor-house. The party, or as many as could get into one of the principal rooms, having assembled, Mr. Buckle proceeded to give a description of the building. He said that the room in which they were gathered was the hall of the house, and they would have noticed as they came in that the porch had a beautiful facing of stone in alternate courses of blue lias and Ham Hill, which made altogether a very charming variety of colour. On entering the porch they passed through a screen of timber, and afterwards they found themselves in another narrow passage before entering that room. That screen was originally the end of the hall, which it had been found convenient to reduce in size. The house was of the sixteenth century, and the style of the architecture was Gothic. Instead of having a large open roof, the upper part of the house was devoted to rooms, and thus in the room in which they were they were able to get that fine timbered ceiling. At the principal end of the hall they would have expected to find bay windows, but instead of that there were flat ones between two pillars. There had, however, been a bay window. In a recess they would notice a square bay of the hall, and in that bay was a cupboard which originally contained a flight of steps going downward and turned round to the left, passing through a door. Where the door led to he could not say, but it was suggested that it led to the moat, or it might have led down to a cellar.

Mr. Hembrow, the tenant, showed a portion of carved stonework which was discovered in a wall of the building during some repairs and was considered to have been part of the ancient oratory which was formerly there.

Mr. Sloper made a few remarks concerning the stone, and gave it as his opinion that as Athelney Abbey was so near by, it formed a portion of the stonework of the abbey, and was removed after it was destroyed. The present building never was a manor-house, but it was pleasing to see that it had been so well preserved.

The Rev. H. F. S. Gurney, vicar of Stoke St. Gregory, expressed his opinion that the house had a history as far back as King John, and there were formerly a Jack of Slough and a Jack of Knapp who had to provide a feast in accordance with the customs of the manor.

After the inspection, Colonel Bramble, on behalf of the Society, thanked Mr. Hembrow very cordially for his kindness in allowing them to visit his house, and Mr. Hembrow, in reply, said he was very pleased to have had the opportunity of letting the members see it.

Stoke St. Gregory Church.

The party were next driven to the church of Stoke St. Gregory. Mr. Buckle said the building was in many respects similar to the church at North Curry, but the foundation of Stoke St. Gregory was considerably older. Here the octagonal tower was of the date when one expected to find them. The edifice at Stoke St. Gregory was originally of the latter half of the twelfth century, but it had been altered since. The original church, like the one at North Curry, was of cruciform shape, with single nave and no aisles. This church might be regarded to some extent as the one from which the builders at North Curry took their design, although they might have brought more skill to bear upon it and had more funds to work upon. The nave at Stoke St. Gregory was wider than the transepts, because the builder wanted to get a true octagon, and in order to do so he had to get a true square base. Underneath the tower they could see the form of the octagon. The arches had no capitals, but they had most remarkable bases, which, when uncovered at the restoration, turned out to be English capitals upside down. It was a great conundrum how they got in that position. It would be observed that the whole of those arches were built of Ham stone, whereas the upper part of the tower and upper ring of the side arches were built of the native stone—a very beautiful grey sandstone. It had been suggested that at some time or other the arches had been taken down and re-erected with Ham stone. In the south transept there were two arches and two windows complete of the early period, but he thought beyond that there was nothing left of the original twelfth-century building. The addition of the aisles was the work of the latter part of the fifteenth century, and the whole of the present architectural features, with the exception of those he had mentioned, belonged to that date. It was interesting to note that on the south side of the church there was an altar tomb with quatrefoils round it, and upon the centre panel of each nave were the Montacute arms with the initials "J. M." Of the furniture of the church the font was perhaps the most remarkable feature. It was an octagonal font with quatrefoils worked round it, one on each face, which varied from side to side. Excepting that they were ingeniously worked, he did not think anybody could say it was a beautiful font. A good many of the bench ends remained, and the pulpit was a very interesting piece of carved woodwork, the figures thereon representing Time, Faith, Hope and Charity, on each of which the symbols were very strongly marked. There was another figure remaining with face turned towards the east, but it was extremely puzzling to know what that represented. A large reading desk formerly stood in the church, but it had been taken away, and Mr. Gurney had converted it into a vestry cupboard. It was a curious piece of work, with figures of women thereon with something in their hands. What those things were did not appear quite clear, but they looked like carvings of dust-pans. Mr. Gurney said he thought that they were oil-lamps. In the vestry was also a picture, very common in churches, of David with his harp, which used to adorn the singing gallery. In conclusion Mr. Buckle drew attention to the stocks which could be seen in the churchyard, under a yew tree, as at Creech St. Michael.

The Rev. H. F. S. Gurney afterwards showed the church plate and the registers in the schoolroom.

Thornfalcon Church.

Leaving Stoke St. Gregory Church the party repaired to the small but picturesque church of Thornfalcon. Here they were met by the Rev. J. D. Bailey, the curate-in-charge, and Colonel Bramble, in the absence of Mr. Buckle, gave some particulars of the sacred edifice. It is a fourteenth-century church, with reticulated windows with quatrefoils. There used to be a rood-loft over the entrance to the chancel, extending along the top of the screen, and the marks where the screen had been fixed were still visible. There being no clerestory a window had been put in on the north side almost parallel with the screen to light the rood-loft. On the other side another window had been put in to light the pulpit. There were several interesting bench ends, and the dates had been carved on some, one being 1542. Just inside the entrance to the doorway was a holy water basin; and inside the church on the south side was a kind of niche, almost resembling an almonry, but the purpose of which is not known.

More time could have been profitably spent in inspecting this interesting little church, but the members were beginning to feel the demands of appetite, and an invitation by Majo

and Mrs. Chisholm-Batten to partake of tea which they had provided on the rectory lawn close by was accepted with pleasure. Tea over, and Mr. E. J. Stanley, M.P., having, on behalf of the Society, thanked Major and Mrs. Chisholm-Batten for their kind hospitality, the journey home was commenced, Taunton being reached about seven o'clock, thus bringing a very interesting and enjoyable excursion to an end.

Conversazione.

In the evening a conversazione was held in the Castle Hall, and there was a very good attendance, Mr. Stanley, M.P., and the Bishop of Clifton being among those present. Mr. F. W. Baker's Taunton quadrille band was engaged for the occasion, and played an admirable selection of music in excellent style. Songs were given by Mr. Frank White and Miss Barnicott, and the remainder of the evening was devoted to conversation among the members.

A Visit to Exeter.

Thursday was devoted to a visit to Exeter, where an inspection was made of several buildings of interest to the antiquarian and all lovers of the beautiful. The party, which numbered about 150, journeyed from Taunton by a special train consisting of saloon carriages, and Exeter was reached about half-past ten, after a run of forty minutes. The weather was of a delightful character.

Reception at the Guildhall.

The large party first proceeded to the ancient Guildhall, where they were received by the Right Worshipful the Mayor (Alderman R. Pople) in state.

The Town Clerk described the principal features of the Guildhall, which was built in 1330; gave particulars respecting the swords and cap of maintenance presented to the city by King Edward IV. and King Henry VII., which were exhibited for inspection; produced and explained some of the forty-eight royal charters, going back to the reign of Henry II., as well as some of the 2,000 deeds belonging to the city, and showed the common seal of the city, which has been in use continuously for more than 600 years. He said he was told some time ago that the common seal used by Taunton was very similar to the seal used by Exeter, and some people were ill-advised enough to think that it was a reproduction. The late Mr. Meyler, town clerk of Taunton, kindly sent him an impression of their seal, and he had compared it with that of Exeter. The same man probably cut both seals. The Taunton seal bore the words "Sigillum communæ" and "Borough of Taunton," while the words on the Exeter seal were "Seal of the City of Exeter." The Taunton seal exhibited an abbot's mitre and crozier, while on the Exeter seal were simply two keys.

The party afterwards visited the Council's committee-room, which contains a number of old portraits.

The Bishop's Palace and Cathedral.

On leaving the Guildhall the visitors were taken by Prebendary Bramley through the grounds of the bishop's palace, from which a lovely view of the cathedral is obtainable. They then visited the cathedral, the history and leading characteristics of which were narrated with customary ability by Canon Edmonds, who also exhibited some of the ancient muniments belonging to the dean and chapter. The visit to the cathedral lasted quite an hour and a half, but the time spent in the grand old building was all too short, as Canon Edmonds's description of it was of a really charming character. His love of the building is well known, and it is a delight to hear him point out its beauties. He remarked that the cathedral owed a great deal to a Somersetshire man, Bishop Bitton, who came from Wells. Wells Cathedral was a little earlier than Exeter, but the construction, the transformation and the lengthening of the two edifices were commentaries one upon the other.

Other Antiquities.

Leaving the cathedral, the visitors had an opportunity of seeing Mol's Coffee House, built about 1569, and said to occupy the site of the College of Annuellers or Chantry Priests attached to St. Peter's Church and St. Martin's Church. Luncheon was partaken of at the New London Hotel, and subsequently the visitors inspected the castle (the ancient Rougemont), St. Pancras, St. Mary Arches and St. Mary Steps churches, and returned to Taunton by train, leaving St. David's at five o'clock.

The visit was most enjoyable.

Amongst the members present at the meetings of the Society was Mr. L. H. Ruegg, who was present at the first meeting fifty years since and reported the proceedings and the speech of Dr. Buckland, to which admiring reference was made by Mr. Hobhouse. A printed copy of this report, cut from the *Sherborne Journal*, was sent to the museum, but unfortunately miscarried, or the Society would have seen the report and the reporter of fifty years ago.

The fourth and concluding day's proceedings commenced on Friday morning, when a numerous party, in four large brakes, started from Castle Green, visits being paid during the day to Norton Fitzwarren, Cothelstone, Bishop's Lydeard, Lydeard St. Lawrence and Combe Florey. The weather was of the most favourable description, and the excursion throughout proved very enjoyable.

Norton Fitzwarren Church

was the first stopping-place, and in the course of a lucid explanation of this edifice Mr. Buckle, the diocesan architect, said the walls of the church were for the most part modern, but as to how far they were reproductions of the old work he could not say. The chancel, at any rate, was entirely modern, but with regard to the windows the probability was that they were reproductions of the old ones. The arcade separating the nave from the aisle was apparently originally thirteenth-century work, but it seemed to have been considerably altered, and he should think it was at one time pulled down and rebuilt. The tower, however, was part of the original work. The great features of the church so far as the building was concerned were the tower and screen. The former was of very great grandeur, and was, so to speak, a straggler there, as it was a sample of the West Somerset tower. Those solid massive towers were to be found all the way along the other side of the Quantocks, but here it seemed curious to find a tower of that type mixed in with the much richer towers of the sixteenth century on all sides. There was very little decoration about it, but there was a very remarkable niche head on the south side as well as three large gargoyles, which, however, were rather rudely carved. With regard to the screen, the figures over it were modern, but with the exception of that and the mouldings on the top of the cornice it appeared to be old and in an uncommonly good state of preservation. One of the mouldings, a grape vine, was, however, on a very coarse scale, and looked as though it would be much more suitably placed at the base of the roof. Just below this, however, was a very delicate succession of mouldings, and it really seemed to be a question whether the upper moulding belonged to the screen at all. Mr. Buckle next explained the figures in the mouldings, which he considered to be work of the beginning of the sixteenth century, and pointed out that in one or two places they appeared out of position, having evidently at some time been taken down and wrongly replaced.

The Rev. W. P. Hewett, the rector, read an extract from the *Church Times* upon the edifice as follows:—The screen at Norton is little known. Forty years ago a Protestant bishop ordered the original painting and gilding to be daubed over "a light oak colour." It has also suffered in other ways. When the church was defaced under the name of restoration it was entirely taken down, and only put back by the energy of the present rector, and this against the advice of most of the neighbouring clergy. It was pieced together in an entirely different manner in order to fit the new chancel arch, and has therefore lost much of its value. Its chief glory, however, is a wonderful series of animals carved on the lower side of the beam, and representing the devastation of a dragon or crocodile, its chase and final overthrow by a man armed with a bow and arrow. There is a most spirited piece of carving where the beasts follow the man home. The part representing the death of the dragon was stolen from the church, but was rescued by the rector from a curiosity shop in Taunton and replaced. The carving refers to a legend of a dragon having devastated the valley between Norton and Williton, finally meeting its death at Norton. The screen appears to be about 1500, and has on it the name of Ralphe Harris, who was churchwarden at the time, and was buried at the west end of the church, 1509 A.D.

Norton Fitzwarren Camp.

The company next made an inspection of the site of the old Roman camp a little distance above the church, and subsequently remounted the brakes and proceeded along the private road of Norton Manor by kind permission of the owner, Mr. Wilfred G. Marshall, to the Minehead main road, the next stop being made at

Cothelstone.

Here the first object of interest was the well-known Manor House, which was inspected by permission of Mr. C. E. J. Esdaile, the owner, and Mr. C. L. Hancock, the tenant.

The Rev. Wm. Esdaile, a brother of the owner, described the history of the Manor House, which he said belonged to the family of Stawell, who settled at Cothelstone at the time of the Conquest. The most distinguished member of the family was Sir John Stawell, who lived in the reign of Charles I., took part in the rebellion by raising three troops of cavalry and one of infantry in support of the king's forces, and also lived during the earlier portion of the reign of Charles II. He had a skirmish rather than a battle with Blake's forces at Bishop's Lydeard, and retired to Cothelstone, and the greater part of the mansion was then destroyed by Blake. Nearly the whole

of the right wing was destroyed, but was restored in 1855 by his (the speaker's) grandfather, and the restoration was generally considered to have been very carefully carried out in accordance with the house which Blake destroyed. Sir John afterwards had all his estates confiscated, and that place was destroyed, and he was cast into prison at Newgate, but he was subsequently released and again became knight of the shire, a position he had formerly occupied. Mr. Esdaile next read an account of Sir John's funeral, which was of a very elaborate character and an extremely lengthy one, and also mentioned that he had fourteen sons and three daughters. Upon the occasion of the Society's last visit to the place in 1854 the Manor House was in a dilapidated condition and was restored in the two following years.

Mr. Buckle, upon being asked to give a supplementary description of the building, said he knew very little about it, except that it was of a very unusual character. The general idea of the building was Tudor, and they had the same sort of base-course and string-course and wide mullioned windows which they got in the regular Tudor buildings. But they had associated in those features some most extraordinary ones. The buttresses were most extraordinary things, and the small bases they stood upon were just like the pedestals of a Classical column. Then on the top of that they had a shaft which tapered down to a very small size until it got to the string-course, the top of which was covered with an ungainly piece of carving. The finish at the top and also at a few other places was distinctly Classical. The very quaint gate-house they had just passed through was also distinctly Classical, and when they got inside this they found a couple of fine openings, which were of the purest Perpendicular. If they looked at the tablet with the coat of arms over the door they would see that, although the treatment of the heraldry was Jacobean, it was also enclosed in a flat four-centred arch of quite a Tudor kind. It was altogether a very remarkable building which formed a sort of link between the latest of Tudor work and the beginning of the Renaissance, but whether or not the whole building was of that date he could not say. It rather suggested that the house was really of an older date, especially on the outside where there was a chimney-stack which was very Gothic indeed in character and which looked to him as though the building might very likely have once been thoroughly Tudor.

Colonel Bramble pointed out that one of the pinnacles of the house consisted of a cannon-ball, which was fired at the house when it was destroyed.

The report is taken from the *Somerset County Gazette*.

THE FORTIFICATIONS OF TIRYNS.

THE walls of Tiryns are the grandest in the world. They excited even the enthusiasm of the usually sober Pausanias, and he was provoked that the Greeks, always more prone to admire what was foreign than what was their own, were perpetually speaking of the wonders of the Egyptian pyramids, and never mentioned the Treasury at Orchomenus or the Tirynthian walls, although these were objects quite as worthy of their admiration. Homer praises Tiryns not as "abounding in walls," but as well-walled. The Greeks called these old walls Cyclopean, because the possibility of their erection was a thing they could not understand, and they could only look on them with astonishment as the works of a race of superhuman giants. Historically these mighty structures belong to the Pelasgians, that enigmatic people of the remotest Greek antiquity jocularly compared by Aristophanes with the storks, because they wandered restlessly from place to place, and everywhere leave traces of their unwearying constructive activity. These walls are accordingly with justice also termed Pelasgic.

In itself the leading idea of this primitive masonry is very simple. It consists in laying stones, not unhewn or unsplit, but unsquared, unsmoothed, mostly polygonal, in courses deviating more or less from the strictly horizontal, piling these to the proper height without the aid of mortar or other cement, and filling up gaps and intervals with smaller stones. Masonry of this kind is found among almost all primitive peoples; there are examples of it in China, in Mexico, even in Alsace. But the marked and unmistakable distinction between the Pelasgic structures and all similar attempts of other peoples lies in the colossal size of the masses which the Pelasgians, and they alone, employ. The Pelasgic walls sometimes contain blocks from 10 to 11 feet long and from 5 to 6 feet in height. What a high development of mechanical skill does this presuppose.

Masonry of such a kind is indestructible; the larger the separate masses of material the more closely does the wall resemble the natural rock. Forschhammer, as his masterly treatise "On the Cyclopean Walls of Greece" shows, has, so to speak, rediscovered the art of constructing this primitive and ingenious masonry; it would even appear that at his suggestion an attempt, and a successful one, has been made in the vicinity of Kiel to introduce its principle into modern practice.

The walls here, as at Mycenæ, follow the natural outline of the hill; and here, too, the Acropolis has an outer and inner circle of walls. Certain "galleries," as they are usually called, are highly noteworthy. These are a sort of huge vaulted corridors in the interior of each wall, and their vaulting is again effected merely by the natural dovetailing of the stones, and altogether without cement. Two galleries are still in tolerably complete preservation. The largest is 84 feet in length, 5 feet in breadth and about 12 feet in height. It is in the inner wall; there is a second, only slightly less, in the outer; and probably, as we are entitled to conclude from existing remains, all similar rings of walls were hollowed out in the same way. No one knows what purposes these vaulted passages served. Were they magazines for weapons and provisions, or were they places of refuge? The probability is they were lurking-places, not so much for purpose of escape as for secret ambuscade, to allow of a sudden, unforeseen assault upon the foe, even when he had already penetrated into the fortress.

ELECTRIC RAILWAYS AND OBSERVATORIES.

IN the course of his address to the International Conference on Terrestrial Magnetism and Atmospheric Electricity at Bristol, Professor A. W. Rücker remarked:—

The rapid extension of electrical railways and tramways is a serious menace to magnetic observatories. From all parts of the world we hear of observatories ruined or threatened by the invasion of the electrical engineer. Toronto and Washington have already succumbed, Potsdam, Parc St. Maur, Greenwich and Kew are besieged, and the issue largely depends upon whether these great national observatories can or cannot make good their defence.

It seems to be a law of nature, ruling alike the human race and the humblest microbe, that the products of an organism are fatal to itself. The pessimist might infer that we are in presence of another instance of the universality of the application of this law, and that pure science is threatened by the very success of its practical applications. The smoke of our cities blots the stars from the vision of the astronomer, who, like the anchorites of old, flies from the world to mountains and desert places. It is only in the small hours of the morning when

> Save pale recluse, for knowledge seeking,
> All mortal things to sleep are given,

that the physicist can escape from the tremors of the traffic of a great town.

Civilisation as it spreads by aid of the means that science has placed at its disposal is destroying records and obliterating boundaries by the study of which the anthropologist and the biologist might have read far back into the history of our race. And now in turn the science of terrestrial magnetism, which, on the one hand, is forging another link to connect the sun and earth, and, on the other, is penetrating within the surface of the globe to depths beyond the ken of the biologist, is threatened by the artificial earth currents of the electric railway.

That the crisis is serious there can be no doubt, but I will only anticipate the fuller discussion which will take place by stating that magneticians, in common with the rest of the world, recognise the great benefit which electric traction confers upon the community at large. We are not so foolish as to desire to embark on a crusade against a great industrial improvement of which science may well be proud; on the other hand, we must hold fast to the position that provision for the conveniences which are immediately appreciated by the public should be made with as little damage as possible to those studies which are not less for the ultimate benefit of the race.

Had science, when the use of coal was introduced, been sufficiently advanced to devise means for smokeless combustion, an evil which now in more senses than one darkens the lives of the inhabitants of our great towns might have been prevented from attaining its present gigantic proportions.

We are now at the beginning of another industrial epoch, which may, indeed, if power is transmitted from a distance on a large scale, brighten our skies, but which threatens to saturate the earth beneath us with electric currents. That these may interfere with the general comfort is evident from the injury which has been done to underground pipes at Washington and elsewhere. The construction of a powerful electrical railway in the immediate neighbourhood of the laboratories of a college would interfere with its efficiency, and make it impossible to perform experiments of certain types. In such a case, however, something could be done by arranging the experiments to suit the conditions under which they would have to be performed. But in the case of a magnetic observatory no such protective measures are possible. The very object of the observatory is to measure the earth's field, and if that field is artificially altered no modification of the methods of measurement, however ingenious, can overcome this fundamental defect. I am glad

to take this opportunity of acknowledging that both the danger to pure science and the necessity for obviating it have been acknowledged by those who are chiefly interested in the technical applications of science.

JEFFERSON AS ARCHITECT.

PERHAPS no epitaph is better known to the readers of American history than the one Thomas Jefferson wrote for himself—now on his tombstone at Monticello—containing these words:—"Author of the Declaration of Independence, of the statute of Virginia for religious freedom and Father of the University of Virginia."

Many times have they been repeated as a good summing-up of his three greatest achievements. But I doubt, says a correspondent of the *Boston Transcript*, whether the full meaning of the last achievement can be realised until the vision of the Classic buildings at Charlottesville dawns upon one, and the origin, aim and workings of the University are fully known.

As the rotunda comes in sight for the first time, one immediately feels an atmosphere of Classic beauty which no other building in the country so quickly suggests. The travelled mind is at once transported to its model, the Pantheon at Rome, though it is only one-third of its size; a walk down the cloistered-like façades of the pavilions (the professors' homes), also suggests Italy as nothing else in the land does; and I do not forget the beautiful cloister-like aspect of the Leland Stanford University in California. Perhaps there is nothing more original or unique of its kind than the ingenious serpentine brick walls on the grounds. There is certainly a Classic flavour about the pavilions, copied as they are from the Roman buildings of Palladio in his work on architecture. This was practically illustrated by a casual reference to a professor having his home in the "Theatre of Marcellus," &c. The Doric, Ionic and Corinthian porticoes in this little Classic village are an education in themselves. For the carving of some of the capitals of the columns skilled workmen were imported from Italy, although the chief work was done by Americans.

Upon seeing the buildings I did not wonder that George Ticknor, on visiting them with Jefferson in 1824—the year before the University was opened to students—wrote to Prescott, the historian, that "they had a mass of buildings more beautiful than anything architectural in New England, and more appropriate to a university than could be found in the world." And he had then been in Europe. The buildings deeply impressed Lafayette, who also visited them about this time.

All this goes to prove that Jefferson succeeded in his determination, as architect of his pet University, to impress the new America with architectural effects of Classic beauty. It is said that had he consulted his daughter Martha even more than he did, the interior arrangements of the pavilions might have been blessed with more conveniences, such as closets, &c. But he was more inclined to attend to outward effects. The sturdy old locks and keys which do service in rooms to-day attest to his idea of thoroughness.

It is a cause for deep joy that these ten original pavilions, linked by student rooms, all set in a grass court, as well as the ingenious brick walls, were not devastated by the fire which visited the region in October 1895. These, as well as the rotunda, found ardent admirers in the architects, McKim, Mead & White, when they were called to replace some of the buildings burned. That they built them in harmony with the Classic style of the old testifies to their wisdom and taste.

It is safe to say that no university in the world is more imbued with the personal life of one man than this one in Charlottesville, Va., with the life of Thomas Jefferson. He not only wrote the deed for the land, but he stuck the first peg in its laying out, and with a 12-inch rule (3 inches when folded), assisted by an employé who tells it, he laid out the foundations for the buildings. Besides making all the drawings for them he superintended every detail for their construction and engaged the workmen. He trained carpenters, masons, bricklayers and even designed implements for them. He designed the classic-looking bell which, when no longer available for use, was, fortunately, preserved for the museum—a most interesting relic.

The old statesman worked as if building his own private house. Nothing poor was allowed to be used. Though nearing eighty years of age, he was on the ground every day when weather permitted, superintending affairs. Seated on a seat of his own invention, a walking stick of three sticks spread out and covered over with a piece of cloth, he found it his delight to watch the men as they worked. With this he was not satisfied. From his elevated home at Monticello, three miles away, he would watch the work with his glass. It is said that if anything was wrong he would immediately go down to make it right.

A proud day for him, as well as a gala one for the crowds that assembled, was the laying of the corner-stone, when President Monroe preceded some remarks by "holding the instruments and pronouncing it square." Jefferson began then to see the fruition of his many years' work in its behalf. Friends had helped him, notably Joseph Cabell in legislative acts, and others by money subscriptions. Monroe, Madison, Cabell, Cocke and several others had given, with him, 1,000 dols apiece.

A still prouder day was when the University was opened in 1825 with forty students. Jefferson, as rector, though past fourscore, became the inspiring leader. Several times a week he invited to Monticello the professors, all of whom were from over the sea except two, those of law and politics and ethics. These Jefferson insisted upon should be Americans. Once a week a party of students were his guests. He thus kept in touch with the University and opened a way for the carrying out of his original ideas concerning it. Daniel Webster felt the value of these ideas in his visit to Jefferson at Monticello, when he wrote that the University, which was "coming into existence almost entirely from his exertions," was a chief topic of conversation.

Posterity has not done justice to the subtle influence of this "academic village" upon the country's educational progress. No one conversant with George Ticknor's relations with Harvard College can fail to see the benefit to Harvard from Jefferson's ideas concerning his own university. (The monograph of Professor Herbert B. Adams ably points this out.)

Not only Ticknor, a professor at Harvard for fifteen years, was influenced in the lifetime of Jefferson, but Josiah Quincy, the year after he became president of the college, when Madison was rector, began to look into Jefferson's work. He even started to go to the university, but a report of fever prevented his reaching it. Years later the president of Brown University, Francis Wayland, visited the University of Virginia and gained helpful suggestions. Our own Commissioner of Education, Dr. W. T. Harris, has put on record that "Jefferson's University is more and more copied or appreciated in the regulations and practical details of colleges and universities North and South."

Jefferson died feeling that his work was not appreciated, but he was confident that justice would finally come. Benefactors have arisen, such as Miller, Corcoran, McCormack, W. H. Vanderbilt and others more recent, and there is room for more. The McCormack Observatory stands on the mountain a mile away which Jefferson selected as a spot for it. The Virginia Legislature has been good to it, at one time clearing the annual appropriation from the large debt surrounding it. Though the State suffered greatly by the war, it nobly continued its annual gift. It doubtless could not forget that aside from its being Jefferson's "darling child of his old age," hundreds of its students gave their lives in behalf of the State. General Sheridan doubtless remembered its origin and history when, during his few war days there (the only time the war came near it), he ordered guards to be placed around the grounds in order to preserve the property.

Besides the graduates and students who have honoured it, including such men as Kane, the explorer, Edgar Allan Poe, Thomas Nelson Page, three Presidents of the United States have been intimately connected with it as the first three rectors. Monroe House still commemorates the memory of Monroe, and Madison's gift by will is remembered.

The civil war necessarily left its pecuniary effects upon this time-honoured university. But it has taken upon itself new life with its new buildings. It is still determined to have only the best professors, and to use every good means in its power to fulfil all that Jefferson desired for it. As such it has a national interest, and should receive the loyal homage of every lover of Jefferson.

AUSTRALIAN COPYRIGHT.

UNDER the International Copyright Act, 1886 (49 & 50 Vic. clause 33), and the orders in council thereunder, the greater part of the body of imperial copyright law applicable to literary and artistic works, together with the Copyright Convention of Berne, became reciprocally applicable to Great Britain and the countries that are parties to the convention, namely, Great Britain with her colonies and possessions, France and her colonies (including Algiers), Germany, Italy, Spain with her colonies, Switzerland, Luxembourg, Monaco, Hayti, Belgium, Montenegro and Tunis; consequently, it is now possible for colonial copyright works to receive international protection within the limitations prescribed by law. The same Act places colonial copyright in literary works upon the same footing as imperial copyright; that is to say, a work first published in a colony may by registration in such colony obtain protection throughout the British dominions. The registrations effected under the Act up to the end of 1897 amounted in number to 2,425, receipts to 763*l.*, and disbursements (salaries) to 5,900*l.* Books are protected for the natural life of the author and for seven years after his death, or for

forty-two years from first publication, whichever may be the longer period; paintings, drawings, sculpture and engravings for fourteen years; photographs, three years; articles composed wholly or chiefly of metal, wood, stone, cement, glass, earthenware, ivory, bone and similar substances, three years; paperhangings, carpets, oilcloths and all kinds of textile and woven articles, two years. To obtain the benefits of the Act in reference to designs, every article must bear the word "Registered," together with the name of the proprietor and the date of registration.

THE ASSAM EARTHQUAKE, 1897.

A PAPER was read at the meeting of the British Association on the 9th inst. by Mr. R. D. Oldham on the great Assam earthquake of June 12, 1897. He said that this earthquake was the largest and, with a few possible exceptions, the most violent of which there was any record. The area over which the shock was sensible was not less than 1,750,000 square miles, while the focus occupied an area of 200 miles in length and 50 miles in width. If it had happened in England not a house would have been left standing between Manchester and London. Landslips on an unprecedented scale were produced in the Garo and Khasia hills and in the Himalayas north of Lower Assam. A number of lakes had been produced by changes of level due to the earth-movements by which the earthquake was caused, and the mountain peaks had been moved both vertically and horizontally. Monuments of solid stone and forest trees had been broken across by the violence of the shaking they had received. Communications of all kinds were interrupted; bridges were overthrown, displaced, and in some cases thrust bodily upwards to a height of as much as 20 feet, while the rails on the railways were twisted and bent. Earth fissures were formed over an area larger than [the United Kingdom, and sand rents, from which sand and water were forced in solid streams to a height of 3 feet to 5 feet above the ground, were opened in incalculable numbers. The loss of life was comparatively small, owing to the time of day at which the earthquake occurred—five o'clock in the afternoon—and the damage done was reduced by the fact that there were no large cities within the area of maximum violence; but in extent and capacity of destruction, as distinguished from destruction actually accomplished, this earthquake surpassed any of which there was historical record, not even excepting the great earthquake of Lisbon in 1755. At the conclusion of the paper he mentioned that the Government of Assam, the whole of whose offices were destroyed, were able to announce within five days that everything was in full swing again; and as to the railways, on which for a length reaching as far as from Bristol to London and on to Dover traffic was at first entirely suspended, in three weeks' time trains were running to their original timing.

TESSERÆ.

The Early Renaissance in Italy.

IT has been usual to date the revival of art in Italy at about the tenth or eleventh century. The beginning of modern art may, however, be reckoned from an earlier time, rather, as Flaxman says, from the reign of Constantine, seven centuries earlier, when Christianity became the religion of the Empire. Painting and sculpture then ceased to be employed as heretofore on the pagan gods, but were engaged to illustrate subjects connected with Christian worship. Even during the reigns of those emperors by whom the Christians were most persecuted they ornamented their subterraneous retreats with sacred portraits and subjects from Scripture. The artists to whom the chief merit of reviving art is due are supposed to have derived no small benefit from the study of the remains of ancient sculpture which were still scattered about Italy, and particularly in Pisa, the native city of the presumed founder of the first school of modern sculpture. Without denying this very probable effect of superior works upon minds just awakening to the beauties of art, it may be disputed whether its influence was so great as some have imagined. It scarcely can be traced where it might most reasonably be supposed to exist, namely, in any peculiarities or finer qualities of style or execution, and it surely must be conceded that the mind and spirit that are observable in the paintings and sculptures of the time of the revival are of an entirely original character and quite independent of the ancient schools. This is remarkable in a class of design which at first seems peculiarly calculated to tempt modern artists to recur to the manner of the ancients, namely, that in which symbols and allegorical figures are employed. In the examples that exist by one of the earliest painters, Giotto di Bondone (chiefly in the Capella "dell' Annunziata" and in the "Salone" at Padua), there certainly is no apparent imitation of any of the numerous and varied modes of treating such subjects that were offered to him in the monuments of antiquity. Without the most remote idea of underrating the excellence of fine ancient models, it seems only just to assert a claim for the distinct and original character which divides modern Christian art from that of the Greek schools. A depth of thought, an intention pervades the Christian art, which shows an entirely altered feeling, and after the first period of the rude and almost frightful attempts at design (usually in single figures, gaunt and staring images of the apostles and saints), the revivers of art seem to have aimed at appealing to the sympathies, rather than gratifying the eye and pleasing the fancy only by presenting to them beautiful forms. On this ground the artists of this age were essentially men of genius, for, instead of servilely copying, they drew from their own original sources, and the art that proceeded from them eventually became, as was the case with Greek art while master-spirits directed it, great and admirable.

Ancient Saws.

Saws were used by the ancient Egyptians. One that was discovered, with several other carpenters' tools in a private tomb at Thebes, is now preserved in the British Museum. The blade, which appears to be of brass, is 10½ inches long and 1¼ inch broad at the widest part. The teeth are irregular, and appear to have been formed by striking a blunt-edged instrument against the edge of the plate, the bur, or rough shoulder, thus produced not being removed. A painting copied in Rosellini's work on Egyptian antiquities represents a man using a similar saw, the piece of wood which he is cutting being held between two upright posts. In other representations the timber is bound with ropes to a single post, and in one, also copied by Rosellini, the workman is engaged in tightening the rope, having left the saw sticking in the cut. In an engraving given in the third volume of Wilkinson's "Manners and Customs of the Ancient Egyptians" a saw is represented of much larger dimensions, its length being, by comparison with the man, not less than 3 or 4 feet. It does not appear that the Egyptians used saws worked by two men. The invention of saws was variously attributed by the Greeks to two or three individuals, who are supposed to have taken the idea from the jaw-bone of a snake or the back-bone of a fish. There is a very curious picture among the remains discovered in the ruins of Herculaneum, representing the interior of a carpenter's workshop, with two genii cutting a piece of wood with a frame-saw, and on an altar preserved in the Capitoline Museum at Rome there is a perfect represention of a bow-saw, exactly resembling, in the form of the frame and the twisted cord for tightening it, those used by modern carpenters. From these remains it is evident that these forms of the instruments were known to the ancients.

The Bridge of St. Angelo, Rome.

The original construction of this superb bridge is ascribed to the Emperor Ælius Adrianus, who erected it about the year 136 of our era, to give access to his mausoleum and the contiguous imperial gardens. Hence it received the name Ælian, as also that of Pons Hadriani or Trajani (all names of the same emperor). In the Middle Ages it was also called Pons S. Petri, and afterwards the denomination Castellum S. Angeli, given to the mole of Adrian, gave rise to the name of Ponte S. Angelo, about the end of the fifteenth century. An authentic record of this bridge exists in a medallion of bronze, presenting on the face the head of Adrian with his names and titles; on the reverse, the bridge with five arches, adorned by eight columns and as many statues surmounting them. On the front of the mausoleum towards the bridge was formerly a lapidary inscription, establishing the epoch of the construction of the latter about 136 of our era. To these documents are added the testimonies of many historians, amongst others that of Spartianus, who lived in the time of Diocletian and wrote the biographies of several emperors. When Boniface VIII. (Caetani) instituted for the first time the Jubilee, in 1300, he ordered that the bridge should be divided by a partition carried across its length to provide against the dangers occasioned by the pressure of the throng on their way to St. Peter's. To this it appears that Dante has alluded in the "Divina Commedia" (Canto XVIII. Part I.) where, after describing the site and form of the circle of Malebolge, he says that in the abyss of this field of punishment were naked sinners, who came from one side of its circle towards him and from the other, following in the same track he himself pursued with his sapient guide. "Even thus the Romans when the year returns of Jubilee, with better speed to rid the thronging multitudes, their means devise for such as pass the bridge, that on one side all front towards the castle, and approach St. Peter's fane on the other towards the mount." We read in the "Rerum Italic. Scriptores" that in 1450, when the people were returning from receiving the benediction at St. Peter's from Nicholas V., the superincumbent weight caused the bridge to give way and 172 persons perished; in memorial of this the Pope erected two circular chapels at its ingress and had the whole restored, as is recorded on one of

the columns on the side towards the Vatican, bearing the initials N.P.P.V. To guard against such accidents the same Pontiff ordered several houses to be levelled, thus forming the Piazza called di Ponte. The chapels were thrown down by order of Clement VII. (Medici) in 1527, for the enlargement of the thoroughfare, and in their place were erected the statues of St. Peter and St. Paul at the entrance of the bridge, the first raised on its structure. In 1668, Clement IX. (Rospigliosi) desiring to embellish it, consigned the task to Bernini who, instead of the former close parapets, carried a balustrade across its span and erected the ten colossal statues of angels bearing the instruments of the Passion, but of which one only is the work of his chisel; the others by his pupils from his own designs. In honour of this improvement (the last the bridge has received), two medals were struck with the inscription "Ælio ponte exornato," in the reign of the same Pope. The statues of the angels, which follow in order those of the apostles, display all the peculiarities of the school of Bernini. Regarded artistically they cannot be applauded, but still the conception of the decoration, as a whole, is imposing and beautiful, and in this Bernini lavished all the riches of his invention, uniting and harmonising the details of the ornaments with great skill, placing the statues in succession as the primitive structure of the bridge required, and deducing the subjects from the name of the bridge and castle.

Architectural Abuses.

Architecture, says Palladio, being an imitatrix of nature, delights in that which is most consonant with her prototype. The ancient edifices being of wood, and trees themselves forming the columns, when architects began to build with stone they made the columns to imitate the trunks of trees, tapering from their bases. Being thus originally of wood, and therefore liable to split when much loaded, they bound them with rings at top and bottom to prevent their splitting. Thus the bases and capitals in the different orders seem originally derived from these bandages, though they are now become essential ornaments. Thus also in entablatures the triglyphs, modillions and dentils represent the ends of those beams and timbers which are employed for the support of the floors and roofs. If, therefore, all these conditions be duly considered, those practices in building are highly to be reprobated which are in opposition to that analogy which should exist between the original and its imitation, or which depart from nature and the simplicity observable in all her works. Consoles or cartouches, which are of a scroll-like form, should never be employed for the apparent support of great weights in place of columns or pilasters, nor should they ever project from or spring out of cornices. Pediments and frontispieces over doors and windows or elsewhere should on no account be broken or disconnected in the middle, for the intention of these is to shelter the parts below from the rain, and this result is completely obviated by such a practice. The projecture of cornices, though for the purpose of sheltering buildings, should not be more than in due proportion to their height, whether or not accompanied by columns; for if too heavy they seem to threaten with danger those who retreat thereunder for shelter, and if too small in projection they do not properly perform their office. Again, those columns which are feigned to be composed of several pieces, by being jointed together with rings, should be carefully avoided, because the more solid and strong the columns appear the better they seem to execute the purpose for which they were erected, which is securely to receive the superincumbent loading. There are many other abuses which the authority of great masters may sanction, but not justify.

The Arts and Religion.

The arts have at all times served religion in the first place, in the second the pleasures of the great or of the people, and, according to the nature of either, assumed various configurations and met with various destinies. Hence in the Egyptians they present the image of a people degraded by grotesque or cruel rites, and basely sunk under the yoke of its tyrants, amongst whom their office became, not to admonish or delight, but to terrify and prostrate. Whilst Paganism elsewhere animated all nature with beautiful and smiling imagery the people of the East, and the Egyptians most of all, took delight in horrific and hideous divinities, and veiled their religious doctrines with mysterious and obscure myths and symbols. Amongst them art was strictly orphic and symbolic, the pasture of deluded minds and corrupt hearts. Under the smiling heaven of Greece, among a people truly great and endowed with an exquisite sense of the beautiful, art inspired the voluptuous and poetic theogony of Hesiod and Homer, delighting in the most graceful forms and approximating so near to the sublime, that other nations despaired of being ever able to arrive at such a refinement. But rarely did it assume the office of correcting and exalting morals, instead thereof seeking only to delight, and often addicting itself to voluptuous turpitudes. With the Romans it expressed the all-ascending genius of conquest, and was devoted to the recording of wars and triumphs; rather than to the simple and graceful it aspired to splendour and magnificence, and thus sowed the seeds of that tremendous ruin which ten centuries did not suffice to limit. Finally, Christianity came to sublime art to yet unimagined greatness, confiding to her the holy office of admonishing the people of truth, of awakening the love of virtue, associating it with all her joys and all her sorrows, and opening to its ken beyond the visible world a field of infinite extent to the Gentiles unknown. In this manner, as with the Egyptians, art was inspired by terror, with the Greeks by pleasure, with the Romans by glory; Christianity has impressed upon it the character of the instructress, the comforter of man.

Andrea Mantegna.

Intensity may be said to be the characteristic of Mantegna as an artist; he swerved from his purpose neither to the right nor to the left. In expressing tragic emotion he sometimes touched a realism beyond the limits prescribed by poetic art. So, too, he never arrived at an ideal of female beauty. But he could be as tender as he was stern; and we forget the homely plainness of one of his Madonnas in the devoted and boding mother, or the benign protectress. His children are always childlike and without self-consciousness. He loved allegory and symbolism, but with him they clothed a living spirit. Regarding Mantegna from the more purely technical side, he was a master of the highest order. His forms are correct and nobly conceived; the extremities carefully wrought out and select. An occasional lengthiness in his figures adds to their dignity, and never oversteps possible nature. His colouring, whether it was the product of a defined system or of certain predilections only, has a harmony of its own that more than satisfies the eye. Drapery he treated as a means of displaying the figure. This he derived from an almost too exclusive study of ancient sculpture. Yet so thoroughly does it accord with his whole style that none would willingly miss a single fold which the master thought worthy of such infinite care.

Tudor Sumptuary Laws.

Queen Elizabeth thought enormity of dress a royal prerogative; for on February 12, 1579, an order was made in the Star Chamber "that no person should use or wear excessive long cloaks (this might proceed from apprehension of their concealing arms under them), as of late be used, and before two years past hath not been used in this realm; no persons to wear such great ruffes about their necks; to be left off such monstrous undecent attyring." Also another against wearing any sword rapier that shall pass the length of one yard and a half a quarter in the blade, nor dagger above twelve inches in the blade at most. In her father's time, who dictated in everything, from religion to fashions, an Act of Parliament was passed in his twenty-fourth year against inordinate use of apparel, directing that no one should "wear on his apparel any cloth of gold, silver or tinsel, satyn, silk, or cloth mixed with gold or silver, any sables, velvet, furrs, embroidery, velvet in gowns or outermost garments, except persons of distinction, dukes, marquisses, earls, barons and knights of the order, barons' sons, knights of such that may dispend 250*l.* per ann." This Act was renewed in the second of Elizabeth. Edward VI. carried this restraint still further. In heads of a Bill drawn up with his own hand, 1551 (though it never passed into a law), no one who had less than 100*l.* a year for life, or gentlemen, the king's sworn servants, was to "wear satten, damask, ostrich feathers, or furrs of conies; none not worth 200*l.* or 20*l.* in living certain, to wear chamblet; no serving-man under the degree of a gentleman to wear any furr save lamb, nor cloth above ten shillings the yard."

GENERAL.

The Meeting of the British Association will be held next year in Dover, under the presidency of Dr. Michael Foster. In 1900 the meeting will be in Bradford.

The Competition for the Glasgow Exhibition Building of 1901 has been decided. Mr. James Miller obtained first prize.

Mr. W. E. Knollys, C.B., chief general officer, has been appointed by the Local Government Board to hold, after the vacation, an inquiry into the causes of the excess of cost over the tenders received for the erection, &c., of the Brook Hospital, the architect's responsibility, and the supervision exercised by the committee and the managers of the Metropolitan Asylums Board as regarded expenditure.

Sir Charles Legard has presented four large pictures for the dining-hall of the Scarborough Workhouse.

M. Osiris, of Paris, offers a prize of 100,000 francs (4,000*l.*) to the author or authors of the work which shall be judged by the Parisian Press Association to be the most meritorious from an artistic, commercial, or humanitarian point of view.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

LIVERPOOL.—Oct. 3 (time extended).—Designs for new buildings for Royal Institution (50 guineas, 20 guineas). Mr. Harold Waterhouse, hon. sec., 3 Cook Street, Liverpool.

REIGATE.—Oct. 6.—Designs for Municipal Buildings (limit 15,000*l.*, premiums 50*l.*, 30*l.* and 20*l.*). Particulars from C. J. Green, town clerk, Station Road, Redhill.

WIVENHOE.—Sept. 29.—For water supply and drainage schemes. Particulars from C. W. Denton, 8 East Stockwell Street, Colchester.

CONTRACTS OPEN.

ABBOTSKERSWELL.—Sept. 24.—For erection of two loose boxes and a carriage-house, &c., at Court Grange. Mr. W. F. Tollit, architect, Gate House, Totnes.

ABERTILLERY.—Sept. 20.—For rebuilding business premises and houses. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport.

ASHTON-UNDER-LYNE.—For pulling-down old property and erecting six dwelling-houses. Mr. T. D. Lindley, architect.

ASKHAM-IN-FURNESS.—Sept. 19.—For completion of Sunday school and reseating of the Primitive Methodist chapel. Rev. John Smith, Slater Terrace, Dalton-in-Furness.

BATH.—Sept. 24.—For erection of a steam disinfector-house at the refuse destructor works, Upper Bristol Road. Mr. C. R. Fortune, city surveyor, Guildhall, Bath.

BIRKENHEAD.—Oct. 17.—For erection of public baths in Livingstone Street and Prince Street. Mr. Charles Brownridge, borough engineer, Town Hall, Birkenhead.

BISHOP AUCKLAND.—Sept. 22.—For alterations and additions to the Two Bay Horses Inn and adjoining premises, Old Hunwick. Mr. F. H. Livesey, architect, 7 Market Place, Bishop Auckland.

BLAYDON-ON-TYNE.—Sept. 22.—For erection of public offices and technical school at Blaydon, for Urban District Council. Mr. T. C. Nicholson, architect, Blaydon-on-Tyne.

BRADFORD.—Sept. 22.—For erection of a warehouse, stabling for 29 horses, loose boxes, horsekeeper's house, &c., in Preston Street. Messrs. Fairbank & Wall, architects, Craven Bank Chambers, Bradford.

BRIDLINGTON QUAY.—Sept. 23.—For erection of pair of semi-detached villas on east side of Cardigan Road, Hilderthorpe. Mr. Samuel Dyer, architect, Bridlington Quay.

BRIDLINGTON.—Sept. 23.—For erection of warehouse at rear of Beverley House, Quay Road, Bridlington Quay. Mr. Samuel Dyer, architect, Bridlington Quay.

BRIDLINGTON.—Sept. 30.—For erection of Yorkshire Foresters' orphanage and convalescent home. Mr. Robt. J. Beale, architect, 9 Victoria Street, Westminster.

BUXTON.—For erection of business premises, High Street. Messrs. Garlick & Flint, architects, Terrace Road, Buxton.

BUXTON.—Sept. 26.—For rebuilding the Otterhole Bridge, St. John's Road, and building stabling, &c., in the cattle market. Town Surveyor, Town Hall, Buxton.

CARDIFF.—For erection of two houses, Machen Place. Particulars, 6 Machen Place, Riverside, Cardiff.

CASTLEFORD.—For erection of two houses off Smawthorne Lane. Mr. George F. Pennington, architect, Central Chambers, Castleford.

CHEPSTOW.—Sept. 26.—For rebuilding the George Hotel, Chepstow. Messrs. Veall & Sant, architects, Cardiff.

CHICHESTER.—For a pair of cottages at East Wittering. Estate Office, Goodwood, Chichester.

CHOLSEY.—Oct. 20.—For additions to the Berkshire Lunatic Asylum at Cholsey, near Wallingford. Mr. George T. Hine, architect, 35 Parliament Street, Westminster.

CHURCHTOWN.—Sept. 23.—For erection of villa residence, Land House Estate. Mr. Evan Ainsworth, Wrea Green.

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Cwm.—Sept. 28.—For rebuilding the Royal Oak Hotel. Messrs. Rosser & Roberts, architects, Victoria Chambers, Abercarn.

Darlington.—Sept. 19.—For erection of workshops, alterations and additions to the North-Eastern Electrical Works, Feethams. Mr. Eugene E. Clephan, architect, St. Nicholas Chambers, Newcastle-on-Tyne.

Dartmouth.—Oct. 1.—For alterations and additions to the old gaol for converting same into strong rooms. Mr. T. O. Veale, borough surveyor, Castle View.

Devonport.—For plastering four houses, St. Levan Road. Mr. S. Roberts, architect, New Town Chambers, Plymouth.

Durham.—For erection of two cottages at Oxhill, Stanley. Mr. W. T. Jones, architect, North Bailey, Durham.

Elgin.—Sept. 22.—For erection of villa in Buckie. Mr. Geo. Sutherland, architect, Elgin.

Enfield.—Sept. 20.—For erection of a junior mixed department and an infants' department at the Board school, Bush Hill Park. Mr. G. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

Exmouth.—Sept. 24.—For erection of a cart-shed at the town yard. Mr. Walter D. Harding, town surveyor.

Falkirk.—Sept. 19.—For erection of tenement on the east side of public road between Bainsford and Carron. Messrs. A. & W. Black, architects, Falkirk.

Gateshead.—For alterations and additions to property in Coatsworth Road. Mr. J. G. Crone, architect, 50 Grainger Street, Newcastle.

Gildersome.—Sept. 19.—For alterations to house at Turton Hall, Gildersome (Yorks.). Messrs. T. A. Buttery & S. B. Birds, architects, Morley.

Glasgow.—Sept. 23.—For erection of a fence at the new park at Rutherglen Road. Mr. A. B. M'Donald, city engineer, City Chambers, Glasgow.

Glasgow.—Sept. 23.—For erection of a retaining wall at the bowling-green in Rutherglen Road, and in extending the bridge carrying Rutherglen Road over Polmadie Burn. Mr. A. B. M'Donald, city engineer, City Chambers, Glasgow.

Gloucester.—Sept. 19.—For erection of new buildings for electrical works. Mr. G. S. Blakeway, town clerk.

Gloucester.—Sept. 23.—For erection of cattle lairs, horse-sheds, &c., in the cattle market. Mr. R. Read, city surveyor, Guildhall, Gloucester.

Godalming.—Sept. 20.—For erection of cemetery chapels and lodge at new cemetery grounds in Eashing Lane. Messrs. Welman & Street, architects, Church Street, Godalming.

Great Yarmouth.—Sept. 20.—For erection of two houses, Marine Parade North. Mr. Charles G. Baker, architect, Town Hall Chambers, Great Yarmouth.

Hampstead.—For erection of a block of residential flats (Priory Court), Mazenod Avenue, Hampstead. Messrs. Palgrave & Co., architects, 28 Victoria Street, S.W.

Harrogate.—For additions to the Granby Hotel. Messrs. Bland & Bown, architects, North Park Road.

Hartlepool.—Sept. 29.—For erection of destructor-house, engine and mill-house, cottage, boundary walls and chimney at the new sanitary depôt in Clifton Street. Mr. H. C. Crummack, borough engineer, Town Hall, Hartlepool.

Haydon Bridge-on-Tyne.—For erection of lodge, stabling and hinds' cottages at Langley Castle. Mr. Harry W. Taylor, architect, St. Nicholas Chambers, Amen Corner, Newcastle-on-Tyne.

Hull.—Sept. 21.—For erection of a power station in Osborne Street. Mr. A. E. White, city engineer, Town Hall, Hull.

Ireland.—Sept. 20.—For erection of a manse for the committee of the Minterburn Presbyterian church, Caledon. Messrs. Young & Mackenzie, architects, 7 Donegall Square East, Belfast.

Ireland.—Sept. 22.—For erection of a medical officer's residence and dispensary house at Ringville, Dungarvan. Mr. John R. Dower, clerk, Poor Law Office, Dungarvan.

Ireland.—For erection of labourer's cottage at Killacloran. Mr. Edward Ellison, Corballis, Rathdrum.

Kendal.—For pulling-down the Cock and Dolphin Hotel, Kendal, and rebuilding new hotel on the site. Mr. John Stalker, architect, Kendal.

Kew.—Oct. 3.—For removal of existing bridge and construction of new masonry bridge over the river Thames, together with alterations of approaches and construction and subsequent removal of temporary bridge over the river. Sir John Wolfe Barry, K.C.B., and Mr. C. A. Brereton, engineers, 21 Delahay Street, Westminster.

Kilkenny.—Sept. 21.—For repairing labourers' cottages in the electoral division of Ballinamara, Ballybeagh, Kilkenny,

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LEEDS.—Oct. 1.—For extension of Kirkgate Market. Mr. Thomas Hewson, city engineer, Municipal Buildings, Leeds.

LEEK.—Sept. 21.—For erection of municipal science and technical school and county silk school. Messrs. William Sugden & Sons, Leek.

LEIGH.—Oct. 12.—For erection of new kitchens at the sanatorium, Astlee. Messrs. Banks, Fairclough & Stephen, architects, Leigh.

LEWES. — Sept. 23. — For erection of two temporary buildings for 100 patients, and for other works in connection therewith, at the East Sussex County Lunatic Asylum. Mr. Henry Card, county surveyor, County Hall, Lewes.

LONDON.—Sept. 20.—For construction of underground conveniences at Queenhithe, for the streets committee of the Corporation.

LONDON.—Sept. 26.—For cleft pale oak boundary fencing at Brockwell Park, for the London County Council.

LONDON.—Sept. 27.—For erection of a bothy and alterations to conveniences at Parliament Hill, and the erection of a cart-shed, bothy, office, &c., at Southwark Park, for the London County Council. Mr. C. J. Stewart, clerk, County Hall, Spring Gardens, S.W.

MENSTON.—Sept. 19.—For erection of a farm residence at the West Riding Asylum, Menston, for the West Riding asylum committee. Mr. J. Vickers Edwards, county surveyor, County Hall, Wakefield.

NEATH.—Sept. 23.—For erection of retaining-walls, wrought-iron railings, excavating and asphalting portion of playground at the Coedfranc schools. Mr. J. Cook Rees, architect, Church Place, Neath.

NELSON.—Sept. 20.—For construction of two filter-beds at sewage works. Mr. B. Ball, borough engineer.

PETERBOROUGH.—Sept. 22.—For erection of a Liberal club at Boroughbury. Mr. Alan W. Ruddle, architect and surveyor, Peterborough.

PLYMOUTH.—Sept. 21.—For alterations to existing buildings for laundry purposes at the Borough Hospital. Mr. Geo. D. Bellamy, engineer, 6A Courtenay Street, Plymouth.

RAMSGATE.—Oct. 5.—For erection of refuse destructor, with buildings, sheds, chimney shaft, &c. Mr. T. G. Taylor, surveyor, Broad Street, Ramsgate.

RAWMARSH.—Sept. 19. — For erection of nine dwelling-houses at Ryecroft, for the Kilnhurst Co-operative Society. Mr. J. Platts, architect, Old Bank Buildings, Rotherham.

ROCHFORD.—Sept. 19.—For alterations and additions to the workhouse infirmary at Rochford, for the Guardians of Rochford Union. Mr. E. Wright, architect, Whitegate Road, Southend-on-Sea.

ROSS.—Sept. 27.—For erection of a post office. Mr. Alan Paull, 6 Quality Court, Chancery Lane.

ROTHERHAM.—Sept. 22.—For extensions to warehouses, &c., at Rother Works. Messrs. Edward Hutchinson & Son, surveyors, 18 Howard Street, Rotherham.

SHEFFIELD.—Sept. 20.—For enlargement of St. John's Church, Chapeltown. Mr. Walter J. Sykes, architect, Hoyland, near Barnsley.

SOPHIA (BULGARIA). — Nov. 21. — For erection of eight public offices, viz., a Ministry of Public Works, Ways and Communications, a Ministry of Commerce and Agriculture, a Ministry of the Interior, a Ministry of Public Instruction, a Ministry for Foreign Affairs and Public Worship, a Ministry of Justice, and an Audit Office. Particulars can be obtained at the Commercial Department of the Foreign Office between the hours of 11 and 5.

SOUTH SHIELDS.—Sept. 28.—For construction of an underground public convenience at the Market Place. Mr. S. E. Burgess, borough engineer, Chapter Row.

STROUD.—Sept. 23.—For erection of additional buildings at the union workhouse. Mr. W. H. C. Fisher, Rowcroft. Stroud.

SWANAGE.—Oct. 12.—For erection of a police station. Mr. Walter J. Fletcher, architect, Wimborne.

SWANSEA.—Sept. 19.—For erection of Manselton school, for the Swansea (U.D.) School Board. Mr. C. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

WALES.—Sept. 30.—For erection of Grand Hotel and stabling, Port Talbot. Mr. George E. Robinson, architect, Cardiff.

WALSALL.—Sept. 27.—For enlargement of the post office, Messrs. Harris & Harris, 9 Benet's Hill, Birmingham.

WESTBURY-ON-SEVERN.—Oct. 3.—For erecting new kitchen, stores, laundry, committee-room, tramp wards, receiving wards, porter's lodge, &c., at the workhouse, Westbury-on-Severn. Mr. W. Fitzgerald Jones, architect, 21 George Street, Gloucester.

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Wigton.—For additions and alterations to Floshfield, the head master's residence, at the Nelson school. Messrs. Oliver & Dodgshon, architects, Carlisle.

Wolverhampton.—Sept. 30.—For structural alterations and additions to the Brick Kiln Street school. Mr. T. H. Fleming, architect, 102 Darlington Street, Wolverhampton.

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S. Walker	460 8 0
G. H. Bell	416 12 9
T. Hilton, Bishop Auckland (*accepted*)	416 0 0

BLACKPOOL.

For construction of foundations for condensers at the electricity works. Mr. Robt. C. Quin, borough electrical engineer.

S. & J. Whitehead (*accepted*).

BOSTON SPA.

For construction of about 7,000 lineal yards of earthenware pipe sewers, from 8-inch to 15-inch diameter, with valves, manholes, lampholes, &c., and for construction of filtration areas, works and new road to the same, with valves, manholes, &c. Mr. John Waugh, engineer, Sunbridge Chambers, Bradford.

H. Wilson	£6,173 8 0
W. Brigg	5,935 8 0
M. Arundel	5,822 15 0
Graham & Son	5,700 0 0
A. Braithwaite & Co.	5,344 17 6
M. Hall & Sons	5,189 11 0
H. M. Nowell	5,000 0 0
W. Binns, Swan Arcade, Bradford (*accepted*)	4,941 10 4

CARLISLE.

For plasterers' work of four houses in Currock Road.

L. T. Brodie, Dudson's Terrace (*accepted*).

CASTLEFORD.

For heating the Primitive Methodist chapel and school, Bradley Street, Castleford. Messrs. Howdill & Howdill, architects, 24 Albion Street, Leeds.

G. Tankard, Leeds (*accepted*).

CHARD.

For drainage works at Shepton Beauchamp.

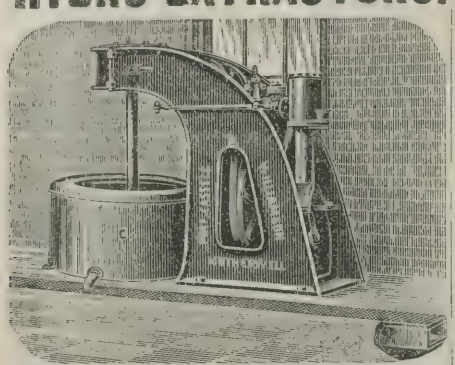
W. H. Taylor & Son (*accepted*).

CHERTSEY.

For painting the outside of the infirmary and cleaning and whitewashing the ceilings of the wards inside and of the administrative block at the union workhouse, Ottershaw. Mr. C. Welch, architect, London Street, Chertsey.

R. J. Hunt	£146 0 0
C. Banes	145 0 0
G. W. Peall	86 0 0
R. Athey	85 0 0
C. J. Blayney	85 0 0
Woolaston Bros.	72 12 0
W. Greenfield	70 18 0
T. Knight & Son, Chertsey (*accepted*)	63 16 9
W. H. Taylor	59 15 0

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For alterations, &c., to premises in Front Street. Mr. H. T. GRADON, architect, Market Place, Durham.

M. Draper	£1,890 5 0
I. Oates	1,735 10 0
W. Norman	1,712 12 0
C. Groves	1,697 13 6
W. Lodge	1,685 7 0
H. More & Sons	1,628 8 0
CRAIG BROS., Sacriston (*accepted*)	1,546 10 0

DARTMOUTH.

For rebuilding and part roofing coal stores.

R. Pillar	£38 19 0
F. Voisey	37 0 0
J. Back	34 10 0
R. WATTS, Dartmouth (*accepted*)	31 15 0

DEVONPORT.

For construction of a culvert for the drainage of the Deadlake. Mr. JOHN F. BURNS, borough surveyor.

R. T. Hortop	£3,623 0 0
W. C. Shaddock	3,606 0 0
T. Shaddock	3,563 0 0
J. Shaddock	3,434 0 0
J. Fisher	3,413 0 0
C. L. DUKE, Plymouth (*accepted*)	3,228 0 0

For erection of an additional storey to the workhouse infirmary, Stoke Damerel. Mr. H. G. LUFF, architect, 64 Chapel Street, Devonport.

Pethick Bros.	£4,699 0 0
A. Andrews	4,300 0 0
G. B. Turpin	4,266 0 0
T. May	4,248 0 0
J. Partridge	4,100 0 0
Tillard & Stevenson	3,913 0 0
Blackall	3,785 0 0
Goad & Co.	3,600 0 0
Tozer & Son	3,468 0 0
Coles	3,465 0 0
Blake	3,393 0 0
PELLOW, Plymouth (*accepted*)	3,228 0 0
G. Smith & Son, Devonport (*withdrawn*)	2,849 15 0

COVENTRY.

For rebuilding two shops and tenements and two factories in Fleet Street. Messrs. SIMPSON & HARVEY, architects, Leicester.

C. WRIGHT, Leicester (*accepted*).

DEWSBURY.

For alteration of the West Riding Union Bank premises. Messrs. JOHN KIRK & SONS, architects, Dewsbury.

Accepted tenders.

M. Scott, Dewsbury, mason and slater.
S. Armitage & Sons, Dewsbury, joiner.
H. Blackburn, Dewsbury, plumber.
W. Parker, Heckmondwike, plasterer.

DURHAM.

For construction of conveniences at Annfield Plain. Mr. T. J. TROWSDALE, surveyor.

J. Dunn (part of works only)	£107 7 9

ENNISKILLEN.

For work at Portora stream on the lake shore, near the Castle Barrack.

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J. HARVEY, Enniskillen (*accepted*)	£319 13 0

Walls of Portland cement concrete.

J. Donnelly	266 8 8

Dry rubble.

J. Harvey	255 1 0

Dry rubble masonry, coped and pointed cement (Portland).

J. Donnelly	194 4 3

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For making-up and paving Wardo Avenue. Mr. CHARLES BOTTERILL, surveyor.

Roadway.

G. Wimpey & Co., Hammersmith	£599 0 0
B. Nowell, Kensington	527 0 0
J. Mears, Fulham	510 0 0
E. Parry, Fulham	500 0 0

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B. Nowell	387 0 0

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For fitting-up the new library. Messrs. MOFFAT & BENTLEY, architects, 53 Church Street, Whitehaven.
GRAVES & SON, Cockermouth (*accepted*).

GLASGOW.

For supply of 996 tons of cast-iron water-pipes.
R. MACLAREN & CO. (*accepted*) . . . £4,968 8 4

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HOVE.

For painting and distempering the public baths, Livingstone Road. Mr. H. H. SCOTT, surveyor.
W. BROWN & SON, Brighton (*accepted*) . . £19 15 0

ILKLEY.

For excavating, sewering, ballasting, metalling, kerbing, channelling and other works required in the extension of Grove Road.

J. Farrar	£1,618 0 10
W. Doleman	1,526 19 8
J. MURDOCK, Ilkley (*accepted*)	1,235 10 11

IRELAND.

For construction of waterworks at Carrickmacross.

W. Baird	£3,299 11 11
J. Cunningham	3,558 0 0
T. J. Dixon	3,320 11 10
McKee & Son	2,787 16 9
HEGGARTY & GAULT, Ballymena, co. Antrim (*accepted*)	2,853 1 11

For erection of a new schoolhouse in Killaughy, Millisle.

J. Augus	£650 0 0
S. Dawson	379 10 0
J. Hanna	353 0 0
A. Bitcon	350 0 0
E. McBrier	330 0 0
A. DOGGART, Newtownards (*accepted*)	318 9 0

ISLEWORTH.

For additions to the union offices. Mr. W. H. WARD, architect, Paradise Street, Birmingham. Quantities by Mr. F. T. W. MILLER, Delahay Street, Westminster, S.W.

P. Hiscock	£1,296 0 0
W. Wisdom	1,087 0 0
P. Nye	1,070 0 0
Dorey & Sons	1,055 0 0
P. J. MESSOM, Grosvenor Works, Twickenham (*accepted*)	1,023 0 0

LEICESTER.

For erection of six villa residences at Glen Parva. Messrs. SIMPSON & HARVEY, architects, Leicester.
D. HALFORD & SONS, Blaby (*accepted*) . . £1,830 0 0

For rebuilding shop premises in High Street. Messrs. SIMPSON & HARVEY, architects, Leicester.
C. WRIGHT, Leicester (*accepted*) . . . £550 0 0

For erection of five shops and tenements and two factories in St. Nicholas Street and Thornton Lane. Messrs. SIMPSON & HARVEY, architects, Leicester.
G. BROWN & SON, Leicester (*accepted*).

For construction of new roads and sewers on Grange and D'Oyly estates. Messrs. SIMPSON & HARVEY, architects, Leicester.

T. Philbrick	£8,690 0 0
Bentley & Loch	8,271 2 3
STIMPSON & ROLLSTON, Leicester (*accepted*)	8,015 14 4

LONDON.

For construction of ladies' lavatory at rear of public library buildings, Borough Road. Mr. OLIVER E. WINTER, surveyor, Vestry Hall, Borough Road, S.E.

B. Finch & Co.	£378 0 0
J. SMITH & SON, South Norwood (*accepted*)	363 0 0

MALVERN.

For erection of post office.

		Old Material.
T. Broad	£3,165 0 0	£100 0 0
W. JAMES (*accepted*)	2,462 17 6	83 15 0

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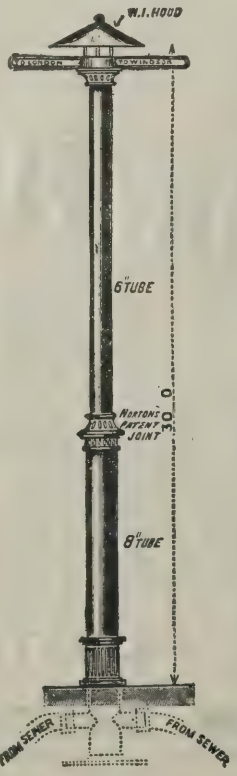
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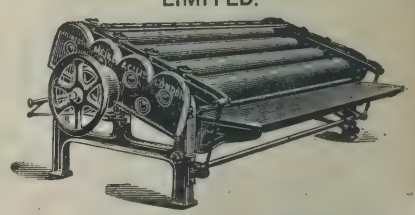


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D. HALFORD & SONS, Blaby (*accepted*)	£1,030 0 0

MIDDLESBROUGH.

For erection of premises in Newport Road. Mr. WALTER G. ROBERTS, architect, 61 Albert Road, Middlesbrough.

Excavator, Drainage and Bricklayer.

J. Johnson	£833 3 10
Bastiman Bros.	744 5 10
J. Coates	728 18 4
D. Doughty	702 3 7
W. POUNDER (*accepted*)	669 8 1

Mason.

D. Doughty	54 4 5
Bastiman Bros.	52 0 0
W. Pounder	49 17 0
S. COATES (*accepted*)	37 13 9

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W. A. King	498 12 10
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J. Johnson	159 1 11
J. R. Smiles	145 10 0
G. E. Tarran	139 10 0
J. Coates	103 0 0
D. PATTERSON (*accepted*)	103 0 0

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J. Harrison	62 10 0
W. Tyreman	61 15 0
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G. Ripley	253 5 2
Baker Bros.	250 0 0
CURTIS & BOWMAN (*accepted*)	214 0 0

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A. Lewis	33 14 3
E. Turner	30 19 9
J. H. HILL (*accepted*)	30 5 2

NEWBURY.

For laying sewers in Chesterfield Road, Gloucester Road and Old Newtown Road. Mr. S. J. L. VINCENT, borough surveyor.

E. & H. JAMES, Emborne Road (*accepted*)	£139 17 9
Surveyor's estimate	148 18 0

NORWICH.

For alterations at the cattle market offices. Mr. A. E. COLLINS, city engineer.

J. Evans	£502 0 0
A. Hipperson	405 0 0
R. Bayes	390 0 0
Burton & Son	355 10 0
R. Daws & Son	347 0 0
TYRRELL BROS., Whitefriars Street (*accepted*)	343 0 0

OXFORD.

For erection of cottages and farm buildings in the parishes of Littlemore and Sandford-on-Thames. Mr. W. H. WHITE, city engineer.

Organ Bros.	£1,593 1 8
Ward & Son	1,478 0 0
J. Wooldridge	1,471 15 11
W. Polley	1,348 19 6
W. Rose	1,321 13 9
F. PHIPPS, Oxford (*accepted*)	1,225 12 4

For supplying and laying cast-iron and stoneware pipe carriers, brick and concrete work in manholes and distributing chambers, land drainage, embanking, road-making, &c. Mr. W. H. WHITE, M.I.C.E., city engineer.

B. Cooke & Co.	£9,155 0 0
BATCHELOR & SNOWDEN, Cardiff (*accepted*)	8,669 19 4
City engineer's estimate	8,709 12 10

PLUMSTEAD.

For alterations, &c., at the Star public-house. Mr. J. O. COOK, architect.

Hutton	£644 0 0
Kitley	426 0 0
Thomas & Edge	410 0 0
Hodgin	390 0 0

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T. WOOD, Radcliffe Lane (*accepted*).

Note.—Eight tenders received.

RISBRIDGE.

For providing and fixing a pair of new ornamental wrought-iron carriage entrance gates, iron posts and fence at the entrance to the workhouse, Kedington.

E. WORRALL & Co., 24 Byrom Street, Liverpool (*accepted*).

SLIGO.

For erection of a residence for the Sisters of Mercy at the workhouse hospital. Mr. W. F. GILCRIEST, architect, Wine Street, Sligo.

J. Mulligan	£1,800 0 0
J. McDonagh	1,375 0 0
Gallagher & Doherty	1,367 0 0
G. KERR, Sligo (*accepted*)	1,195 0 0

STAFFORD.

For painting, &c., at the cemetery, Tillington. Mr. W. BLACKSHAW, borough engineer.

MATHER & CO. (*accepted*)	£31 0 0

SWANSEA VALLEY.

For erecting ten cottages, Abercrave.

D. Rees	£1,800 0 0
J. J. Lewis	1,605 0 0
H. Jones	1,320 0 0
W. WILLIAMS & Co., Swansea (*accepted*)	1,200 0 0

SWINDON.

For erection of the proposed Holy Rood schools and hall. Messrs. T. B. SILCOCK & S. S. REAY, architects, Octagon Chambers, Milsom Street, Bath.

Hawkins	£5,860 0 0
Flint	5,787 0 0
Williams	5,552 0 0
Merredew & Wort	5,534 0 0
Flewelling & Huckson	5,303 0 0
Hayward & Wooster	4,994 0 0
J. LONG & SONS, Bath (*accepted*)	4,633 0 0

TENBURY.

For building a retaining wall, about 200 feet long by 12 feet deep, by the side of Kyre Brook. Mr. R. W. JARVIS, surveyor, Tenbury.

Vale	£240 0 0
H. Hewitt & Sons	189 0 0
W. HOWELLS, Worcester Road (*accepted*)	167 0 0

WAKEFIELD.

For erection of new Wesleyan Sunday school, &c., at South Kirby. Mr. GEORGE F. PENNINGTON, architect, Central Chambers, Carlton Street, Castleford.

H. GUNDILL, South Gate, Pontefract (*accepted*). £544 0 0

WALES.

For re-erection of the Wesleyan chapel, Ferndale.

C. Jenkins & Son	£2,220 0 0
Rees & Co.	2,050 0 0
W. D. Humphreys	1,975 0 0
T. W. Davies	1,878 0 0
T. O. Brown	1,826 19 6
H. LEWIS, Ferndale (*accepted*)	1,820 0 0

WALSALL.

For painting and other works at the Science and Art Institute, Bradford Place.

E. HEWENS, 52 Vicarage Street (*accepted*).

WARE.

For sewerage works at Stanstead Abbots. Messrs. BAILEY, DENTON & LAWFORD, engineers, Westminster.

J. JACKSON, Forest Gate (*accepted*). £414 15 6

WELLS.

For erection of public hall and post office buildings on the site of the present market hall. Mr. JOHN JOHNSON, architect, 9 Queen Victoria Street, London, E.C.

Stephens & Bastow	£10,730 0 0
General Builders' Co., Limited	10,696 0 0
W. Gibson	10,118 0 0
F. W. Bray	9,855 3 3
H. W. Pollard	9,400 0 0
R. C. Cock	9,192 10 0
Architect's estimate (*approximate*)	4,850 0 0

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J. WILLIAMS, Ruabon (*accepted*)	£146 0 0

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CHIGWELL.

For erection of ophthalmic buildings at Chigwell, Essex. Mr. A. E. PINDER, architect.

F. V. Carter	£5,904 0 0
W. Keefe	5,890 0 0
George & Hosking	5,837 0 0
H. Reed	5,765 0 0
W. M. Norton	5,747 0 0
A. Porter	5,733 0 0
W. Gregar & Son	5,678 0 0
W. Shurmur	5,336 0 0
F. G. Minter	5,000 0 0
Smith & Sons	4,998 0 0

CHINGFORD.

For erection of factory at Hale End, Chingford. Mr. J. ROOKWOOD, architect.

W. Shurmur	£3,528 0 0
Harris & Wardrop	3,519 0 0
F. F. Chinchen	3,470 0 0

LONDON.

For erection of mission church, Chatsworth Road, Clapton. Mr. B. CREWE, architect.

L. & H. R. Roberts	£7,389 0 0
Godfrey & Son	7,237 0 0
Lascelles	6,895 0 0
Roome	6,805 0 0
S. B. Pitcher	6,598 0 0
W. Shurmur	6,597 0 0
Dearsley	6,400 0 0

LONDON—*continued.*

For erection of two blocks of artisans' dwellings at High Street, Shadwell. Mr. G. DREW, architect.

Holloway Bros.	£10,910 0 0
Clark & Bracey	9,997 0 0
B. E. Nightingale	9,683 0 0
Calman & Sons	9,396 0 0
H. S. Holloway	8,743 0 0
W. Shurmur	8,668 0 0
S. J. Scott	8,550 0 0

For erection of a warehouse at Bayer Street, Golden Lane, E.C. Mr. J. GROOME, architect.

H. Irving	£5,344 0 0
Woodward & Co.	4,926 0 0
Kilby & Gayford	4,836 0 0
H. L. Holloway	4,793 0 0
W. Shurmur	4,721 0 0
Mattock Bros.	4,671 0 0
Grover & Son	4,546 0 0
J. Greenwood	4,533 0 0

For erection of warehouse at Great Arthur Street, Golden Lane, E.C. Mr. J. GROOME, architect.

Woodward & Co.	£2,494 0 0
Kilby & Gayford	2,436 0 0
H. L. Holloway	2,390 0 0
W. Shurmur	2,366 0 0
Grover & Son	2,279 0 0
J. Greenwood	2,271 0 0
H. Irving	2,268 0 0
Mattock Bros.	2,259 0 0

For erection of new premises at Hackney, for the Hackney Furnishing Company. Mr. J. HAMILTON, architect.

Marten & Sons	£3,910 0 0
J. Grover & Son	3,650 0 0
B. E. Nightingale	3,585 0 0
W. Smith	3,529 0 0
G. W. Beale	3,477 0 0
Snewin Bros.	3,393 0 0
W. M. Dabbs	3,360 0 0
Jarvis & Sons	3,177 0 0
W. Shurmur	3,141 0 0

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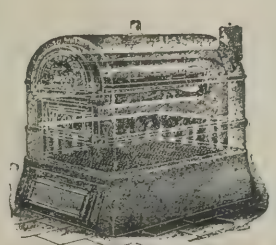
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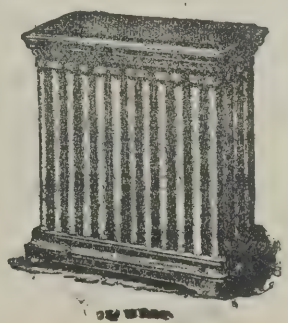
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LONDON—*continued.*

For rebuilding Nos. 70 and 71 Shoe Lane, E.C. Mr. H. KNIGHT, architect.

Nightingale & Co.	£4,493 0 0
Woodrow	4,370 0 0
W. Shurmur	4,091 0 0
Turtle & Appleton	4,020 0 0
Chase & Son	3,997 0 0

WOOD GREEN.

For rebuilding the Alexandra Hotel, Wood Green. Mr. A. C. PRIDMORE, Wood Green.

Beer & Gash	£2,697 0 0
Knight & Son	2,650 0 0
J. Tennant	2,386 0 0
L. R. Lamble	2,381 0 0
F. Waller	2,290 0 0
Kilby & Gayford	2,280 0 0
W. Shurmur	2,242 0 0
Marchmont & Hirst	2,215 0 0
P. Hart	2,208 0 0
W. Davenport	2,136 0 0
J. Pocock	1,997 0 0

FOLKESTONE is about to add to its numerous attractions by the erection of a theatre and palace of varieties, a site for which, with an extensive frontage to Church Street, and of ample depth, has been secured, and building operations have already been commenced.

THE chancel of All Saints, City, Bristol, has been closed for some time in connection with the number of improvements which have been carried out by Messrs. W. Cowlin & Son in the interior of the church. They have just completed a new oak roof with carved bosses, and altogether of an ornamental character in the chancel. On the south side they have just finished a new sedilia, showing a very handsome arcading in harmony with the stained carving at the back of the altar. They have also enlarged the existing organ chamber by cutting through the north of the chancel, a thickness of over 3 feet, and constructing a very handsome arch with Bath stone, thus giving greater accommodation for the organist and increasing the facilities for the softest notes of the organ to be heard throughout the church.

ILLUSTRATIONS.

CATHEDRAL SERIES.—SOUTHWELL: CHOIR, LOOKING WEST.

REREDOS, KINGSTON VALE CHURCH.

THURSTONVILLE, BECKENHAM.

ELECTRIC NOTES.

THE Hampstead Guardians have accepted a tender for 1,025*l.* for fitting up their workhouse with the electric light.

AN important meeting of the electric-lighting committee was held recently at Llandudno, at which Mr. Preece, electrician, reported that the light would be definitely available at the generating station from this date. The erection of a chimney at the generating station had now been completed, and consequently the chief cause of delay removed.

THE switching apparatus of the great electricity works of the city of Geneva, situated on the Rhone, near Chevres, caught fire last week, and in a short time the entire works were destroyed. In consequence the transmission of the electric current for motive power and the illumination have ceased throughout the canton of Geneva.

AT the Dover Town Council meeting on the 13th inst. it was officially reported that the first year's working of the Corporation's electric tramways, after allowing for payment of interest and instalments of the loans, had resulted in a profit of 1,300*l.* being earned. This is equivalent to a 2*d.* rate. A total of 1,794,903 persons have been carried at the universal fare of 1*d.*

THE Corporation workmen have been engaged repairing damage which had been done to the electric-light wires under the pavement in Princes Street, at the corner of South Charlotte Street, Edinburgh, through the fusing of one of the main wires. Something of the nature of an explosion occurred. The fire brigade was called out, and after examining the cellars of several of the shops they came on some woodwork which was burning as a result of the explosion.

AT the St. Pancras Vestry meeting on the 12th inst. a letter was read from Mr. F. J. S. Hopwood, on behalf of the Board of Trade, with reference to Major Cardew's investigation of the circumstances attending an explosion of gas that occurred in

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an electric-light culvert in Cumberland Terrace, Regent's Park, resulting in damage to the Vestry's culverts and mains for a length of 400 yards. Mr. Hopwood wrote :—"Having regard to the grave risks to the public safety and the disorganisation of the supply of electric energy involved by accidents of this nature, I am to urge upon the Vestry the necessity of taking all possible precautions to prevent accumulation of gas in their culverts, and as it would appear to be impossible in all cases to provide adequate ventilation I am to suggest the desirability of frequent inspection of street boxes." Dr. Walter Smith, chairman of the Vestry's electricity committee, said the Gas Light and Coke Company were clearly responsible for the explosion, and a resolution was adopted authorising a claim against them to make good the damage.

BUILDING AND BUILDERS.

THE foundation-stone of a new church at Savile Town, near Dewsbury, was laid on the 10th inst.

AT the last meeting of the plans and works committee of the Edinburgh Town Council tenders were opened for the Portobello Public Baths, the cost of which will be at least 30,000*l.*

JAMES CURRELL, a Great Northern Railway employé, while engaged repairing the well-known lofty railway viaduct at Welwyn, fell below, a distance of over 100 feet, with the result that he met with a terrible death, his body being almost smashed to a pulp.

THE destruction was commenced on Monday last of an historical block, opposite Lambeth Palace, known for many years as Bunyan's Place, and in old times as the Archbishop of Canterbury's Court, for the purpose of improving the southern approach to Lambeth Bridge, which by virtue of a resolution of the County Council will not long hence share a similar fate to that at Vauxhall.

AT a recent meeting of the Arbroath Town Council there was read a correspondence with the postal authorities regarding the new post office to be erected in Hill Street. The Council desired the front of the office to be brought out to the High Street. The Post Office replied that this would add 2,000*l.* to the cost. The Council were willing to reduce that to 1,500*l.*, but the Post Office held that a building according to the Council's plan would not be as convenient as their own, which, accordingly, they are to proceed with.

TRADE NOTES.

FOR the new palm house and conservatories in the Public Park at Blackburn the designs of Lockerbie & Wilkinson, Limited, Birmingham, have been selected, and their tender (1,495*l.*) for the erection has been accepted.

THE Ediswan "Queen of Lamps," brought out by Messrs. Edison & Swan, of Queen Street, E.C., is certainly one of the best incandescent lamps on the market. Its chief feature is the perfect diffusion of light which it provides. The top reflecting part of the bulb is made of opal glass, by which a very soft even light is obtained, altogether free of the "lines" or shadows peculiar to silvered bulbs. It is recommended for ceiling panels, pictures, &c., and where perfect illuminating effects are required.

MESSRS. NICHOLLS & CLARKE, of 6 High Street, Shoreditch, have just executed a three-light memorial window, which is to be placed in a church at Totnes. The work is altogether one of considerable excellence, whether regard be had to the design or its treatment. The design, which represents the Resurrection, is well conceived and the composition effective. In the centre panel or light is the risen Christ, while in rear on the right is a winged angel in the act of removing the stone from the mouth of the sepulchre. In the upper part of the left panel are three draped female figures on their way to the tomb, the chief, the Virgin Mary, being particularly good alike in pose and expression. At foot of the picture are three Roman soldiers, two of them asleep, and the third wearing a most natural expression of amazement at the empty sepulchre. At the head and foot of each light is a well-designed canopy and base, while over all is some artistic tracery, the apex being the usual monogram. The whole window when in position should have a very fine effect, and the more so as, apart from the artistic treatment of the subject, the work is admirably executed, the colours being very clear and harmoniously blended.

VARIETIES.

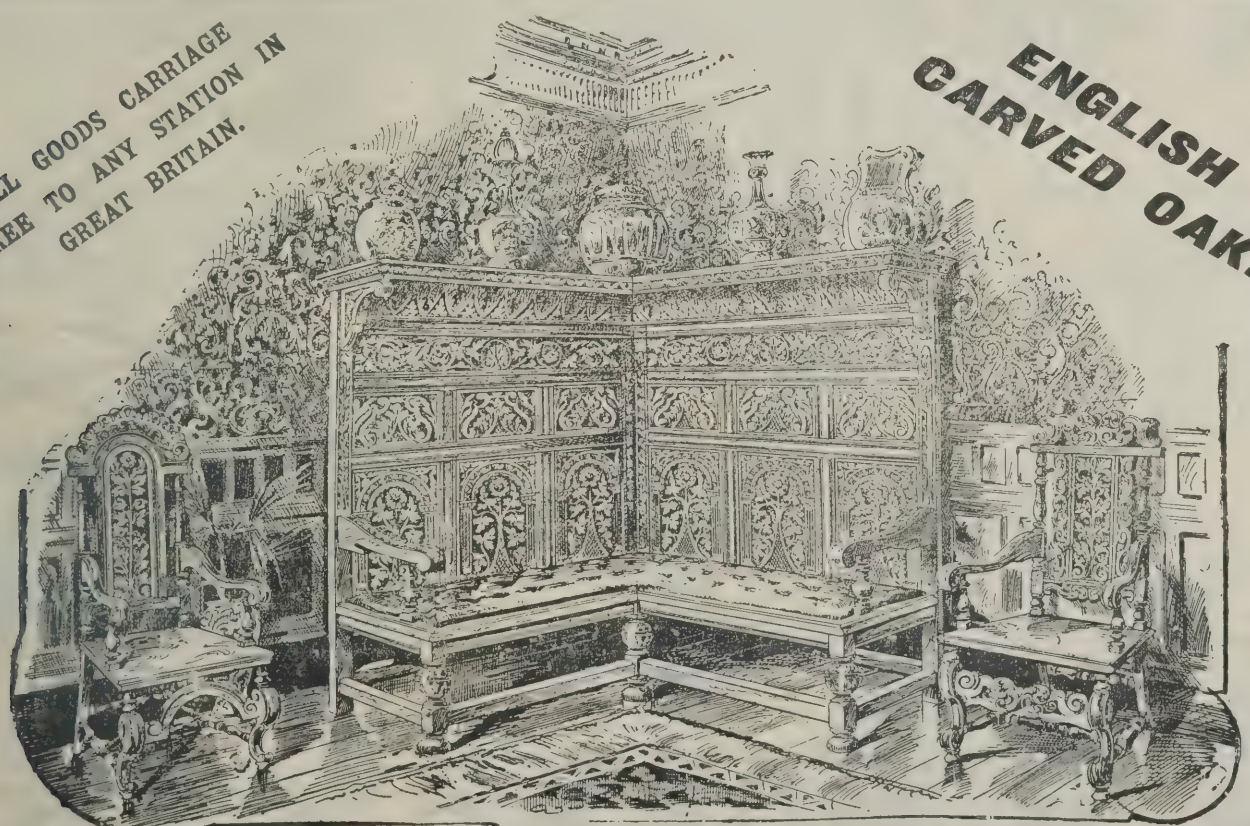
THE church of St. John, Fairfield, Liverpool, was reopened after renovation on Sunday.

THE Lock Chapel in the Harrow Road has been redecorated and greatly improved in honour of its Jubilee.

VICTORIA Wesleyan Methodist church, Cheetham, Manchester, has been reopened after complete renovation.

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A PAGE FROM HEWETSONS NEW ILLUSTRATED PRICED CATALOGUE.

No. 319.—The "WORTLEY" CARVED OAK ARM-CHAIR, £4 15s.

No. 320.—CARVED OAK HALL COSY CORNER, 6 ft. 6 in. high, £24 10s.

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Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations.

AN excursion meeting of the Northern Architectural Association will be held to-morrow (Saturday).

AN excursion of the Dundee Institute of Architecture, Science and Art to Loch Leven, Kinross House, Portmoak Church, &c., will be held to-morrow (Saturday).

THE roof of the smoke tower of the Natural History Museum, South Kensington, was damaged by fire on Friday last.

A NEW parish hall, which has been built in connection with Nantwich parish church, was opened on Monday last. The new building, which is intended to be used for parochial purposes, has been built by public subscription at a cost of over 3,000*l.* upon a site given by the late rector, the Rev. F. G. Blackburne, now rector of Bury.

A BODY of about fifty workmen are busily engaged in repainting and renovating the ironwork in St. Paul's Cathedral and painting the railings, &c., in the churchyard. The dean and chapter have decided this year to put a new face to the clock, and last week half a dozen skilled workmen began the task. The new dial will be ready for fixing in a few days.

A SYNAGOGUE in Spitalfields was opened on Sunday, the 11th inst. The newly-dedicated building, which has seating accommodation for 1,800 men and women, was the first place of worship erected by the Huguenots in 1743, and afterwards passed over to the Wesleyans, who held their first public service there. It was recently acquired by the East End Jews, and reconstructed at a cost of 6,000*l.*

BUILDING LAND AT BEMBRIDGE, ISLE OF WIGHT.

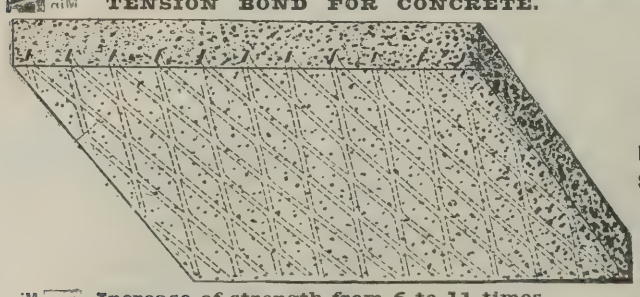
MESSRS. DOUGLAS YOUNG & CO., 51 Coleman Street, E.C., will on Tuesday next offer some fifty lots of very attractive building sites on the Bembridge Lodge and Brading Harbour estates in the Isle of Wight. Bembridge, with its picturesque surroundings, is rapidly growing in popularity, and, apart from its natural beauties, has many attractions for holiday-makers. There are extensive "links" for lovers of golf, and numberless pleasure-boats, canoes, &c., for use on the still waters of the haven or the rougher bosom of the outside sea, besides all the necessary means and facilities for sea-fishing and so forth. There is also a thriving sailing club, now numbering over 200 members, whose regattas take place at stated intervals all through the summer. But the popularity of Bembridge is undoubtedly due to the charm of the surrounding neighbourhood. The walk along the coast and round the Foreland to Whitecliff Bay opens up a succession of extensive sea views. For pedestrians no more enjoyable expedition can be suggested than a climb up Bembridge Down (355 feet high), from the summit of which extensive views are obtained of the mainland as far as the Sussex coast, and the district is not without features of historical interest. A little way inland stands the old manor house of Woolverton, built by Sir Ralph de Woolverton, in 1370, and now used as a farmhouse. Tradition asserts that there was at one time a large town hereabouts, known as Wulfre's Town, which was destroyed either by the French or Danes during one of their visitations. Here, too, is Centurion's Copse, which is said to mark the site of St. Urian's Chapel, a small oratory which went the way of other like institutions in the reign of Henry VIII., and of which no remains now exist.

Extending about a mile north of Bembridge is Brading Harbour, lying just south of the pretty little village of St. Helen's. The harbour is formed in the estuary of the eastern Yar and is famous for its oyster beds along the banks of the river. The harbour was first formed by Sir Hugh Myddelton, or rather this famous engineer of Jacobean times enlarged and restored a small harbour that had formerly existed.

Brading is pleasantly situated at the foot of an extensive town on the high road between Ryde and Ventnor. It contains many features of interest; a pair of stocks and an old lock-up, interesting memorials of a bygone age, still exist in the market place, whilst a stout ring firmly fixed in the ground marks the site of the old bull-ring. At Morton Farm, near Brading, the interesting ruins of a Roman villa were discovered in 1880. More recent excavations have revealed the presence of another "wing" or group of buildings, comprising a series of chambers, corresponding to those unearthed.

Messrs. Douglas Young & Co. also announce an important sale of sixty-nine plots of building land at Bexhill-on-Sea on the 5th proximo, and on the 26th proximo they will offer an estate of 11,000 acres in Wiltshire, and the Ashdon, Bartlow and Radwinter estates in Essex. It may be noted that both the Wiltshire and the Essex properties form portions of the assets of Mr. E. T. Hooley.

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SOLID AND HOLLOW PARTITIONS, 2" THICK,
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"BESTO" GLASS.

"BESTO" glass is the name given to a new product which, after having "caught on" in the United States and Canada, is now being offered in the English market, where it is likely to meet with similar success.

It is being introduced by the "Besto" Glass Company, Limited, 41 Eastcheap, E.C., and is intended for use in skylights, roofs, partitions, floors, fanlights, doors, windows, awnings, &c., in fact, in any position where the heavy glass known as "rough rolled plate," or other glass in plates, sheets, blocks or prisms is commonly used, but is in many ways far superior to any of the kinds of glass for which it is intended to be substituted. The new material consists of glass, either white, coloured, transparent, translucent or opaque, having wire embedded and wholly enclosed in the body of the glass. The wire, which is covered with asbestos previously to its enclosure in the glass, is in the form of a netting, having a mesh of about three-quarters of an inch which is embedded about at the centre of the sheet of glass, which is made in thickness from about one-quarter of an inch up to 1 inch or thicker, according to the purpose for which the glass is to be used. It can be made of any desired pattern; one of those which have found greatest favour in the United States consists of a smooth surface on one side and on the other longitudinal prismatic ribs of about half an inch in width, which increases the light admitted, and directs it into the position where it is most required.

Among the advantages claimed for this new material, the following are conspicuous. It is a protector against fire, as, although the heat may crack and break the glass, the wire effectually prevents the pieces from falling apart; against accidental injury to persons or material by the falling of the glass, as if used in skylights, glass awnings, roofs—such as the roofs of depôts, assembly halls, stores, stables, &c.—the accidental breakage of any of the sheets of glass cannot result in any serious injury to persons or goods beneath, as no piece larger than is enclosed in one mesh of the wire can fall; and against burglars, as it would be necessary, in order to make way through a sheet of "Besto" glass, not only to break the glass absolutely into fragments, but to cut away the enclosed wire, and this would be extremely difficult, and would consume considerable time, as each strand would have to be sawed through separately, the adherent pieces of glass being sufficient to prevent the use of wire-cutters.

MUNICIPALITIES AND CONTRACTORS.

A FIRM of contractors has sent to the *Times* the following copy of the conditions that are being imposed on contractors for a certain undertaking for one of the largest corporations in the country. The stipulations, or the tenor of them, are such as no firm of free individuals should agree to :—

General Conditions.—The contractor shall to the (*sic*) at all times during the continuance of this contract abide by, perform, observe, fulfil and keep all and singular the stipulations following, that is to say :—

Wages of Workmen.—The contractor shall pay every workman employed by him, whether in or about the execution of this contract, or otherwise, wages and wages for overtime respectively and at the rate not less than that recognised in the district where the work or any part of it is being done at the standard rate of wages in such workmen's trade.

Hours of Labour.—The contractor shall observe the, and cause to be observed by each workman, hours of labour not greater than the hours of labour (other than that union men only be employed) usually observed in the trade of such workmen in such district.

Lock-out.—The foregoing conditions shall not apply to any trade or trades during the existence of a general lock-out in such trade or trades. The corporation shall be sole judges as to whether such a lock-out exists.

Underletting of Contract.—The contractor shall not transfer, assign or underlet, directly or indirectly, this contract, or any part of it, share or interest therein, without the written consent of the corporation under the hand of the town clerk, which consent may either be withheld or given, subject to the terms such as the corporation may determine, and particularly that the person to whom such contract may, or any part of it, share or interest therein may be transferred, assigned or underlet, shall abide by, perform, observe, fulfil and keep the stipulations on the part of the contractor herein contained.

Book-keeping.—The contractor shall, to the satisfaction o the Council, provide and keep proper books, in which shall be entered from time to time the names of, the wages paid to, and the hours of labour observed by all workmen employed by him, whether in or about the execution of this contract or otherwise, and shall from time to time, when required by notice under the hand of the town clerk, produce the same, or any of them, to him or the deputy town clerk, who shall be at liberty to inspect and take copies or extracts therefrom.

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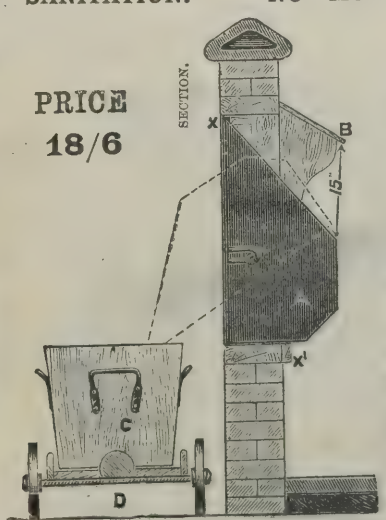
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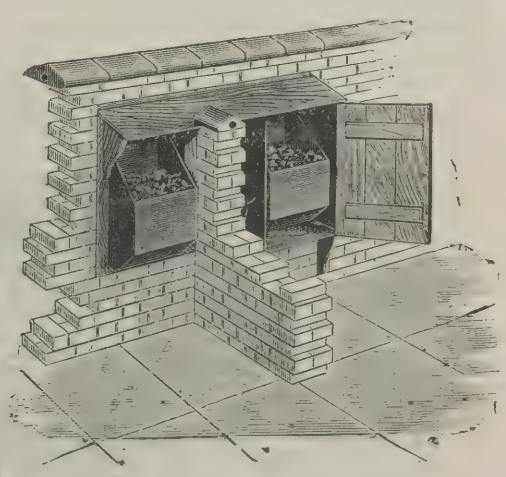
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AGENTS WANTED IN EVERY LARGE TOWN.

Breach of Contract.—In case of any breach of the contractor or by any person to whom this contract, or any part of it, may be transferred, assigned or underlet, of any one or more of the stipulations in this clause contained, it shall be lawful for the Council to determine this contract in the same manner and to the same extent as they have power so to do under the clause 5 in the events therein specified, and if the contract shall be determined under the present power, then all the provisions of that clause shall apply as if the contract had been determined under that clause.

Tenders to be suitably endorsed and addressed to the chairman of the gas committee, Municipal Buildings.

CASE UNDER BUILDING ACT, 1894.

AT North London Police Court, before Mr. D'Eyncourt, Mr. W. E. Stevens, contractor, of Bridge Street, Homerton, was summoned by Mr. Alexander Payne, district surveyor of East Hackney (South) and North Bow, on September 9, 1898, for building houses at Retreat Place, Homerton, of inferior mortar, not in accordance with the by-laws made by the London County Council.

Mr. Payne stated that he had received notice from Mr. Stevens for the erection of nine dwelling-houses, and four were already nearly constructed. The defendant had removed large quantities of good sand from the ground (presumably for sale), and had used the inferior sand partly mixed with earthy matter in these houses. He had frequently warned him about it, and served him a notice of irregularity on June 15. As there was no material improvement a summons was taken out on August 26. It was shown by the correspondence that Mr. Stevens had complained of the district surveyor being too sharp on him, and had submitted the material to his own surveyor; but it was admitted that his own surveyor could not approve of the material as being in accordance with the by-laws. On this Mr. Stevens requested that the summons might be withdrawn, but this the surveyor declined to do.

The defendant was represented by Mr. Romain, solicitor, but no evidence was called, and the facts as stated were not controverted.

The Magistrate said that only one summons had been taken out, on which he should certainly inflict the maximum penalty under the by-laws of 5*l.* and costs. If a summons had been taken out on each house, he should have inflicted a similar penalty in each case, as it was evident the defendant had been making a considerable profit by using inferior materials and different to what he professed them to be in the mortar.

THE BRICKMASTERS' EMPLOYERS LIABILITY ASSOCIATION.

THE first and statutory meeting of the Brickmasters' Employers Liability Association, Limited, was held at the Cannon Street Hotel on August 30, Mr. Wragge (of Messrs. Eastwood & Co., Lim) in the chair.

The notice convening the meeting was read, and the register of members was laid on the table.

The report of the directors was read as follows :—"Your directors have pleasure in reporting that the Association has been duly registered as a company limited by guarantee, and is now fairly established. All the principal stock brickmakers in Kent, Essex and Middlesex have become members, and other classes have been opened for insurance against risks in flint-getting, barge-building, machine and red brickmaking, as well as a class for lime, cement and brick merchants, at rates calculated to cover their risks. The amount of wages upon which insurance has been effected with the Association is now 336,000*l.* and is being increased week by week. A draft of special rules or by-laws for observance by members has been framed, and is now engaging the attention of the board. When approved, copies will be forwarded to members. Members are requested to give immediate notice to the secretary in the event of an accident occurring to any of their workpeople. The services of Dr. Barrett, of Highgate, have been secured as medical adviser to the Association. A call has been made to meet the expenses of establishment and to provide a balance in hand. In accordance with the articles the directors retire. They offer themselves for re-election."

Resolved that the report be received and adopted.

Resolved that Messrs. Robert L. Curtis, Charles Cremer, George H. Dean, Edward William Goodenough, Alfred J. Knight, Henry Packham, Algernon Rutter, John Willson, George Edward Wragge be and are hereby re-elected directors of the Association.

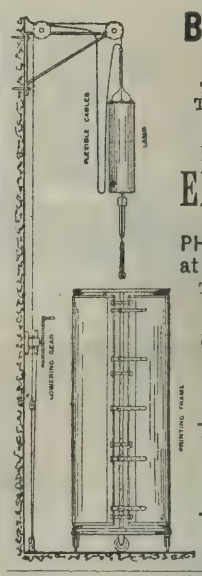
Messrs. D. Wills, J. R. Featherby and Rosher were nominated as the audit committee.

A vote of thanks to the chairman concluded the proceedings.

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MEMORIAL SCREEN, HANDSWORTH.

THE new church in Wretham Road, Handsworth, Birmingham, has been closed for alteration. The unsightly end gallery is replaced by an oak vestibule screen. The effect of the alteration has been not only to add to the seating accommodation of the floor to an extent which almost compensates for the removal of the gallery, but to secure for that portion of the church more pleasing proportions than the rigid squareness which formerly marked it. The new vestibule screen is one of the finest in the Midland counties. It is designed in the fourteenth-century Gothic style, and contains seven bays. The central bay is occupied by a pair of doors having in the tympanum over them a carved figure panel illustrating Mary sitting at the feet of Christ, while Martha is "cumbered about much serving." On each side of this doorway are double groups of clustered columns, with enriched brackets above running up into groups of crocketed finials, which finally terminate in winged heralds bearing brazen trumpets. The tracery to the remainder of the seven is richly cusped and moulded with slender columns and carved caps to each mullion, which form the starting-point for the semi-groined canopy, which finishes in a broad carved band. Over the canopy is a traceried balustrade, with crocketed finials to each bay. There are many beautifully artistic specimens of carving in various parts of the screen. For this addition to the artistic attractions of their church the congregation are indebted to Councillor G. H. Johnstone, he having caused it to be erected as a memorial to his late wife, who took a deep interest in all matters relating to the church. The oak screen has been made by Messrs. Jones & Willis, of Edmund Street, Birmingham. The work was executed from the designs of Mr. John P. Osborne, architect, Colmore Row, Birmingham.

COLSTON HALL, BRISTOL.

THE following account of the origin of the building which was destroyed on the 1st inst. is given in Latimer's "Annals of Bristol":—

Upon the removal of Colston's School from St. Augustine's Place, the vacated "great house" was purchased by a few public-spirited gentlemen for 3,000*l.*; and the Colston's Hall Company, with a capital of 12,000*l.* in 10*l.* shares, was formed in November, 1861, for the purpose of constructing an edifice worthy of the city. The demolition of the great house took place in May, 1863, and shortly afterwards the directors of the new company entered into a contract for the erection of the large hall for the sum of 17,000*l.* The hall was opened on September 20, 1897. The cost greatly exceeded the estimates, and so completely exhausted the resources of the company that the directors were unable to proceed with the other portions of the building. In 1869 a further sum of 15,000*l.* was raised through the zeal and liberality of some ten or twelve of the original promoters, and the structure, in the complete form designed by the architect, was completed in February, 1873, the aggregate outlay having been 40,000*l.*

The Colston Hall premises consisted of a large hall, which would accommodate 2,250 persons in the body and galleries, and 400 additional in the balconies and orchestra, or 6,000 standing. It was 146 feet long, 80 feet wide and 70 feet high, and there are two other halls, one with sitting accommodation for 700, the other on the ground floor for 400. The organ in the great hall was by Willis, of London; it had four manuals and sixty draw-stops, was blown by three hydraulic engines and cost over 3,000*l.*, and was constructed in 1870. Four medallions of citizen shareholders—Conrad Finzel, George Thomas, Henry Overton Wills and Robert Charleton—were placed in the spandrels over the arches of the great hall.

EMPLOYERS AND EMPLOYED.

(*Concluded from last week.*)

WHAT impressed the German socialists—Marx, Lassalle, Engels, Kautsky—was the demonstrably economic character of many political changes of the last 300 years. In the course of industrial changes the Mediæval landowners gave up their power to the capitalists, and the capitalists to the employers of labour. Therefore, said the German socialists, all is due to a change in the prevailing form of production. Where agriculture prevails we have a territorial aristocracy, a certain political system, and certain social institutions and laws; where commerce prevails we have another system; where manufacture, a third. This explains the rise of the middle classes into political power, but also the advance of the working classes as a power that will displace them and be (as we are told it ought to be) all in all. As in the economic theory of Marx and Engels all value is from labour, so on the great scale of politics all power is to be with the labouring

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class. Economic progress is thus the only real progress; the essence of all history is economics; the essence of all economics is labour. The steps of the progress (we hear with mingled feelings) will be for the whole world what they have been for England, the harbour of the exiles, and the steps will be taken without deliberate human contrivance. We may look forward to the changed order as better than the present, but we cannot either hasten or retard it; it will come of itself. We cannot by taking thought add a cubit, or even an inch to our stature.

The German socialists have not had the gracelessness to live up to this comfortable doctrine; they have agitated like other people, preparing the way for a change while declaring that it cannot possibly be hastened. Not agreeing with them in the least in their doctrine of helplessness, most of us will welcome and commend their inconsistent efforts to make the world better than it is, and they have fairly earned exemption from the title of mere theorists.

The Italian form of the materialistic view of history has been expounded with great ingenuity and learning by Professor Loria. It has excited interest chiefly in academic circles, but need not be disparaged on that account. His theory is that all progress is economic, and all economic change is due to the land and the growth of population thereon. He thinks that so long as there is free land or abundance of room as well as food men will themselves be free. No one will be economically weak if he has always the option of working as profitably for himself as for another. This is true, and we have had recent instances. Khama was afraid to sell his land lest he and his should become mere hewers of wood and drawers of water to the white men. The same notion seems to have prompted the recent resistance to the hut tax in Sierra Leone. Professor Marshall, in his address to this section in 1890 at Leeds, recalled to us the difficulty felt in the United States fifty years ago by employers who imported English workmen for their Eastern factories; the workmen moved west to become free settlers. But Professor Loria tells us besides how the land ceases to play this part. The growth of population leads to the disappearance of free land, and therewith of the independence that went with it. The growth of population even now leads to the pressure felt both in cities and in country districts. It affects the higher or protected or propertied classes; they need to fence themselves about with "connective institutions" that support their rights of property. It leads gradually to a less and less profitable production from the soil, and therefore to a less and less profitable investment of capital. These effects, in their turn, lead to a greater power of combined labourers against the employer. Professor Loria expects in the end the victory of the combined labourers, since, happily, the men of property are divided among themselves—agriculturists against manufacturers and traders, for example—and there is a division of the revenue. In the end there will prevail a form of co-operative labour. The labourer's option will be restored to him (though hardly, we may presume, in the form of free land), and dependence in the obnoxious sense of economic weakness over against economic strength will vanish. The Professor agrees with the Germans that we cannot work out this salvation, or even hasten it. We can only stand at a distance and behold the Promised Land.

That some such consummation is devoutly to be wished, and even perhaps hopefully to be expected, is probably the conviction of many who do not encumber their belief with a materialistic view of history. Instead of the material changes bringing the moral transformation, we may think that the moral and intellectual changes are a condition of the material reform. It seems to us to have been so with ourselves in past times. We never work better than when we believe that our future depends on ourselves, and we have not simply to wait for it. Marx and Loria allow that the automatic establishment of better conditions of life is slow and irregular. They say that the laws and governments of all civilised countries are obsolete, and yet persist in being. Surely, then, we might argue, there is there a strong force acting against the overpowering economic causes? Are we to wait till these old-fashioned fortifications fall down to the sound of our trumpets? Of all reformers the most irritating are those who tell us to do nothing lest we should make a mistake, but next should come those who tell us that even our mistakes can have no effect whatever. If it should appear that there is more in the way than obsolete laws, and that the laws persist because the manners and customs of the people are set fast in the same groove as the laws, then no inarticulate and spasmodic shouting should content us; we shall need the help of patient and intelligent teaching. Transformation of manners and customs can be accomplished slowly but surely by means of ideas, by the spoken word and example of life and instruction of manners. Such means have been found needful to give a people its first organisation, and will be needed, even in practical England, to organise them for the final reform, if it be the final.

We are probably too hasty, even the oldest of us, in talking of final reforms and final stages in development. We know

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little of development and nothing of finality. Our experience is that every stage in civilisation, or even in economic theory, is temporary as a superstructure though permanent as a foundation. Perhaps it is the most certain fact of the future that our best economic writings of to-day will then be dismissed as antiquated and their diction slighted as careless English of the nineteenth century. It needs no great gift of prophecy to foresee that a hundred years hence our industrial conditions will have been much altered. The resident domestic servant, much talked of in Bristol in 1875, will probably be no longer resident. Production will be more democratic; it will be almost entirely of articles used by the masses, and hardly at all of luxuries for the rich, high wages in this way becoming really high. Working men and employers will meet on more equal terms. Whereas even now we use the term "master" with timidity, it will by-and-by be as wrong scientifically as "the sun's rising," though both may remain current in the poetry of popular language. Our posterity may be living under a system of low interest, small profits, high wages and great companies. Possibly the great companies will pass into the co-operative societies of Professor Loria's vision. It is to be feared that the advent of these to supplant other forms of industry is not very near. Professor Pantaleoni considers that their present counterparts have nothing in principle and method to distinguish them from ordinary ways of money-making. Their triumph, however, would mean a very desirable shifting of the balance of industrial power. So far as can be seen, and we have cases in point very close at hand, a long discipline and much instruction, and many unsuccessful trials will be needed before working men will follow leaders of their own choosing as obediently on the whole as they now submit to the direction of their employers in their industrial work. But it is an acute remark of De Tocqueville, repeated by M. Tarde, that when the "lower" classes begin to imitate the "higher" the distance between them must have become short, and equality must be coming near. This imitation has actually begun to take place in business as well as elsewhere. Book-keeping and knowledge of the markets are no longer the secret of the middle classes, as knowledge of the law was once the secret of the upper. Working men have shown already, in some few instances, that they can carry on a manufacture as well as a trade; and if the tyranny of great companies became intolerable we might expect that an attempt would be made all along the line to replace them by some scheme or schemes of co-operation. If such schemes were established forcibly, which is not probable in this country, we might look for a tyranny of the majority followed by a reaction, for the rule of the best leaders has its abuses like that of the best masters, and human passions seem to be more permanent than any industrial system. If such schemes were established gradually and from beneath, they might last till a better system came into view. The voice of reason and public spirit will not be fainter then than now, and will prevail even against the ruling passions of the ruling class.

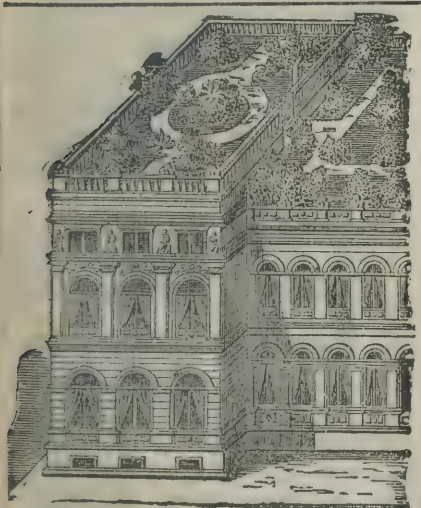
We cannot be definite in a forecast of the distant future. But it is surely not irrational to look for a larger diffusion of independence, in the sense of really mutual dependence, with a wider distribution of wealth. When dependence is mutual its sting is gone. In the future the really dependent men will probably be the incapable men or else the men that have high capacities that are not at the moment wanted, while they have no secondary or second-rate powers on which to fall back. These two classes will give the future two problems to solve in place of some that now trouble us, but are ready to vanish away. The solution may be the public support of both classes of dependants—of the first because they are too bad and of the second because they are too good, to work on exactly the same footing as their neighbours.

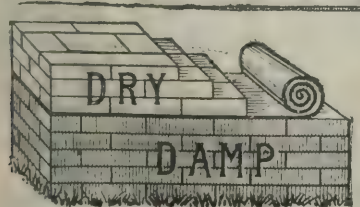
MUNICIPAL TRADING.

THE subject of the limits of municipal trading was considered in the Section of Economic Science and Statistics at the meeting of the British Association on Monday, the 12th inst.

The first paper was by Mr. George Pearson, who, speaking from his personal and official experience in the city of Bristol, set forth his views on "Municipalities as Traders." He was an advocate, from what is now called the progressive point of view. He urged, in particular, the desirability and even the necessity of the performance of several duties which were formerly considered appropriate only to private effort by municipalities. Municipal trading had in recent years grown to an enormous extent, as was shown by the great growth of municipal indebtedness, which to a great extent was now represented by trading concerns in the hands of municipalities. In his opinion municipal trading should be confined to the provision of those necessities of civilisation which were so large as to be beyond the power of individual effort adequately to

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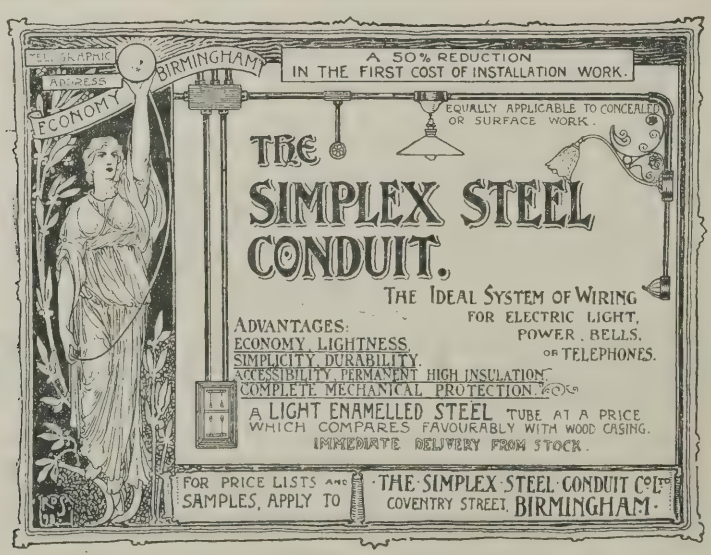
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supply, and did not form part of any Imperial Government department. He discussed the advantages and disadvantages of private, of company and of municipal trading, and pointed out that there were causes which might drive municipalities to trade to a far greater extent than they were now doing. There were, however, he admitted, disadvantages of such trading, inasmuch as it involved the employment of a large number of workmen, and the employers were popularly elected. The paper concluded with a discussion of the report of the telephone committee, particularly with respect to the widely entertained opinion that municipal bodies ought not to trade for profit.

Mr. Edwin Cannan read the next paper on the question, "Ought Municipal Enterprises to Yield a Profit in Aid of Rates?" Such municipal enterprises had, he said, been likened to joint-stock companies, the ratepayers being the shareholders. If the parallel were exact, there could scarcely be any question about the propriety of municipal enterprises yielding a profit, since to make a profit was the object of a joint-stock company. How far, then, did a municipality resemble a joint-stock company? In form the two bodies were very much alike, the management of both being committed to an elected council or directorate, and the ordinary members only interfering on rare occasions directly, though the citizens or burgesses exercised far more influence on the decisions of their representatives than the shareholders. But the basis of membership was very different. The business of both the company and the municipality was economic work for the benefit of their members, but the company performed services for outsiders and distributed profits in money dividends to its shareholders, while in performing its ordinary functions the municipality provided commodities or services for its members directly, and consequently had no opportunity of making profits to be divided among them in money dividends. As far as municipal enterprises were concerned, however, the position of the municipality resembled that of the company much more nearly. Municipal enterprise was distinguished from ordinary municipal work by the fact that the commodities or services which it provided were supposed not to accrue to the citizens approximately in proportion to the rateable value of the property with which they were connected, so that it was considered necessary to charge for them by methods and standards different from those which regulated the levying of rates. By hypothesis, then, the business was no longer a merely "mutual" one, in which each member received direct benefit in proportion to his share, but a business like that of an ordinary company. The municipality ought to be allowed to make a profit for the same reasons as a company was allowed—(*a*) in order that it might have some inducement to undertake the enterprise which it would not have if it must take all the risk of loss and no chance of gain, (*b*) in order to secure efficient management, and (*c*) in order that the economic proportion in the production of different commodities might not be disturbed. The arguments against profit-making in municipal enterprise seemed to be founded on an antiquated socialism or on a false analogy, either from co-operative institutions or from ordinary work. That there might be cases in which it was not economically desirable that the highest possible profit should be made was probable, but these cases were far less frequent than was supposed, and since when they occurred the damage must be much greater to the locality than to the country in general, and also be tolerably obvious, there seemed no need to restrict the freedom of the locality.

Mr. W. M. Acworth read a paper on "Rectification of Municipal Frontiers," in which he considered certain recent developments in the life of our great towns tending in the long run to an important readjustment of frontier between private and municipal enterprise. Gas and water supply had, he observed, long been regarded on the ground of their general necessity as natural subjects for municipal ownership. Oddly enough, however, it was reserved for a commercial company—the South Metropolitan—to make gas really available in the poorest house by the adoption of the penny-in-the-slot system. But with the rapid advance of rival methods of lighting—petroleum, electricity and now perhaps acetylene—coal-gas was much less a general necessary of life than it was. Simultaneously there had been a rapid advance in the use of coal-gas as a source of power. In America they were building gas-engines of 700 and even 1,000 horse-power. It could hardly be contended that municipal management, with its inevitable rigidity and slowness of method, was better fitted than private enterprise to supply gas-power in competition with power derived from other sources. The supply of water few would deny in the abstract to be a natural subject for public ownership. For all that, the question of delimitation of frontier, not between private and municipal ownership, but between the rights of different local authorities, arose in this matter also. For example, the position of the water committee of the Birmingham Corporation was, from one point of view, hardly constitutional. It was responsible wholly to the ratepayers of Birmingham, while to the residents 100 miles away in the sequestered Elam Valley it appeared in the capacity of universal landlord and sole



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employer of labour, not to mention sole public-house keeper. But it was not by water that the boundaries of municipal enterprise were likely to be undermined. A House of Commons committee had just reported that competition in telephone service was desirable, and that where the Post Office did not compete with the National Telephone Company licenses might reasonably be granted to the local authority. So, as the corporations of Edinburgh and Glasgow had already applied for telephone licenses, municipal telephones would soon probably be tried on a considerable scale. It was questionable, however, whether it was not being begun too late. Though 95 per cent. of telephone messages were said to be local, this proportion was not likely to last much longer. In America long-distance telephony had already developed to a point where it had seriously affected the receipts on the through express trains between New York and Boston, and even between New York and Chicago. Electric lighting had from the outset been a mixed service, in the hands here of a company, and there of a municipal corporation, subject to this—that the corporation had always been given the refusal before the company was admitted. But in practice the competition had been of companies *inter se*. Last session, however, saw a change. Two local authorities sought, and one of them obtained, statutory power to compete within their district with companies already in possession of the field. But, seeing that the companies possessed greater elasticity and adaptability of management, and were not hampered by municipal—which were very often non-natural—boundaries, in some cases the competition would probably be effective. But this was not all. When the Electric Lighting Act of 1888 was passed, electricity was almost exclusively regarded as a source of light. This was no longer so. A joint committee of the two Houses of Parliament investigated last session the new problem of electric energy in general, and a single company, the General Power Distributing Company, proposed to produce electricity on an enormous scale at the pit's mouth at Warsop, in Nottinghamshire, and thence to distribute it by trunk cables over 2,000 square miles of country, along the roads of 120 different local authorities, including the great corporations of Sheffield and Nottingham, and then to sell it in any quantity, for any purpose, and to all classes of consumers. This particular scheme had not yet been sanctioned by Parliament. Not unnaturally the local authorities, especially when, like Sheffield, they owned electric-light works, were up in arms against it. But on the general question the opinion of the joint committee—a very strong one—was dead against them. Evidently there was here a big question opened, which would not be settled in its detailed application to the different parts of the country for many years to come. The accepted tramway policy of the country was also rapidly being dissolved by electrolytic action. In the whole of Great Britain, with its forty million inhabitants, we had about as many miles of tramway as the two cities of Philadelphia and St. Louis. Nor was this all. Eighty to 90 per cent. of this insignificant mileage was still worked by horses. The rest of the civilised world had long ago adopted electric traction, by which in the United States alone over 15,000 miles of line were now being worked. In London in particular the adoption of overhead electric traction has been absolutely blocked by the action of the County Council, in one case at least contrary to the unanimous representation of the local vestry. A House of Commons committee this session gave a decision in the case of the London United Tramways which practically amounted to notice to the London County Council that they must make up their minds to exercise their veto power less absolutely or it would be withdrawn from them. But this was only one side of the matter. With the advent of electric traction, tramways had been extended in other countries, and were even now beginning to be extended in England, far beyond the borders of individual towns. Had Bath and Bristol, for instance, been situated, not in England, but in Massachusetts, they would long ago have been connected by a tramway service, with cars starting every few minutes, running from town-hall to town-hall in three-quarters of an hour or less, at a through fare of certainly not more than 15 c. Now such a service to be efficient must be worked in one hand. Could it be imagined that this hand could well be a joint committee of the counties of Gloucester and Somerset and the corporations of Bath and Bristol? The present tendency for corporations to work their own tramways was likely, therefore, to be counteracted, if not actually overborne, ere long by a tendency to adopt the course which a special commission of the Commonwealth of Massachusetts—a state in which the capitalist had never been allowed to have his own way unrestrainedly—had just, after a careful study of European experience, recommended, namely, that whoever be the owner of the tramway, its working should at all events be entrusted to commercial undertakers. In conclusion, he submitted that the ever-increasing specialisation of science, coupled with the ever-increasing interdependence of independently organised local government districts, all tended towards a readjustment of the

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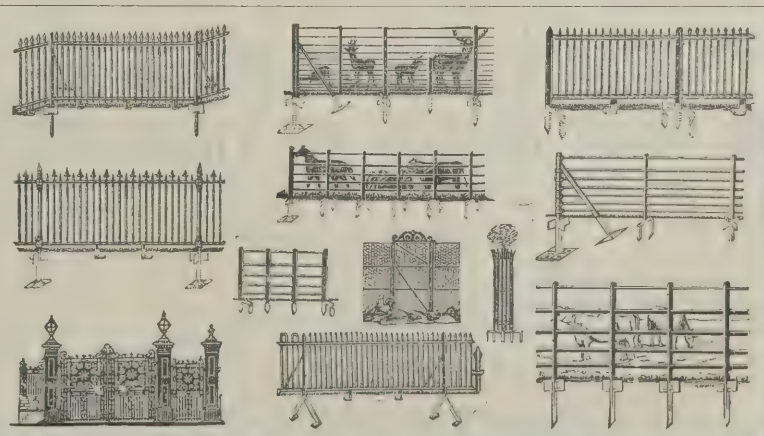
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boundaries of direct municipal activity, and that this readjustment was likely to be, on the whole, in the direction of extending rather than restricting the public functions allotted within the municipal area to commercial enterprise.

Mr. Macdonald said that where the municipal enterprise was mainly for the advantage of individuals a profit might reasonably be made, but where the element to be almost exclusively regarded was the common use of everybody no such profit should be made. In the former class might be placed tramways, and in the latter the roads and streets. Municipal telephones he held to be a mistake. They should all be in Government hands.

Mr. George Iles, of Montreal, said that in Canada the municipality shared in the profits of the tramway companies, and special advantages were given in Montreal to school children and other regular users of the lines. The work was better done by the companies than it could be by the municipalities. In Bristol, he believed, the gross daily receipts of the Bristol tramways were about 250*l.*; those of Montreal, which had a population of about five-sixths of Bristol, were some 4,000 dols.

Mr. Scott, of Toronto, said they had adopted the principle of private enterprise subject to comprehensive municipal control. The telephones were made like the tramways, to contribute to the rates, though disputes had arisen, and the municipalities declined to undertake any burden in respect of them. On the whole, municipal management had been found less satisfactory than that of commercial companies. In New York and elsewhere the underground trolly was found the most effective, and was displacing the cable, and it was felt that the overground system was doomed.

Mr. F. Thompson said at Croydon they had water and electric lighting in the hands of the municipality, and expected to make a profit by the latter.

Mr. Hooper thought the profits of municipal enterprises should be limited to moderate dimensions.

Mr. Charles Thomas, deputy-chairman of the Midland Railway, was afraid that the labourers of municipalities might create discontent and jealousy in the labourers of private employers.

Mr. R. C. Miller pointed out that most of these enterprises involved interference with the streets, which were vested in the public authorities, and that was some reason for their acquisition by corporations. The case of water was different, as its insufficient use by individuals was a source of positive danger to the community. The difference of municipal indebtedness—92 millions and 235 millions between 1872 and the present time—needed careful examination, as it might, if large portions of capital had been repaid, really indicate an increase of municipal wealth.

Mr. Pearson, in reply, said that there was more to be feared from a combination of masters than from combination among men, and that was a reason which made him in favour of the extension of the municipal sphere.

Mr. Cannan deprecated the enunciation of any abstract dogma or principle on these complicated matters.

Mr. Acworth also briefly replied.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C. from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

18466. Benjamin Naylor, for "Naylor's patent chimney-top and ventilator."

18483. Jacob Steiger, for "An improvement in the manufacture of cement."

18654. Jacob Steiger, for "An improvement in the manufacture of hydraulic cement."

18689. Samuel Grossiord, for "Improvements in the manufacture of artificial stones."

18719. Arthur Read Pollard, for "An improved means for securing roofing slates and tiles."

18785. Amos Vickery, for "Improvements in the construction of girders for building and other purposes."

18874. George Frederick Redfern, for "Improvements in ventilators and ventilator braces." (Richard M. Pancoast, United States).

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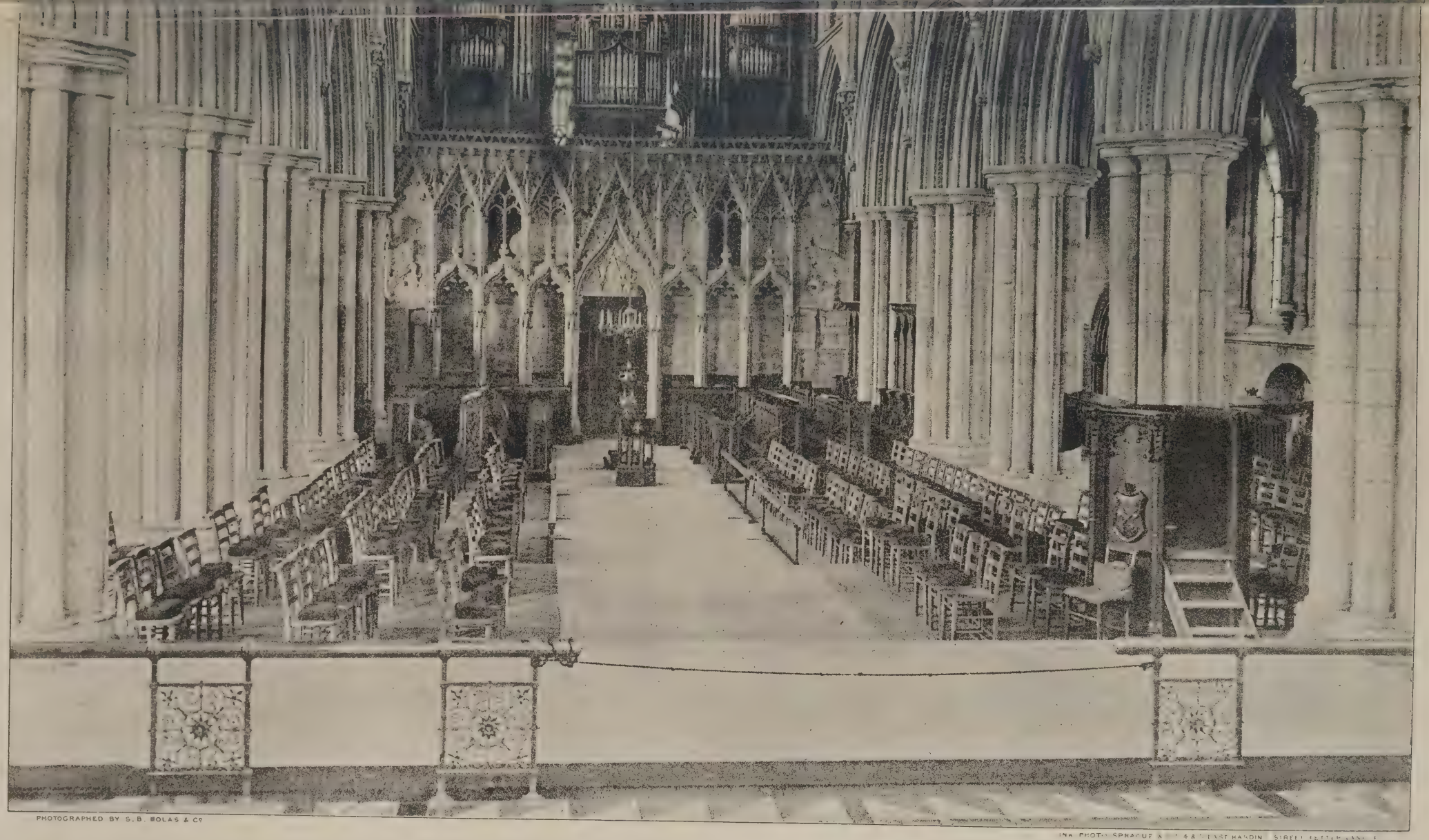
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The Architect.

THE WEEK.

A NEW agreement has been concluded between the municipality of Rome and the Anglo-Roman Illumination Company for the supply of gas and electric light. The price of gas has been reduced for the municipality to 18 c. per cubic metre, as against former rate, 25 c.; for private consumers 21 c. per cubic metre, as against former rate, 29 c.; and it will be further reduced in 1903, 1908 and 1913. Gas for heating purposes, motive power, &c., will be paid for both by the municipality and private consumers:—From July 1, 1898, 16 c. per cubic metre, as against 22 c. former rate; from July 1, 1908, 15 c. per cubic metre; from July 1, 1918, 14 c. per cubic metre. The price of electric light will be for arc-lights for municipality, 30 c. per hour, 14-ampère light, as against 40 c. hitherto, to be reduced after five years to 29 c. per hour, and after ten years to 28 c. per hour. For incandescent light, both for the municipality and private consumers, 7 c. per hectowatt per hour, as against 11 c. hitherto; 6½ c. per hectowatt per hour from July 1908, 6 c. per hectowatt per hour from July 1918. The company has bound itself to establish within eighteen months a fresh connection with the Tivoli Electric Works, by means of which an additional supply of electric energy of 1,500 horse-power may be secured to Rome. Arrangements to further utilise the hydraulic power available at Tivoli are also made so as to be able to dispose of electric energy amounting to 10,000 horse-power, whereby they can meet all requirements for illumination, tramways or industrial purposes. Who could have anticipated that the waters of the Anio, which were once sacred to Neptune and the Sybils, and which so many Roman and other poets have eulogised, should be at last utilised as a motive-power to drive engines?

A FEW years ago the medal for archæology of the Société Centrale des Architectes was awarded to Father LA CROIX, a Jesuit. He devotes himself to investigations in France and appears to have almost an instinct for discovering the foundations of buildings of which no trace is visible to ordinary eyes. Latterly his attention has been given to the western districts of France. He has almost terminated an exploration of the abbey of Saint-Maur-de-Glanfeuil (Maine-et-Loire). The abbey is supposed to have been one of the earliest in France which belonged to the Benedictines. It has been said that the Rule of the Order is in itself a monument, the foundation itself being discipline and the coping stone labour. The members rendered great services to art, for, according to M. ALBERT LENOIR, "St. BENEDICT soon added to his rule a decree providing for the teaching and study of architecture, painting, mosaic, sculpture and all branches of art; and it became one of the most important duties of abbots, priors and deans to make designs for the communities and auxiliary buildings of the churches they ruled." One of their principal schools of art was the abbey of Saint-Gall. The abbey of Saint-Maur-de-Glanfeuil apparently did not attain so much importance, but there are many reasons which make it desirable to have a plan of the buildings. It is often referred to in monastic chronicles, and the question to be settled is whether what is said was in any way imaginative. According to Père LA CROIX the descriptions are confirmed by his excavations. He intends to publish a monograph on the abbey, which will be accompanied with plans.

THE Opéra-Comique in Paris will be an expensive building. It is now approaching completion, and in addition to the sum expended a definite estimate can be given about the work which has to be executed. The sum named officially as the total cost is 4,420,000 francs, or nearly 180,000*l.* When in 1893 the rebuilding was definitely decreed by the Chambers the outlay was fixed at 3,500,000 francs. It was afterwards discovered that the sum was insufficient, and supplementary votes were passed warranting an expenditure of 920,000 francs. It remains to be discovered whether it will not be requisite for the Legislature to display additional liberality. It must be allowed that the whole of the 4,420,000 francs will not have to be paid by the French people. The amount of the insurances received was 1,074,000 francs, which sum suggests the value of the former building. The Opéra-Comique in Paris has had experience of many habitations. Originally the Théâtre de la Foire, the privileged booth was set up on the site of the existing market of Saint-Germain. Then it was transferred to the Faubourg Saint-Martin. Early in the last century the direction was obtained by Madame FAVART and her husband, and a new era commenced. They attained so much success that the patentees of the other theatres conspired to have the Opéra-Comique suppressed. In 1762 the Comédie-Italienne amalgamated with it, and the performances were held in the Hôtel de Bourgogne. A building for the performances was erected in 1783 on the site where the new Opéra-Comique stands. Next there was a removal to the Salle Feydeau, then to the Salle Ventadour, then to a building which occupied the site of the present Vaudeville. In 1840 the building was opened as the Opéra-Comique, which was destroyed a few years ago, and which was known as the Salle Favart. Amidst all the removals the style of performance has become dearer to Frenchmen.

IT will not excite much surprise to learn that the block called Abbey Mansions, Westminster, was on Wednesday condemned by a committee of the London County Council. An attempt was made to construct a new roof in place of that which collapsed with such fatal results. But as it was discovered that the foundations were unstable orders were given immediately by the authorities for the diversion of the vehicular traffic along Victoria Street. It was apprehended that vibration would bring down the walls. Application was also made to the magistrate for a peremptory summons against the owners. Hitherto, owing to the building having been leased by the Office of Works, exemption from the usual rule relating to buildings vested in or in the occupation of Government has prevented the block from being subjected to the usual procedure relating to dangerous structures. But the public safety overrides such a privilege. The loss will be probably 95,000*l.*, but if people will go to the Royal College of Art for architects they must abide by the consequences.

THE old song of AUTOLYCUS, "Jog on, jog on, the footpath way, and merrily hent the stile-a," expresses a national feeling. English people when on foot prefer footpaths to high roads although stiles have to be crossed. The paths suggest that common folk have still some claim on land which belongs to others, and that property brings duties as well as rights. In Ireland, where landlords claim to be of a higher species than the majority of the people, footpaths are rare, and that fact suggests one of the differences in feeling between the inhabitants and those of England. In several parts of England the Parish Councils Act was used to improve footpaths and stiles. There is no doubt the inexpensive work helped to remove some of the objections to the new order of things. An auditor in the north of England has disallowed the expenses when they came before him on the ground that the repairs of stiles and gates should fall on whoever repairs the fence, as they are part of it, and not of the footpath. What would AUTOLYCUS have said to such an interpretation? The Local Government Board were invoked to interfere, and fortunately the President (Mr. CHAPLIN) is acquainted with the conditions of country affairs. The auditor's decision is to be reversed. The Board are of opinion, speaking generally, that, "where an existing stile or gate on a public footpath in a rural parish having a parish council is in so defective a state as to make it necessary for the public convenience in the use of the path that such stile or gate should be repaired or removed, the parish council can, under subsection 2 of section 13 of the Local Government Act, 1894, effect such repair or removal and substitute, without the consent of the owner of the soil, a stile or gate giving equal facilities to the public using the path, and that a parish council may substitute gates for existing stiles if they obtain the consent of the owner of the soil to the consequent enlargement of the rights of the public." If paths and stiles belong to the public, as was the general belief, it is only fair the public should repair them.

ARCHITECTURAL COMPOSITION.

THE new number of the American *Architectural Record* opens with an article by Mr. John Beverley Robinson on "Principles of Architectural Composition." It is not put forth as expressing anything like a complete theory of composition, for the author's aim was "only to put together in a coherent form some practical generalisations, to aid the student by formulating in words what he must otherwise acquire by a slow process of unguided observation." Whether completely or partially treated, there is no subject which has more interest to the student of architecture. It is also one which is rarely attempted, and in that way it resembles another subject which has many analogies with architecture, viz. literary composition. An unsuccessful novelist may occasionally propose to set up as a teacher and to advertise "Novel-writing taught in ten lessons," but the certainty of failure usually puts an end to the experiment. The ordinary guides to authorship are not calculated to enable purchasers to write a successful prize essay. Architects appear to act in a similar spirit and will write on a variety of subjects, but that one which should be most familiar to them is avoided. We must, therefore, admire Mr. Robinson's courage in taking up the office of teacher, which daunts so many of his fellow architects.

The first question to be considered, in dealing with most subjects, is that of limitation. The wildest imagination must submit itself to restraint or it becomes lunacy. Icarus dare not soar too high unless he wishes his wings to melt and destruction to follow. The architect has to curb his invention, and cannot allow it the liberty which is desirable for creation. As Mr. Robinson says:—"Nowadays an architectural form rarely seeks expression, except as including some useful purpose. Formerly, when architecture was chiefly employed in building houses for the gods, utility counted for less; next to the satisfaction of the eye, the sentiment of reverence chiefly needed to be gratified. But now we must build houses and town-halls and office buildings and put forty windows where we would rather have but four, and make our design out of such mundane needs. Sentiment, too, must be taken into account—if not religious, perhaps domestic, as that of public pride or private ostentation. A hundred utilities and a score of sentiments arise for us to satisfy. Next to this comes the constructive sense, which even in the unprofessional mind shrinks from a post that seems too slim, and, in the professional mind, objects to an arch with too slight abutments. Then again, there is a sentiment with regard to material, which prefers stone to brick, bronze to iron, marble to plaster." Plan is so closely connected with utility as to be identified with it, and the relation between plan and design is of course of paramount importance in the art. Mr. Robinson explains the connection by saying "design should spring from the plan, but it must spring from it, and not remain nothing but plan."

Assuming that pleasure is the end of art, he says that unity and grace must be manifest in every example, one being the manifest connection of all the parts in the whole, the pleasing form of the parts so connected. Concerning unity, he says:—

> The quality of unity is essential to all objects of art and to all parts of each, and it constitutes the greater part of architectural design. In architectural composition there are two principal processes, in which considerations of unity are paramount—the assemblage of parts that are side by side into a whole, which we may call grouping, and the separation of the building as a whole when it is a single mass, or of each of the component parts when it is a group of masses, into parts disposed one above another, which we may call subdivision—limiting the word arbitrarily to horizontal subdivision and keeping the word "grouping" to describe vertical separation, even when it seems to be rather the division of a whole into parts than the assemblage of parts into a whole. After the arrangement of the main masses of the design comes a similar process with each part of which it is composed, whether vertically or horizontally; and the grouping of details—windows, columns, turrets and the like—for each part upon the same general principles that applied to the whole.

Mr. Robinson, by the aid of a few diagrams, suggests how a single mass or group of two masses becomes transformed by horizontal subdivisions or storeys which are again divided into a series, and tells us "we are to consider, first, the number of principal parts that may compose a group and their sizes in relation to each other; next, the number of subordinate parts which should be grouped, as details, upon the main mass or masses; then subdivision horizontally must be investigated in the same way as to both the number and size of parts.

Arthur Helps, in writing about literary composition, referred to the almost superstitious reverence which writers appeared to have for the number three. That respect has come down to us from the earliest rhetoricians. In order to persuade we are to please, to convince, to move or excite; a discourse is to consist of exordium, confirmation, peroration; there are three styles, simple, temperate, sublime; three varieties of discourses, demonstrative, deliberative, and judicial; and so on. Mr. Gladstone's "three courses" was only a parliamentary application of an ancient rule of thumb, as the three-volume novel was in another sense, and it would be hard to say where triune power is not exhibited in some form. Architecture is not an exception, for the Greeks were supposed to be unable to get beyond three orders, while the Mediævalists had to be satisfied with three periods. It will accordingly excite no surprise when Mr. Robinson declares that "in all designs of form, whether it be the design of a finger ring or of a cathedral, there are but three groupings that give satisfaction to the eye by a sense of unity." His three rules are "One thing looks well. Two things look well together. Three things look well together"; and he adds, "These three rules are the foundation of the art of grouping; all the rest is but to learn ways of doing what these require, when other considerations interfere; of reconciling them with situation and use and other modifications and adaptations." Among the single masses he includes the Colosseum, Parthenon, Baptistery of Pisa, and Cheops's Pyramid, the Panthéon, towers of Notre Dame, the Falcon Coffee House, Chester, the west gateway of Lincoln's Inn; coupled columns, doubled windows are among the dualities; and his groups of three comprise the Karnak Temple, Ferrara Cathedral, the Escurial, &c. It may be objected that there are buildings with more than three domes and groups of more than three windows, arches, gables, &c. Mr. Robinson replies:—

> It is strictly true. Just as soon as we pass three, we begin to lose the sense of a definite number, bound together into a group, and to feel only the vague sense of an indefinite number of things placed upon another object. Four dormers or four windows, or as many more as we please, we may have, but as soon as we pass three, we begin to lose sight of the dormers as objects themselves, and to think of the building as a whole decorated by a row of an indefinite number of dormers. And so used, multiplicity of subordinate parts is of value in giving continuity to a larger object, and is used in certain situations. But for plain masses that stand up asserting themselves as independent objects, four is a combination that cannot be made to look well. It is almost impossible to find an actual instance of four grouped masses that affords a fair illustration. In most cases either the body of the building so much predominates that the four towers, or whatever they may be, fall into subordination as mere sub-masses, or a simultaneous view of all four is impossible, one or more being cut off by perspective.

In English church towers the monotony of the four pinnacles was sometimes avoided by making one of larger size. The view of the Church of the Nativity of the Virgin in Moscow proves that a group of five spires, although slightly differing in form from being similar in size, becomes barbaric. Therefore, concludes Mr. Robinson, "in shaping our first thoughts of what our plan is to be, we must remember that the outside, whatever be its character, must consist of not more than three leading parts. If we are going to have high roofs and gables we may have a single gable, or we may have two unequal gables, or two equal. Or if we find that three will suit our purpose better we must make the flanking gables either equal or unequal, and the middle larger than either." But it is well to remember that with three parts perfection is not always secured. Lichfield Cathedral becomes less effective from the close resemblance between the three towers and spires. Lisieux Cathedral, on the other hand, is not satisfactory because the two towers differ so much in the appearance of the belfry windows. In St. Paul's Cathedral there is no correspondence between the dome and the western

towers, yet the impression is not unsatisfactory. The reason is, according to Mr. Robinson, that "the dome appeals to the eye as the single feature of the building in any comprehensive view; the towers are so much less that they fall in with the mass of the building as a base for the dome. The bigger the one thing, the more and more various things may cluster around it unnoticed, except as part of the mass upon which the big thing rests. Only when we come closer and begin to lose sight of the dominant mass from very nearness, the smaller must begin to group themselves by ones, twos and threes, clearly and coherently, as do the westerly towers of St. Paul's as we approach." Accordingly, three additional rules are laid down by Mr. Robinson, viz. :—"In double grouping, whether of equal or unequal objects, the members must be alike. In triple grouping either the members must be alike or the central must be much the largest. A group of any number of members may be harmoniously constructed by making one object very much the largest and letting the others fall into subordinate groups, but always by twos and threes, as if they were single."

One of the bequests we have received from Gothic architects is a desire for variety, and it is exemplified in a great many modern English buildings. If it were not for the necessity to be economical and to facilitate the use of machine-made goods, there would probably be more indifference to unity exhibited. It is well to have it explained that repetition is not necessarily a great evil, although where allowed to become monotonous it cannot afford any pleasure The skill of the designer is seen in steering between the too little and the too much. A writer is allowed to select the evidence which he considers most cogent for the purpose he has in view, and Mr. Robinson has availed himself of the privilege. But the student will find it advantageous to apply the rules to examples of a different kind. He may then discover that while they are often applicable there are cases where they were disregarded without fatal consequences to the buildings.

TESTS OF VENTILATION.

In spite of what is often said by philanthropists who are more liberal with blame than with money, there is no country where the poor receive such care as in England. In the days of Oliver Twist there may have been indifference which led to cruelty, but in our time, happily, the children who dwell in workhouses receive kindlier treatment than is obtainable in many private schools. The interest which is now taken in them is suggested by the "Report to the Local Government Board on the Ventilation and Warming in certain of the Metropolitan Poor Law Schools," by Mr. William Napier Shaw, M.A., F.R.S., lecturer in experimental physics in the University of Cambridge. It shows that a prominent man of science can be sent to examine every room in which children are placed during day or night, the workshops, infirmaries, dining-halls, chapels, in order to ascertain whether there is any place where the provision for heating and ventilation does not correspond with the latest conclusions of science. A survey of that kind can be done by an expert in such a way that the results will fill no more than a couple of printed pages. But Mr. Shaw believes in the necessity of giving exact details in order to enable others to test his conclusions. Accordingly he has recorded the length, breadth and height of each room, the number and aspect of the windows, the inlets and outlets for ventilation apart from windows and fireplaces, the mode of warming, the head (if any) for ventilation other than that of wind or of chimney-flues, and in the majority of cases he appends notes and remarks of various lengths. As the number of occupants is supplied, little more than a glance at the elaborate tables is needed in order to ascertain whether a particular room, hall or workshop is in a sanitary sense adapted to its requirements.

Although the Metropolitan Poor Law schools are, as it were, put under the microscope and subjected to a scrutiny which could not be anticipated, it must be allowed, in the first place, that there is no evidence of neglect on the part of the Guardians. The provisions for ventilation and warming may not be adequate, but there is no doubt enough money was expended to secure efficiency. The Local Government Board will, we suppose, offer some recommendations which will be based on Mr. Shaw's tables, but it cannot be said with justice that the Guardians were neglectful or caused illness by their penuriousness. They are, however, responsible for the conduct of their officers, and on their account the Guardians must expect to be reproved.

The truth is, that means for ventilation and warming are rarely appreciated by those who have charge of buildings. It is well known that inlets and outlets too—for caretakers are not always able to discriminate between them—are shrouded by old rugs or stuffed with rags in order to make them innocuous, for it is believed they not only allow entrance to dust and increase the labour of cleaning, but are an unfailing cause of colds and rheumatism. No one who has to examine buildings of more pretensions than workhouses will be surprised at the instances recorded by Mr. Shaw of what is a conspiracy against appliances for ventilation. His observations abound in such cases as follow :—"Many of the air-gratings at ground floor are being overgrown with ivy." "Birds'-nests in some of the grids." "Floor ventilators obstructed by paint and full of fluff." "Perforated zinc skirting very much obstructed by paint." "No indications of flow at opening of extraction shafts." "Perforated skirting has in all probability become very foul in the course of time, and certainly was so at the point tested; from the point of view of the spread of disease, it is a source of danger unless it be cleaned and recleaned periodically." "The strips of perforated zinc leading to floor joists seem to be of no possible use." "Outer end of shaft occupied by birds'-nests." "Tubes and valves are probably much choked with growth of ivy outside and accumulations of dust." "Many ventilators are blocked with dust." "Ventilation grating boarded up." "Extraction shafts much filled with birds'-nests." "Extract flue very full of dust."

A great many large buildings in London which are occupied as offices or residential flats would be found, if as carefully examined, to be in a similar condition to the Metropolitan Poor Law schools. As a consequence, complaints are made about the uselessness of appliances for ventilation. The inactivity is not the fault of the appliances, but of the caretakers, who, as we have said, have a prejudice against whatever is supposed to increase the cost of cleaning. It is never likely to be otherwise. On that account it would be an advantage if arrangements were made with the firms who supply ventilators to keep them in a state of efficiency on the payment of a fixed charge. In no other way are the birds'-nests, ivy, fluff, dust and other impediments to the free passage of air likely to be removed. We too often forget that a ventilator is a machine, and only by carefulness can it be kept in a condition of activity.

In another column we have extracted those parts of Mr. Napier Shaw's report which form an exposition of his views on ventilation. It will be observed that he sets a high value on the "head" which is to force the air in and out of the room which has to be ventilated. We are so apt to associate air and motion it is not always easy to realise that air, like solids, can be subjected to inertia. A railway carriage, for instance, when in motion usually vibrates, and the action should have some effect on the air within it; but let the windows be closed for a few hours, and it will be found, especially in hot weather, that the air in a compartment is stifling. There are ways for the air to escape slowly from the carriage, and no doubt there is corresponding circulation, but it is not sufficiently expeditious to allow us to inhale what remains without inconvenience. In some churches oppression is also often endured by the congregation not only during services but on entering, although appliances for ventilation may be prominent objects on the roofs, and the cause is the insufficient head. The ventilators may be, like those mentioned above, stuffed with leaves or dirt and cannot act, or they may be of insufficient power. But to employ a head that would overcome such obstacles would be to create a new evil. It is one which was long familiar in the House of Commons, for as soon as the least complaint was expressed about oppression of the atmosphere, currents were let loose which made the members apprehensive of losing their papers. How to attain the mean between opposing forces in ventilating is no easy

matter, and calls for skill and experience on the part of specialists.

Mr. SHAW had hardly commenced his investigation before he discovered the need for an instrument that would indicate the quality of the air which fills a room. Many architects have also desired for a similar aid. An approximation towards the quantity of air which passes in a limited period can be obtained and the temperature can be tested readily. But more important to know is the degree of impurity. It is evident Mr. SHAW has made some progress towards devising an apparatus which could be used as a guide and would dispense with elaborate chemical tests, but it is not yet available for general use. We hope he will not allow the subject to drop, for the value of his investigations would be enhanced if they were followed by the production of a simple apparatus which could be used without the aid of an expert.

SOUTHWELL CATHEDRAL.

LAST week we published the appeal which John Carter made to posterity for the preservation of the screen in Southwell Minster, of which a view appeared in last week's *Architect*. He could not have anticipated that about seventy years afterwards the screen was to become the subject of a great battle between church dignitaries, restorers and others. The Bishop of Lincoln (Dr. Wordsworth) was anxious to see the building approach in its arrangements the other cathedrals. The choir, which was adapted for the use of a body of canons, would not serve for a great many clergy who might assemble on special occasions. But to increase the area of the choir it would be necessary to remove the screen. Bishop Wordsworth could not agree to that operation. He said :—"I am decidedly of opinion that it ought not to be removed, at least, till it is clearly proved that its retention is inconsistent with the convenient use of the church for purposes of Christian worship and instruction." As there was much difference of opinion on the subject Mr. Street was requested to consider the subject. As a result the following interesting report was produced, and it secured the safety of the screen and its retention in its original position :—

14 Cavendish Place : June 1, 1876.

My dear Lord Bishop,—I am ashamed to say that I have delayed giving you the advice you desire at my hands as to whether you may safely give your approval to Mr. Christian's scheme for the restoration of the choir of Southwell Minster, from day to day and week to week, because the more I thought of the case the greater seemed to me to be the difficulties in the way of doing anything, which would not only be conservative of all the architectural interest and beauty of the building, but at the same time thoroughly useful for the religious worship and teaching of the congregations for whose use and edification the building is to be restored and rearranged.

As I find that I cannot endorse Mr. Christian's scheme for the rearrangement of the interior as it stands on his plan, I must go at some length into my reasons for dissenting from it.

As in so many of our great churches, whatever difficulty occurs here arises from the use to which we wish to put the church not being at first sight precisely the same as that for which it was gradually adapted by its builders. And it is very necessary to see whether we cannot so far harmonise the old and new uses as to get over almost all apparent difficulties.

In its original foundation Southwell Minster was just such a church in its ground-plan as one would like to devise at the present day for such a place. Its choir, east of the central tower, being only about 55 feet in length, afforded no more than just the due space for the ministers of the church and the decent celebration of their functions, whilst even if it were prolonged westward across the transept (which it may perhaps have been) its length would only have been about 80 feet, and a choir placed at the intersection of the four arms of the cross would have been seen and heard better than anywhere else in the church by a large congregation.

These short choirs, so usual in the cathedral and conventual churches of the eleventh and twelfth centuries, were soon extended. The accommodation in the choir, which was so exactly what we can use well at the present day, was found in those days to be quite insufficient for the increasing numbers of the ecclesiastics connected with the church; and so in the thirteenth century an entire reconstruction on a very much enlarged scale of the whole eastern limb of the cross was undertaken.

At Southwell this enlargement was conceived in a most noble and artistic spirit, and the architectural result is beyond measure beautiful, few thirteenth-century choirs being more truly excellent in every way. Nor was it very extravagant in the space it gave to the choir. What this was will be seen by the diagrams appended to this letter, from which your lordship will see that the position of the altar could not have been removed more than about 12 or 15 feet nearer to the east than it was in the first position. The eastern bays of the north and south choir aisles were undoubtedly built for chapels with altars They were therefore not allowed to be passage-ways, as proposed by Mr. Christian, and were no doubt screened off at the ends and sides from the rest of the church. In the same way the three eastern bays of the central portion of late years thrown into the choir, and proposed to be again so used by Mr. Christian's plan, formed the lady chapel; and between these three eastern chapels and the choir one bay was left entirely free, so as to form a procession path round the choir, and to give access to the three eastern chapels already mentioned and to the two beautiful chapels opening as eastern transepts into the choir aisles. I hold as an archæologist that there can be little, if indeed any, doubt as to the general character of these arrangements. The only question not clear is as to the nature of the screens which at that time enclosed the choir on all sides, and divided the aisles from it and from the chapels. Probably, however, they were not very close, and did not shut off the choir completely from the nave, or it may be presumed that the close stone screen and loft erected at the entrance to the choir in the fourteenth century would not so soon have been substituted for them.

In the thirteenth century no less, therefore, than in the twelfth, the choir of Southwell Minster would have presented no difficulty whatever to our Anglican use. We should have been able to use the choir for the clergy, the nave and transepts for the laity, and the noble eastern chapel for those services, such as early communion offices, early matins, instructions for candidates for confirmation, or for young communicants, &c., in which a small congregation only is gathered before an altar, and where none of the adjuncts of a choral service are required.

The difficulties which now exist in the arrangement of the interior are entirely caused by the small addition to the church just mentioned, which was made in the fourteenth century, and which for all practical purposes has completely divided the church up to the present time into two distinct portions, of which one hitherto has been used only as a sort of narthex, and the other as a place of worship. This was the close stone screen and large rood-loft over it, with its row of highly ornamental stone canopies over the return stalls on its eastern side. This screen is about 15 feet in depth from east to west, is groined in three divisions, and has two staircases leading to the loft. This, which was originally intended for a rood-loft, is now found to be large enough to contain a considerable organ, which effectually completes the blockade between the nave and choir. The consequence of the retention of this screen has been naturally, as in so many other cases, a complete alteration of all the arrangements of the ground-plan to the east of it. And I hold that on architectural grounds the beauty of even the most exquisite screen would be dearly purchased by the consequent necessity of such alterations. In any real restoration of an ancient choir I always maintain that the first thing to be done at all costs is to restore the altar to the place which the original builders of the choir intended it to occupy. Any other arrangement out of deference to the builder of a screen added a hundred years later than the erection of the choir is no work of restoration in any true sense of the word, but appears to be rather a blind and unintelligent deference to alterations to which we have become accustomed.

The true course is first of all to restore the thirteenth-century arrangements of the fabric, then next to see whether a due and good use cannot be made of the building when so restored ; and lastly, if this due use is hindered or prevented by the subsequent erection of a piece of furniture (which is what the fourteenth-century screen is), then the only true course is to have the courage to remove the obstruction, preserving it carefully, on account of its architectural interest, but not allowing it to hamper or hinder the whole usefulness of the building.

The population of Southwell is not very great, and consequently I think it may be possible here to effect a compromise which in such cathedrals as those of Exeter and Ripon appears to be impossible. In the case of these two cathedrals the retention of the old rood-screens appears to involve either the enlargement eastward of the old choir, or, what is even more objectionable, the filling of the choir aisles with benches. It cannot be too strongly impressed on everyone that in such churches the choir aisles were distinctly passage-ways, and nothing else. To convert them to any other use is wholly to ignore their builders' intentions, and, in my judgment, wholly to ruin their effect. Keeping the principles which I have stated in view, let me now point out to your lordship what results they involve at Southwell, and how these results can be utilised satisfactorily, without prejudice to the performance of Divine service. Beginning from the east end, there will be the old lady chapel, a central chapel of three bays, and about 45 feet in length. This should be screened off from the rest of the church, and, fitted up properly, would be most useful for early Sunday or weekday celebrations of Holy Communion. Similar use is made of similar chapels at Hereford, Salisbury and other

cathedrals. The practical convenience would be very great in many ways. West of this chapel would be one bay of the choir, which would form the connecting passage between the north and south choir aisles to the east in the choir.

The choir would consist of four bays east of the tower and rood-screen, and would be somewhat less than 60 feet in length. It should be fitted just as it originally was, as far as this can be ascertained. The stall canopies at the west end are very exquisitely designed and wrought in stone, and have been copied with singular skill and accuracy by Bernasconi in the plaster stalls and canopies which he erected on either side of the choir. When he erected these canopies he no doubt removed the old wooden screens and stalls; and I was delighted to find lying in a heap of lumber in the roof of the chapter-house a number of fragments of these screens, of extreme value and interest, and enough in quantity to give the key to the character of the whole of the wooden fittings of the choir. I advise, therefore, that Bernasconi's stalls and canopies should be entirely removed, and that two rows of stalls should be fixed in the two western bays of the choir, leaving the two eastern bays free for the altar and its steps.

In the choir so arranged there would be room, it is true, for only a very moderate congregation; but there would be ample room for the sort of congregation which assembles commonly on week-days, when the stalls are more or less occupied by laity, and when a few additional seats can be provided, if necessary, by the use of chairs below the stalls.

The difficulty now arises as to how we are to provide for the larger congregations which on Sundays, and occasionally on other days, will gather in such a church.

Assuming that the rood-screen is to remain, it will be important to see whether this cannot be lightened in some degree. At present it appears to be a solid wall of division between the nave and the choir. But when I visited Southwell I had the floor of the loft taken up, in order that I might see if the old stairs remained, and there I found not only the two usual staircases but also openings in the wall at the back of the stalls, which, if they were repeated on the other (west) wall of the screen, would have a valuable effect in making the screen more transparent, and the service in choir more audible than it now is in the church. But at the best such openings would make but a slight improvement, and it would not, I fear, make it possible at any time to use the nave and choir together without some modification of ordinary usages.

The use of nave and choir together appears to me, however, as I have little doubt it will to your lordship, to be the one object which in any real restoration of such a church ought to be kept in view, and I think it may be accomplished by the application of a little common sense in the use we make of the existing features.

I have already explained that the rood-screen was introduced as an addition to the then existing fittings of the church in the fourteenth century. When it was built the people still used the nave, and it is pretty certain that its builders had no idea of making that use less easy. The probability is all the other way. The loft is a spacious erection, approached by two staircases, and with ample area on the top for a choir of singing men. When it was built the choir stalls had each their own occupant, much more regularly using his seat than we now imagine, and there was probably no provision of any sort for choir boys or for laity within the gates of the screen. I have no doubt that it was found to be desirable to give the people more rather than less opportunity of hearing the service, and that this loft, which now seems to be such a hindrance, was erected for this very purpose. It was, in short, the orchestra or singing gallery of the church, and I believe that it might again be restored to the same use with the best possible result. When it was built the organ was not the institution it now is. A small "pair of organs" may have been placed on the loft, and might again be restored to their position, so as to give the choir all that they can require for assistance in their musical services, whilst the great organ can easily be provided for elsewhere, either out of sight, as at Canterbury, or at the end of one of the transepts or of the nave, so as to be useful on great occasions for accompanying the unisonous singing of the nave congregations, and for other purposes, when great organ performances are required. With all the choir services sung from this central gallery or loft, the lessons read from an eagle under the central tower, and the sermons preached from a pulpit placed against one of the piers of the central tower, we should have the great satisfaction of seeing the whole church thoroughly usable in every part, in exact accordance with the intentions of the old builders, without alteration or removal of a single old feature, and with, I am certain, the happiest results from a religious as well as from an æsthetical point of view, and without any of those too fashionable alterations of the old uses and arrangements of the choir aisles and chapels which have been effected of late years in the cathedrals of Bristol, Ripon and Exeter, and which Mr. Christian's plan suggests for your approval at Southwell.

If, however, your lordship is not convinced by my statement, and is disposed to think that the restoration of the use of the rood-loft in the way suggested is not a scheme to which you could give your sanction, I must proceed to point out that there are two other courses open which would not involve an entire mutilation of the old choir arrangements (the retention of which ought to be a *sine qua non* in any work of restoration), though I much doubt whether you would like to be responsible for recommending either of them in preference to the course already suggested.

The first would be the absolute removal of the fourteenth-century rood-screen and loft from its present position. This screen not being in the way, there would of course be no difficulty whatever in using the whole church properly, and for myself I have the courage to say that *were I not distinctly of opinion that the screen may be utilised in the way I have suggested*, I should not object to being responsible for its removal and its re-erection in another part of the church (*e.g.* across the transept), keeping it as an architectural curiosity, and not allowing it to be a hindrance to Divine service. The violence done in this way to one feature in the church would to my mind be moderate indeed compared to that which is done to every portion of the choir arrangements when—as in the recently restored cathedrals already referred to—in order to save a disused rood-screen, the altar is moved back from its old place, the procession path round the choir is done away with, the stalls in the choir are added to, seats and chairs are introduced for the congregation between the stalls and the altar, and lastly, and perhaps worst of all, the aisles are opened to the choir and seated for the congregation; whilst as a consequence of all these changes a nave restored or built at vast expense is incapable of doing any, or at any rate proper, service, simply because wrong service is demanded of the choir and its aisles. Such an illustration of straining at a gnat and swallowing a camel never was exhibited as is by those who in their desire to be conservative about a rood-screen are so radically destructive about every other ritual arrangement in an old church. But at Southwell I think the necessity for this sort of display of courageous common sense and respect for real archæology does not exist, and I do not therefore recommend the removal of the old screen, though it is the second in order of the alternatives open. A third alternative would be to restore the choir exactly on its old lines, to keep the organ where it is, and to have the Sunday services held as they are now in the nave. But this implies the provision of an altar in the nave, with seats for the choir, and this would not only be very unsatisfactory in its effect upon the building, but might in many ways be liable to objection, and I mention it with no desire to recommend it. It seems to me to be the worst course of the three, but better than that which is shown on the plan proposed by Mr. Christian, according to which the choir is to be opened from end to end, the altar moved to where the lady chapel altar originally stood, the stalls increased in number, and the congregation seated (I suppose facing north and south) in the space between the stalls and the altar, and in the eastern transepts and choir aisles, or, to quote the words of Mr. Christian's report:—"As regards the new seating, I do not think it would be desirable to put fixed seats *beyond the line of the transeptal chapels*, but would advise that the whole of the remaining portion be fitted with chairs. By this means within the limits named as regards the choir, and by *making use of the whole of the aisles and eastern transepts*, good accommodation would be afforded for a congregation of about 700, which in ordinary times would be amply sufficient, and on extraordinary occasions the nave and transepts would be available." *

I regret that I am obliged to trouble your lordship at so much length with the reasons for the suggestions which I have had to make. It is necessary to do so, however, because the practical result is that I should ask you to put my suggestions into Mr. Christian's hands, with a request that he would see whether he could not bring himself to agree with me. I am sanguine enough to think, from his tone when we went over the church together, that he would do so. I know well that his most anxious desire is to leave this grand church, when he has refitted it, an example of a building restored in the best and most truly conservative way, both inside and out; and I feel sure that he will see that my proposals are wholly made with the object of assisting him in doing this. The other portions of Mr. Christian's proposals are generally, I think, such as your lordship may safely agree to. The restoration of the external roofs to their original pitch is a work as to the advantage of which there cannot be two opinions, and the restoration of the spires covered with lead on the western towers is much to be desired. As to the central tower, I agree with Mr. Christian in thinking it desirable not to alter the roof.

The restoration of the roof of the chapter-house is a most desirable work. This beautiful building would have its charms

* The italics are not Mr. Christian's. It will be observed that no explanation is given as to how the nave and transepts are to be made use of on extraordinary occasions.

much enhanced, and the room gained above the vault might well be fitted as a museum for the various curiosities discovered from time to time, and for the safe keeping of which some apartment is much required in such a church. As to the proposal to remove Bernasconi's tabernacle work I am agreed with Mr. Christian; but as when he made his report I think he was not aware of the existence of the fragments of old oak screens and stalls, he would probably modify his proposal to erect iron grilles. If my suggestions are adopted the aisles will not be wanted for congregational purposes, for which they were not built, and very open side screens will not be required. I agree entirely in Mr. Christian's proposals as to the arrangements for the vestries and library; but I venture to suggest the advantage of securing the old hall of the bishop's palace, and restoring it as a choir practising room or school—a room much wanted in connection with such a church.

In regard to the chapter-house, I would suggest, in addition to the work proposed by Mr. Christian, that the beautiful passage leading to it should be properly restored or repaired.

In the warming as now managed I think great improvements might be made. At present a chimney from each stove defaces and destroys the stonework in its neighbourhood. I should like to see the whole church heated from an apparatus and furnace placed entirely away from the Minster in part of the old palace to the south of the south transept. The fuel might then, as suggested by Mr. Christian, no longer deface any part of the church, and the damage by smoke would also be avoided. The annual cost of the fuel for and repairs of a number of Gurney's stoves is very considerable, and their unsightliness is equally great. If the altar is placed in its old position, as suggested by me, funds would no doubt be forthcoming from independent sources for making it, as well as the reredos, pulpit, and other fittings, worthy of the building in which they are to be placed.

The plans appended to this letter are (1) a plan showing the position of the altar in the twelfth-century church, and (2) a plan showing the arrangement of altars, screens and choir after the choir had been rebuilt in the thirteenth century. The subsequent alterations were the erection of very magnificent sedilia in the south wall of the lady chapel, and the erection of the rood-screen and loft at the west end of the choir. There is, I believe, no evidence whatever that the choir altar had been moved from the place shown on plan No. 2 before the Reformation.

I trust that I have said enough to show that if the case is not uattended with difficulties, there is, nevertheless, every possibility of making this noble church thoroughly useful at the present day without removal of any old features, and without departing in any degree from the old lines.—Believe me to be, my dear Lord Bishop, yours very sincerely,

(Signed) GEORGE EDMUND STREET.

KILDARE ARCHÆOLOGICAL SOCIETY.

THE annual excursion meeting of the Kildare Archæological Society took place on the 13th inst. to the Kilcullen district. Knockaulin Hill was first visited.

Lord Walter Fitzgerald described the hill as being 600 feet in height. In the Irish annals it was named Ailinn, meaning "rock," and its ancient name was Dun-Aulin, or the "fort of Aulin." In the Annals of the Four Masters there were several references to the place and to the numerous battles fought there from time to time. The earliest of the battles is placed at 1031 before the Christian era, and the second B.C. 111. The ramparts surrounding the whole are an Irish mile in circumference, and at the present time the bottom trench is wide enough for a coach-and-four to be driven round it. This "ring," as it is called, includes a space of about twenty Irish acres. It is excavated all the way round in the form of a fosse or ditch. The magnitude of the work may be imagined when, as was stated, the only tools those who dug it out had were mere wooden or stone hatchets. In 1798 it was used as an encampment by the rebels, and on the top is a smaller kind of rath, which, as one of the natives explained, had been excavated and used as a kitchen by the rebels. On the northern side of the hill is an ancient well called St. John's Well, to which, in ancient times, was attributed remarkable curative power. The son of the present tenant of the place, who uses the hill for grazing, told him that he himself had often seen garments and crutches which had been laid aside overhanging from the branches, they having been left there by people who had been up to the well and performed its circuit two or three times for the cure of rheumatism. Unfortunately the well, from neglect, has been almost obliterated, and it is now little more than a dung-heap. Another feature of interest on the hill is a huge boulder which lies on the trench. It is inscribed to Finn M'Coul, who is said to have thrown it from the Hill of Allan, nine miles away. The hill had stood just as it is to-day for 2,000 years. The absence of other antiquarian remains might cause disappointment, but it must be remembered that mortar was not used for building purposes till the introduction of Christianity.

The party proceeded to Old Kilcullen churchyard, a quarter of a mile away. This is remarkable chiefly for its round tower and sculptured cross shaft.

Sir Arthur Vicars, Ulster King-of-Arms, read a description from the Society's magazine, in which it was maintained that the original use of the ancient round towers was as places of refuge for the clergy, and as a place of safety for church property in the disturbed times. They were originally erected in the ninth century, that being the period when the Danes first commenced their depredations. These towers were closely related to the Italian round towers, which had been erected for precisely the same purpose two centuries before.

Lord William Fitzgerald explained that Kilcullen literally meant "The Church of the Holly," the holly tree being the chief tree grown on the hills in the vicinity at the time St. Patrick founded the church there. The records extended from the year 469 A.D. to 1781, in which year the Rev. Mervyn Archdall wrote that Old Kilcullen was a large town with seven gates (only one of which now remains, 10 feet high, with a handsome Roman arch). From the description of the church given by the Rev. M. Archdall, it appeared that it then contained a monument of Sir Rowland Eustace; but experts ascribed this to Sir Oliver, who was summoned to Parliament in 1374. The graveyard had been the scene of historic battles. In 1642 the Marquis of Ormonde, with 3,000 foot and 600 horse, marched from Naas to Kilcullen, and on May 24, 1798, the place was the scene of a fierce encounter between General Dundas's forces and the United Irishmen, the latter of whom succeeded in triumphing over the soldiers, and killed twenty-two of their number, including two officers. Although the Rev. M. Archdall had in his day spoken of the tower as being in a ruinous condition, and not likely to exist much longer, it was taken in hand some few years ago by the Board of Works, and made a national monument. Another object in the graveyard was a very fine sculptured Celtic cross, which had been looked after by the Board of Works.

After luncheon the party proceeded to New Abbey churchyard, which contains a fifteenth-century altar tomb of Sir Rowland Eustace, Lord Portchester. This was also described by Lord Walter Fitzgerald. According, he said, to the Annals of the Four Masters, the monastery that formerly existed there was the foundation of the Eustace family. No trace of this building, which used to be called New Abbey, now existed. The steeple fell in 1764. Sir Rowland, the son of the founder of the abbey, died in 1496. The memorial which they now considered was of Sir Rowland and his wife, and took the form of an altar tomb, which, though not intact, was still in existence.

The last visit of the day was paid to Castlemartin, 1½ miles distant. Sir Arthur Vicars said:—Castlemartin, as the name would imply, was at one time possessed by the Martin family, it having been in the year 1200 the baronial residence of Richard Fitzmartyn, Lord of Castlemartyn. The lands subsequently passed to the Eustace family, who had a castle there, of which, however, like the former one, nothing remained. In MacFirbis's "Annals of Ireland" there was a passing allusion to Castlemartin. The Eustace family fortified their estates in 1641. The castle of Castlemartin surrendered upon conditions, on March 3, to the Marquis of Ormonde and Lord Lisle. In the same year the Commissioners of Forfeited Estates first met at the place, but adjourned to Jigginstown, near Naas, where was concluded a cessation of hostilities between the Parliament and the Irish Roman Catholics. It was afterwards, in June 1647, taken and burned by the Parliamentarians under Colonel Michael Jones. At about the beginning of the last century Castlemartin came into the possession of the family of Mr. Harrison, a Dublin banker, who built the house, from which it passed by purchase about the middle of last century to Captain Henry Boyle Carter, Clerk of the Crown. From the Carter family it passed into the possession of the present owners. In the Rebellion of 1798, when the house was in the occupation of the Carters, it was converted into a barrack for the king's troops. With reference to the ruins of the curious little chapel at the back of the house; which formed the chief object of interest for them, the chapel was founded about the year 1200 by Richard Fitzmartyn, Lord of Castlemartyn, and was dependent on the church of Kilcullen. It was granted in 1212 to the Priory of Christ Church, Dublin, along with 7 acres of land. It was primarily built as a mortuary chapel for the Fitzmartyn family. The peculiar feature of the chapel was the steeple, composed of merely two parallel walls. Passing from the chapel through a doorway, and ascending some six or seven steps, you reached a narrow passage between the tower walls scarcely 3 feet wide, from which was a door opening into the chapel, and raised from the floor about 8 feet. Ascending four more steps was another doorway looking into the courtyard. The theory was that these two portals were in the nature of pulpits. From one the priest preached to the congregation within, and from the other to the congregation without. This

arrangement, they were told, constituted an unique instance of the kind in Ireland. In the adjoining burial-ground were portions of several monuments, including part of an altar monument representing in niches the heads of mutilated figures wearing the pointed Irish cap or bonnet, and also the effigy of a headless knight in armour, holding in his right hand a sword erect, and in the left hand a pair of scales with a figure on each scale. Lord Walter Fitzgerald suggested that this represented St. Michael the Archangel weighing souls, but from the absence of all ecclesiastical emblems on the monuments he was inclined to think that it had a warlike rather than a religious significance.

FOUNTAINS ABBEY.

SEVERAL members of the Yorkshire Archæological Society visited Fountains Abbey last week. On arriving at the ruins they found Mr. W. H. St. John Hope, who has carried out researches at the abbey from time to time, and added much to the general knowledge on the subject.

Fountains Abbey, as is well known, originated in a small body of Benedictine monks from St. Mary's Abbey, York, who desired to obey the rule of St. Benedict more strictly than it was practised there. Being compelled to leave their own abbey through the opposition of their brethren, they were received by Archbishop Thurstan, who bestowed upon them, in 1132, the site of the Abbey of Fountains. The first buildings were mere huts, but the advent of the Dean of York and of two of the canons, who joined the little community, enabled permanent structures in stone to be begun, probably in 1135. The buildings were laid out on the normal Cistercian plan, and it is not unlikely that they were begun under the direction of Geoffrey, a monk of Clairvaux, who came over to Fountains to teach the brethren the Cistercian rules. Mr. St. John Hope pointed out that the Cistercian order differed from other orders of monks in the division of its communities into monks, who were residents, for the choir services, and the gentlemen who were called in the statutes the "conversi," the working brothers, who were not bound to attend all the services, and who were responsible for the outdoor work on the farms, &c. In all the Cistercian abbeys, especially those founded in the twelfth century, the whole of the buildings were broken up into two great sections, one for the accommodation of each of those sets of men. This fact explained a good deal in the arrangement of the buildings which otherwise was not understandable. Another interesting fact about the church was that it was quite evident from existing remains that the whole of those early arrangements, or divisions, were entirely swept away at the beginning of the sixteenth century. It all belonged to a rather remarkable story that had still to be properly unravelled, and which pointed to the original division of the monastery that had been departed from. As a matter of fact, Mr. Hope said he had not been able to find any trace of the existence of those "conversi" after the date of the Black Death in 1349 in this country, though they still continued to exist abroad.

Luncheon was given in the lengthy building hitherto known as the cloisters, but which Mr. Hope designates the Fratri of the Conversi. Lord Ripon occupied the chair. Subsequently Colonel Brooke (president of the Society) proposed the health of Lord Ripon, and said that as an assembly of those interested in the preservation of ancient monuments, they were doubly indebted to his lordship for the reverential care which he bestowed upon the buildings. They would see marks of that care year by year. He believed Lord Ripon felt the responsibility that had been placed upon him, and every one of them would agree in saying that his lordship had risen to that responsibility, and had done all he could to preserve that which had descended to him.

Lord Ripon said they were right in thinking that he felt, as he thought any man must feel to whom the lot had fallen, a very great responsibility in respect to those buildings. To be entrusted with the care of such a monument as Fountains imposed a national duty, a duty which they owed to all who were interested in the history and antiquities of the country. He had endeavoured for many years to discharge that duty to the best of his ability, and it was always a great pleasure to him when there were gathered round him at Fountains those who were interested in buildings of that description. He had now been the happy possessor of Fountains Abbey for a long series of years, and when he was coming down there that morning he ventured to feel a little sceptical as to whether his friend Mr. Hope would be able to tell him anything he did not know about the abbey. But he found when he was listening to him that he was entirely wrong; Mr. Hope had told them many things, some of which were not known to him, some of which threw a very interesting and a very brilliant light upon points which had been difficult for him to understand in regard to the purpose of the structure. And yet he hoped that during the afternoon they might still receive further instruction from him in those matters. There was one result of the decennial visits of the Society to the abbey which for a time, though only for a time, troubled him. After each visit he carefully studied the plans laid before them and listened to the addresses that were given, and learned the names of the different parts of the building. Ten years elapsed; he had told all his friends that all those parts of the buildings were called "so and so." But every ten years they got a new name, and he was obliged to learn his lesson all over again. For an old man like him that was a very serious business, but he was always intensely desirous of following the lead of the Yorkshire Archæological Society. His lordship concluded by proposing "The Yorkshire Archæological Society."

Colonel Brooke responded, and said he had from time to time visited all kinds of monuments of the kind that existed in the county—they had strictly confined themselves to Yorkshire—and he ventured to say that he wished they could see the same care bestowed upon all the remains of the past that they saw at Fountains.

The tour of the abbey was then continued. Mr. Hope, addressing the party at the south-east side of the abbey on the monks' infirmary, referred to the remarks of Lord Ripon. He said that during the last ten years he had visited many monasteries and read a good deal, but he had not seen any reason to alter the description of the buildings at Fountains which he expounded to the Society ten years ago; on the contrary, everything had tended to confirm the views he then came to. Attention was called to the admirable work by which portions of the building had been erected over the river Skell by means of piers and arches. In the case of the infirmary the whole establishment had been built upon a raised platform carried by four parallel tunnels, through which the river runs. The works of Abbot John of York (1206-11), Abbot John of Kent (1220-47), Abbot John Darnton, (1479-94) and Marmaduke Huby (1494-1526) were dealt with, Mr. Hope's remarks being listened to with the closest attention throughout. It was five o'clock before the whole survey of the extensive ruins was completed. Cordial votes of thanks were passed to Mr. Hope for his lucid and instructive address.

THE BASILICA.

WHAT was the ancient heathen structure, the basilica, whose title has acquired a celebrity so far beyond its original intention? It is, as Chevalier Bunsen strikingly observes, the especial offspring and symbol of western civilisation—Greek in its origin, Roman in its progress, Christian in its ultimate development; the word is co-extensive with the range of the European family. In the earliest form under which we can catch any trace of it, it stands in the dim antiquity of the Homeric age, at the point where the first beginnings of Grecian civilisation melt away into the more primitive forms of Oriental society. It is the gateway of the royal palace in which the ancient kings, Agamemnon at Mycenæ, David at Jerusalem Pharaoh at Thebes or Memphis, sat to hear and to judge the complaints of their people, and of which the last trace was preserved at Athens in the King's Portico under the Pnyx, where the Archon king performed the last judicial functions of the last shadow of the old Athenian royalty. But it was amongst the Romans that it first assumed that precise form and meaning which have given it so lasting an importance. Judging from the great prominence of the basilicas as public buildings and from the more extended application of them in the imperial times to purposes of general business, the nearest parallel to them in modern cities would doubtless be found in the town hall or exchange. What, in fact, the rock-hewn semicircle of the Pnyx was at Athens—what the open platform of the Forum had been in the earlier days of Rome itself—that in the later times of the Commonweath was the basilica, the general place of popular resort and official transactions; but in accordance with the increased refinement of a more civilised age, protected from the midday sun and the occasional storm by walls and roof. Still, the original idea of a hall of justice which came with the name from Greece was never lost at Rome, and it was characteristic of the Eternal City that the predominant image which was impressed on its public buildings was not commercial, or religious, or even political, but judicial. A long hall divided by two rows of columns into a central avenue, with two side aisles, in one of which the male, in the other the female appellants to justice waited their turn; whilst the middle aisle was occupied by the chance crowd that assembled to hear the proceedings or for purposes of merchandise; a transverse avenue which crossed the others in the centre, and if used at all was occupied by the advocates and others engaged in the public business; the whole building closed by a long semicircular recess (the form, it is said, most convenient for hearing), in the centre of which sat the prætor or supreme judge, seen high above the heads of all on the elevated tribunal, which was deemed the indispensable symbol of the Roman judgment-seat.

NOTES AND COMMENTS.

ONE of the results of the spread of education is the emigration of the humbler classes of people from country places to London and provincial cities, which, if not supposed to be paved with gold, at least offer chances of a more comfortable life. The least acquaintance with the elements of sanitation is enough to make the young discontented with the cottages which satisfied their ancestors. More healthful dwellings with brick walls are not obtainable in most country districts unless at a cost which will not remunerate the investor. Professor ROGER SMITH proposes the erection of wooden cottages. "We are all," he says, "familiar with wooden railway stations, and now that the most serious drawback to the employment of wood as a building material—namely, its liability to burn—can be got over, it would surely be worth while to try whether the employment for the walls of a wooden framework such as the so-called iron buildings start with, covered outside with good weather-boarding and lathed and plastered inside, would not so far reduce the cost as to make cottage-building a less as hopeless investment than it now is. Such a wall is probably as warm as and drier than a one-brick wall, and with care the building would be fairly durable—*e.g.* the railway station buildings at Reading, which were pulled down this summer after standing ever since the Great Western Railway was begun, proved to be still in good condition." There can be no question that wooden cottages would be an immense improvement on many of those which are now to be found in villages. If they could not be erected by local carpenters at a cheap rate, Canadian, Norwegian and Swedish manufacturers would not object to supply them. But the by-laws of the Local Government Board do not authorise wooden habitations, and a trustee who would erect them would be likely to discover that he must become responsible for his benevolence. The Board deserves praise for endeavouring to raise the character of building, but there are places where such wooden dwellings as many an English gentleman must be satisfied with in the colonies could be erected with advantage.

ALTHOUGH surveying, registration and determining of boundaries are supposed to be perfect in England, it is satisfactory to learn that it is possible to find one spot at least which is as independent of control and taxing as any island in the Antarctic region. The Rev. W. L. HARRISON, vicar of Great Wollaston, has drawn the attention of the Local Government Board to the fact that there is in his parish a piece of land on which are two cottages not included in any poor law union and pay no rates. An inmate of one of the cottages wanted to go into the workhouse, but the question arose, What workhouse? The adjacent unions are Atcham and Forden, the former in England and the latter in Wales, and, according to the ordnance map, the land and cottages are on the English side of the boundary line. Mr. HARRISON has submitted to the Local Government Board that every piece of land must be in some union, and therefore that there must be some workhouse to which an inmate can be sent. According to the map the land is in the parish of Middletown, and according to another in Wollaston. Some years ago the cottages were rated in the latter parish, but in an action to recover the rates the overseers were nonsuited on the ground that the property is not in Wollaston parish. If there is one case of enviable freedom from taxation there may be several, but the people interested observe a prudent silence, and who can blame them?

BY 3 & 4 WILLIAM IV., c. 30, churches, district churches, chapels, meeting-houses or premises duly certified for the performance of religious worship are exempted from rates and cesses; but, with the exception of places of worship belonging to the Established Church, all others in the Metropolis are as liable to the payment of the expenses of paving new streets as ordinary houses. A few years ago the London County Council proposed to the Local Government Board that a similar exemption should be admitted in respect to charges for paving as is allowed for rates and cesses. There was a promise given by the Board to consider the subject whenever an opportunity occurred. The local government and taxation committee of the County Council have since asked the vestries and district boards of the Metropolis for their views on the subject. From the replies received it appears that they are practically unanimous in desiring that in this matter there should be uniformity of treatment. The committee, after carefully considering the subject, have arrived at the conclusion that there is no valid reason why Nonconformist places of worship should be liable for charges in respect of the paving of new streets from which the Established Church is exempt, especially as the position of London in this matter is unique as compared with the rest of the country. The lines upon which amendment is now sought are that buildings to be exempt should be required to be exclusively appropriated to public worship, as in the case of exemptions from rates for the relief of the poor, and that the deficit on account of the exemption of such buildings should be chargeable against the general rate of the parish or district concerned and not upon the owner of other property in the same street. Correspondence has again taken place with the Local Government Board in order to obtain the required amendment of the Metropolitan Management Acts.

CROYLAND ABBEY is one of those buildings whose survival is a wonder. In 1091 a large part was destroyed by fire. In 1114 it was shaken by an earthquake. In 1255 part was blown down in a storm. Forty years ago the abbey was supposed to be collapsing. The risks are not at an end, for on Wednesday in last week the rector says, "The whole north wall of the eastern chapel moved half an inch to the north, and must be speedily taken down and rebuilt from the foundations, as in the case of the two bays next the tower." The site would not be considered as well chosen by a modern architect, for it is peat and has gained any stability it may have by the aid of oak piling, which was put down in the tenth century. But the risks were accepted by the founders of the abbey on account of the interest which belonged to the place. Since the Rev. Mr. LE BŒUF became rector much has been done to secure the abbey. Among his latest works are the rebuilding of the two bays next the tower, one entirely so; the north wall of the north aisle or present parish church was underpinned on the outside face; a cross wall between two chapels rebuilt, and the east window in the tower repaired and cemented. The disaster of last week will need an outlay of 1,100*l.* Nor can it be said the expenditure of that sum will secure the old abbey for ever. The rector says the foundations are perfectly rotten, and how the building has held together for so many centuries is truly a mystery; one relieving arch was embedded only about one inch, having a projection of six inches. The question at present is to obtain 1,100*l.*, and the rector prays that the lovers of ancient monuments will help him by a generous response to his appeal for aid.

"A POCKET Dictionary of Hygiene," by Mr. C. T. KINGZETT, F.I.C., and D. HOMFRAY, B.Sc., is the latest addition to the collection of portable advisers. It is not everybody who can immediately recall what is the A B C Process, or the Government rules about ashpits, mortuaries, &c., or recite the various Acts relating to sanitation. In the new dictionary all such information can be found, with much else relating to hygiene, and in a form that is not larger than an ordinary ladies' card-case. We may expect before long that a technical library can be carried in the pocket without being obtrusive or spoiling the appearance of a coat.

ILLUSTRATIONS.

CATHEDRAL SERIES.—SOUTHWELL: CHOIR.

DRAWING-ROOM, THURSTONVILLE, BECKENHAM.

LAST week we published an exterior view of the front of this house in Stone Park, and this week we give views in the drawing-room, which is at the back of the house.

The builders were Messrs. SYME & DUNCAN, of Beckenham, who executed all the joinery and chimneypieces, and also erected the adjoining house, from the designs of the same architect.

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VENTILATION AND WARMING.*

Introductory.

IT may be premised that in order to ventilate a room there must be provided (1) openings by which air may enter, (2) openings by which air may pass out, (3) a "head" or motive power which shall cause the air to enter the inlet openings and pass out of the outlet openings. The adequacy of the supply of air for the purposes of ventilation depends upon the provision and the due proportions of these three requisites. Each one of the three must be duly provided or the ventilation must necessarily fail. These I will therefore call the primary requisites of ventilation. For the adequate supply of air it is not indeed necessary that openings intended to be inlets should always be used for that purpose alone, a sufficient number of openings, any of which may function as inlets or outlets according to the circumstances of the moment, will satisfy the primary conditions of ventilation, provided there is "head" or motive power enough to drive a sufficient quantity of air through the openings.

There are other conditions which should not be overlooked if the ventilation aims at being called successful, viz. (4) the quality of the air supplied as regards freshness, cleanliness and temperature; (5) the distribution of the air in its passage through the room, having regard to its mixing with the vitiated air without causing draughts. These I will call the secondary conditions of ventilation.

In applying the terms primary and secondary to these requisites or conditions, I do not wish to express an opinion as to their relative importance or value in any particular case. If any one of the three primary conditions be not complied with, *i.e.* if there be no inlets or no outlets or no head, ventilation does not exist; if all three primary conditions be fully satisfied and either of the two secondary conditions be not complied with, there will indeed be ventilation adequate in quantity, but of such a kind that it might in some cases be regarded as producing a worse state of things than no ventilation at all.

I may be allowed, for the sake of making the matter clear, to interpolate one or two remarks upon the correlation of the head with the openings through which the air passes. The head or motive power for any opening may always be regarded as equivalent to a difference of air-pressure between the two sides of the opening, and may accordingly be expressed in terms of the height of a corresponding column of air or its equivalent in difference of water-level, or as a number of pounds-weight per square foot of area; these three modes of expression are easily convertible. The agencies available to provide this head may be briefly summarised as (1) wind impinging upon the opening; (2) wind blowing across the mouth of the opening; (3) hot-air or gases in a chimney or flue in communication with the opening; (4) mechanically-driven fans or blowing machines placed in the opening itself or in some duct or flue communicating with it. In my article on ventilation in Stevenson and Murphy's "Treatise on Hygiene," vol. i., I have explained that if the head or motive-power for any opening be represented as h feet of air (approximately equivalent to a pressure difference of $\cdot 015 \times h$ inches of water), and if the number of cubic feet of air passing through the opening per second in consequence of this head be V, then the ratio h/V^2 is approximately constant, that is, it depends only upon the size and character of the opening; it is numerically equal to $1/27a^2$ where a depends upon the dimensions and shape of the opening, and if the opening be a perforation in a thin plate it represents simply the area of the opening in square feet. If the opening be not a perforation in a thin plate, a can be computed by a more or less elaborate calculation from the particulars and measurements of the inlet or outlet as the case may be.

In the same article I have given a table from which the numerical value of the head derivable from the various agencies mentioned above can be computed.

If it were intended to provide for any room a system of ventilation which should be under complete control, and which should be independent of the casual opening of doors and windows, it would be desirable to provide each opening intended for the purposes of ventilation with its appropriate motive power. This would imply the provision of means for driving air through the inlets, which should be separately adjustable, and, in that sense, independent of the means provided for driving the air through the outlets. The arrangements could then be adjusted so that there should be no difference of pressure maintained between the interior of the room and the outside air, or any other room adjacent. I know of no case in which such an arrangement has been carried out in practice. The plans practically adopted are either to drive air, or, in the case of ventilation by wind, to allow air to be driven through inlets, and let it find its way through the outlets, or to drive air through outlets (as in the case of ventilation by a chimney) and let it find its way through the inlets. In both these cases a "secondary" head is produced represented by a difference of pressure between the interior and exterior of the room: in the first case the pressure in the interior exceeds that outside the room; in the second the reverse is the case.

* From the report by Professor W. Napier Shaw, M.A., F.R.S., on the ventilation and warming in certain of the Metropolitan Poor Law schools.

SECTION I.—GENERAL ACCOUNT OF THE INSPECTION.

Methods of Ventilation and Appliances Found in Use.

Except in infirmaries and nurseries where fires were kept burning the ventilation, as I have found it, has depended almost exclusively upon the wind for its head or motive power. There are many fireplaces the chimneys of which furnish a head for ventilation when the fire is burning, but in dormitories, where the ventilation is of highest importance, the fires are lighted only for very short times in comparison with the total duration of occupation throughout the year, and I have found no instance of really systematic ventilation by open fires.

In nearly all rooms it is usual to rely for ventilation upon open windows upon opposite sides of the rooms. Air-bricks near the floor or near the ceiling leading directly to the outside air, Tobin tubes or Sherrington valves on either side are sometimes to be found in addition. These may be regarded, so far as the primary conditions of ventilation are concerned, as additions or substitutes for the window openings, and, quantitatively speaking, their importance may be estimated as follows:—A 9-inch by 6-inch cast-iron air-brick in an outside wall with a hit-and-miss ventilator opposite to it on the inside wall is (on the principles laid down in sections 16-19 of the article referred to), roughly equivalent to an opening of 18 square inches in a window, and therefore may be looked upon as a substitute for opening a 3-feet wide window by half an inch; and similarly a 9-inch by 3-inch Tobin tube (without cover) supplied by a 9-inch by 6-inch air-brick, taking the avilable area of the latter as one-half of the nominal area, is roughly equivalent to an opening of 21 square inches, and may be looked upon as a substitute for opening a 3-feet window by slightly more than half an inch. In so far, therefore, as the ventilation can be regarded as systematised, the system generally aimed at may be said to be that of cross ventilation between windows or other openings on opposite sides of the rooms.

I have found a number of examples of the use of the motive power of the wind to produce a current by its passage across the mouth of a shaft in the case of (1) chimneys without fire, (2) special flues in the chimneystacks in communication with a number of flues in the walls for extract ventilation, (3) louvred openings communicating with the space between ceiling and roof, and (4) extraction cowls of various forms which communicate either directly with the roof space above ceilings or by means of shafts with the rooms below.

All these various contrivances may be classed as examples of natural cold air ventilation, and as they depend for their motive power upon the wind, which is notoriously capricious, the direction and amount of motion of the air through them is likewise capricious, and each opening must be regarded as a possible inlet or a possible outlet, according to circumstances.

Besides the wind, the other usual ventilating agent is the open fire. This is primarily used for warming, but incidentally it acts as an effective outlet ventilator. A full-sized chimney with a good fire may remove 20,000 cubic feet of air per hour if sufficient inlets for fresh air are provided. As the fires are most active in this respect in the coldest weather, an open fire is apt to cause cold draughts of air down other chimneys in the same room or an adjoining room if they have no fires or through-ventilation openings, and this effect sometimes leads to the stopping up of such openings.

The fact that ordinary open-fire warming implies cold-air ventilation causes serious difficulty in places where it is of the first importance that the distribution of air and warmth should be moderately uniform. The open fires have been in some instances replaced by or supplemented by closed stoves connected with the chimneys by long sheet-iron flues. These act practically as warming agents only, and are not wholesome unless adequate ventilation is otherwise provided. Their efficiency as ventilators is negligible. With the open fires are sometimes associated supplies of warmed air by means of Galton grates or some other grate constructed on a similar principle.

Besides the grates supplied with fresh air I have only found three attempts at warming the air introduced into the rooms—one is at Sutton, where some steam-heated radiators newly introduced into the junior boys' day-room have a fresh-air supply; the second is in the Hanwell Schools, where openings are made in the walls behind hot-water radiators; the third is in the boys' schoolroom and classroom and in the probation block at Ashford. The first is a very unsatisfactory mode of introducing warm air, as the radiator easily gets fouled with dust. I could see no means of cleaning it properly. The second is not open to objection, but the air-supply is on a small

scale, and was not regarded at the school as being of any importance. Those in the probation block at Ashford stood on cast-iron boxes that were provided with openings for cleaning, but they had become very much fouled with dust; the supply of air through them would be only very small on account of the want of motive power. In some other schools hot water or steam pipes passed in front of openings for floor-ventilation, but apparently there was no specific design in the relative positions. The existing openings had been disregarded in introducing the pipes, and have been in too many instances rendered inaccessible for cleaning.

Open fires are generally used for warming the school buildings, but steam heating or hot-water heating has been introduced into parts of some of them, and the officers in charge generally regard the changes as improvements. Such arrangements require more discretion in their use than is generally to be found in practice. As an open fire automatically secures a certain amount of ventilation, and its fierceness is an automatic regulator, with steam or hot-water pipes the ventilation must be otherwise provided. Moreover, the temperature of the pipes and coils is apt to be governed by such accidents as the state of the boiler fire or the demands of other departments upon the steam supply, instead of by the external temperature for the time being. The result is that rooms are sometimes overheated and sometimes not heated enough, and the temperature, instead of being more equable, may show wider extremes than with older methods. The judicious use of steam or hot water for warming, combined with ventilation, requires more intelligent control of the apparatus and more instructed care for such considerations as temperature and freshness than is usually to be found associated with the working of the apparatus.

In replacing open fires by hot-water pipes or steam pipes it is usual to press the economy of space too far. The pipes require a proper allowance of room in order that the radiation from them may not be interrupted, and also in order that they may be regularly and frequently cleaned. To run steam pipes round a room and cover them over with a bench about a foot high, or to bury them in a trench and cover them with perforated ironwork which forms a frequented gangway, is very economical of space, but it has attendant disadvantages. We have become accustomed to arrangements for heating which are completely concealed from view in churches and other public buildings. They have their disadvantages even there, but they are not so mischievous as in buildings which are very frequently or continuously occupied and where the dirt that accumulates is sometimes worse than ordinary dust. It is better to concentrate the heating in a number of properly distributed radiators and allow them reasonable space, whether they be placed near the walls or stand out in the rooms. The intervening connecting pipes may be under the floor if necessary, but in that case they should not be expected to contribute in any important degree to the warming of the room, and they should be fully protected against the accumulation of dirt.

This is a matter which requires attention in those schools where steam pipes, &c., are carried along corridors under the floors. It is an advantage to have the corridors warmed, but the nature of the warmed air requires close scrutiny, for the corridors often supply air to rooms opening out of them.

When steam or hot-water heating is introduced it is very undesirable to close the chimneys of the fireplaces which are not intended to be used any longer for heating purposes. Chimneys are excellent ventilators, and by drawing air from very near the floor they promote a local circulation of air in the room which is most valuable.

Probable Overheating of Dormitories and Schoolrooms in Summer.

A conspicuous feature of the arrangements in the school buildings is the very large proportion of window area to wall space. This disposition must generally expose the rooms not only to the cold of winter, but also to the action of the sun in summer. Without some specific observation I should not like to hazard any formal opinion upon the result of this exposure in nights following hot summer days, but I cannot think that the dormitories would keep reasonably cool unless there were an unusual amount of wind. It would be desirable to obtain some readings of temperature in the course of the summer in order that definite information might be available for the guidance of the authorities in this matter. A maximum and minimum thermometer would be useful for the purpose. I have not noticed any provisions outside the windows for reducing the heating effect of the sun. In some cases there are blinds inside, but these are ineffective in reducing the temperature of the rooms.

Air Analyses and Temperature Charts.

On the whole, during my visits of inspection, I found few cases in which the occupied rooms struck me as being offensively ill-ventilated. There was generally a good deal of open window, and not infrequently there were air-currents that would certainly be called draughts by any person whose customary occupation is sedentary. The rooms seemed to me to be, generally speaking, cold. The mode of ventilation and warming might, I think, fairly be described as in itself draughty and cold in winter, but wholesome, unless the extremes of temperature in summer and winter, to which the children must I think be exposed, have the effect of reducing their vitality. One serious defect was the absence of any provision for cleaning the air-ducts, some of which had been so long in use without attention that they had become choked with paint or dust. The dust of the dormitories being very large in quantity, and composed to a considerable extent of blanket fluff, rapidly accumulates, and not less in those ducts that are intended as inlets than elsewhere.

As regards the freshness of the air, it would of course have been of some advantage to my inquiry if the air of each occupied room could have been analysed for carbonic acid at the time of inspection. To have done so would have very much prolonged the visits, and the variation of conditions of wind, weather and temperature from day to day make it clear that a single observation upon a room would only have been of real advantage in few cases. The rooms which are occupied for the longest time, and the ventilation of which is therefore the most important, are the dormitories. In order to obtain some information to guide us in considering the efficacy of the arrangements for dormitories, certain dormitories at Sutton were selected, after the first inspection, as typical, and visits were paid on five successive mornings (March 30 to April 3) at the time of getting up (5.30 A.M.). Specimens of the air were taken from each of the selected dormitories and tested.

The desirability of obtaining some continuous record of the state of the air in rooms under inspection led me to consider whether some at least of the desired information could be obtained by means of a self-recording thermometer. The connection between the temperature record and the ventilation is as follows:—A well-filled dormitory (with the allowance of 300 cubic feet of air per bed) without any ventilation and without allowing for any loss of heat by conduction would have the temperature of the air raised through about 50 deg. Fahr. in an hour by the heat resulting from respiration (supposing that the occupants could go on breathing under such conditions), whereas the air of the same dormitory, if normally ventilated with 3,000 cubic feet per inmate per hour, again making no allowance for loss of heat through walls and windows, would have the temperature of the air raised only 5 deg. Fahr., and further occupation would not increase the rise. Allowing that half of the heat is lost by conduction it follows that when there is a little variation of temperature in the external air during the night the temperature of the well-ventilated room will differ scarcely at all from that of the external air, and the difference will not increase with the continued occupation of the room.

To put this matter to the test I placed in various rooms of nearly all the schools self-recording thermometers of a pattern known as Draper's, and have examined the records. The relation between temperature and freshness indicated above is satisfactorily borne out by the records. In rooms under conditions where ventilation may certainly be regarded as efficient the record shows that the room-temperature follows the external temperature quite closely. In other cases the temperature gradually rises during the night and drops suddenly when the windows are opened in the morning.

In examining the ventilation of the schools or similar buildings it is inevitable that one should feel the urgent want of some means of obtaining automatic records of the state of the air in the rooms as regards freshness. The badness of the atmosphere is often inappreciable by those who are breathing it, and it is only apparent to the senses of those who come into the room from the fresh air. On the other hand, an estimate of the temperature is easily formed by the occupants of the room, and a thermometer is easily appealed to to confirm an impression. We have no corresponding detector of the impurity of the atmosphere. Until some handy and automatic contrivance is devised for registering the state of the air as regards impurity, ventilation, with proper regard to temperature, will always require careful, tedious and troublesome attention on the part of those in charge of a building. Even where by mechanical ventilation a fan is supplying an appropriate amount of air, the need for some index of the state of the air as regards impurity is still urgent. I had hoped in the course of this investigation to make use of some apparatus which should at least dispense with the presence of a skilled observer or the transport of bulky vessels containing samples of air, but I have not yet succeeded in putting the apparatus to the test of practice.

(*To be continued.*)

Lord Egerton of Tatton will lay the foundation-stone of St. David's new Welsh church in Lime Grove, Oxford Street, Manchester, on October 3.

ROMAN REMAINS AT BOX.

I SPENT an interesting hour (writes a representative of the *Bath Herald*) at Box on Thursday inspecting the latest discovery of remains within a sufficiently easy distance of Bath to offer many points of connection with the evidences of the occupation, not only of that city but of the whole locality, by the Romans in the early centuries of the Christian era. It has been often pointed out that not only is the security of the Latin settlement of Aquæ Sulis attested by the grandeur of the buildings which were reared in these valleys, but still more by the traces of agricultural pursuits which were followed in the adjacent districts. It is very remarkable that in almost every direction round Bath have been found remains of Roman villas, as they are called, which were really homesteads, where for the greater protection lived together communities inside one protective wall. Abundant traces of one of these villas have been unearthed within the last twelve months by Mr. John Hardy, a respected resident of Box, on land in his possession adjoining the vicarage and under the shadow of the village church, which as likely as not was built at least in part of stone from the ruins of the villa now discovered. Speaking subject to correction I believe no such extensive remains of one of these villas has been found in this neighbourhood as that Mr. Hardy has the undivided credit of unearthing, and while he is hampered in his further investigation by such a prosaic obstruction as the boundaries of his property he has been sufficiently successful to enable him to make a rough ground plan, only slightly conjectural, of the Roman villa hidden when he acquired the property with several feet of fruitful soil bearing prolific fruit trees and potato plants. The villa, for reasons already explained, must have extended over a far greater area than Mr. Hardy's land represents, and it was traces of Roman occupation on the surrounding lands that led the owner, who is obviously an ardent if amateur antiquarian, to make promiscuous "trial borings." He had little reason indeed to fear disappointment, for just the other side of his eastern boundary wall in the vicarage garden when the foundations of a pigstye were being excavated, a tesselated pavement was unearthed, while on another side what was believed to be a bath was discovered with a tesselated pavement for a bottom, and on yet a third is at this present time preserved under cover in the grounds of The Wilderness another small piece of similar pavement. Furthermore, the "lay" of the land hereabouts encouraged Mr. Hardy in his investigations. There is not, it is boasted, a flat piece of land in all Box. Even the necessary 22 yards of level for a cricket pitch had to be manufactured. The one exception to the unevenness of the surface of the earth is the extensive plot on which stand the church, the vicarage, the gaunt building which once served for a workhouse, that attractive residence The Wilderness and the land belonging to Mr. Hardy. He inclines strongly to the belief that this solitary piece of flat country is the work of men's hands, and not natural, and the fact that at the back of the houses, standing by the side of the main road, there is a precipitate descent which it requires the provision of steps to accomplish, supports the theory strongly. There is slightly corroborative evidence that the site was excavated, too, in the fact that the building Mr. Hardy has been enabled to trace had its main entrance not facing the church, but the charming valley and hills on the other side, through which the railway now runs in places at a depth of 300 feet. If this were so there must have been a Roman roadway between the site of the discoveries and the river, traces of an ancient footbridge over which, it is just worth noting, have been found.

Mr. Hardy, who has been spending his odd time prospecting quietly during the last twelve months, soon found plenty to encourage him in his investigations, for the soil positively reeks with Roman remains. One of the earliest promises of hidden treasure lay in a number of oyster shells which came to light. The taste of the Roman for the dainty bivalve is an accepted fact, and the antiquarian will tell you there is no surer sign of the presence of the great race than the remains of oyster shells; in the excavations at Bath they abounded, and there is a pile of them in the museum. The foundation of a wall soon came to light, and the excavator made it his chief task to follow up its course and also those of the cross walls which occurred at regular intervals. He has effected this so successfully as to be able, as already stated, to present a ground plan of the land, which leaves little to the imagination. The main walls (or at least the foundations, for only here and there is there any of the actual wall remaining) which enclosed the whole villa were more substantial than the rest, being 4 feet in thickness—at least, assuming those on the south and west sides, which cannot be on Mr. Hardy's plot, to be identical with those on the north and east, parts of which he has uncovered. The block must have been oblong, and it is the north-east corner which has been discovered. The wall facing north is the longer one, and it is quite impossible to say what its extent may be, for it runs off into other property. It reappears in the gardens of The Wilderness, and probably the estimate that the villa had a frontage of 400 feet is more than a moderate one. The depth of the enclosed residence for similar reasons Mr. Hardy is unable to judge of, but it probably extended over the ground now occupied by the church and back to the precipitate descent near the present main road, previously spoken of. At the north-east corner Mr. Hardy has found what is supposed to be the foundations of one of the chief entrances. It is much in ruins, but obviously once was a noble flight of stairs. Just round the corner, so to speak, on the east side, is a very curious variation. There is the main 4-feet wall spoken of, and then an inch or so away, but quite distinct, another 3 feet in thickness, and beyond that still a third wall of even lesser bulk. It is difficult to explain these walls in such proximity to each other, but Mr. Hardy, who has an ingenious theory for most things he has found, is not lost here. He thinks the supplemental walls were for ornamental purposes, and supported a row of columns so essential to Roman architecture, which were surmounted with a stone carved frieze. The discovery of what was undoubtedly a portion of such entablature certainly lends weight to the theory. The carving is in a wonderful state of preservation, and a child could tell that it represented when intact the figure of a man. The portion found represented the trunk of a man and extends to the knees. The dress of the figure can be followed even to the cloak which denoted the freedom of the citizen; in fact the carving is perfect. The discovery of further portions of the frieze or of the columns would dispel doubts, but there is not much hope of this, because near by, and comparatively near the surface, excavations have disclosed a mound of mason's chips, and as these are hardly likely to have been left by the erectors of the villa near their front door it is assumed that it was here more modern masons found and reworked stone used, perhaps, for the church built 400 years ago, or for some other erection.

Immediately inside this main north wall has been found a series of rooms, easily definable because of the cross walls. There is evidence of at least five of these on Mr. Hardy's plot, and two are hypocausts—that is to say, the floors are raised for the purpose of heating underneath. The pillars which sustained the floors are all in excellent condition, but the floors themselves have disappeared, although the little squares of which they would be formed are scattered about in hundreds. Between the two hypocausts is a tesselated pavement with a geometrical design, which was the floor of another chamber, and parallel with these rooms (all divided, be it remembered by walls, the foundations of which can be traced) has been discovered a patch of undecorated Roman cement in perfect condition, which probably sufficed for the flooring of a scullery or kitchen, as a drain or culvert has been found thereabouts. At another point also parallel is another piece of pavement, this time without design and so narrow as to suggest a passage as its only purpose. Running behind this suite of apartments is what Mr. Hardy believes to be a large hall, or at least a large apartment, oblong in design. He has found two corners and therefore is able to say the hall, if it be such, was 25 feet in breadth. The extent of his property unfortunately is less than the length of the hall, but Mr. Hardy assumes it would be at least 76 feet. Practically everywhere between the walls of this large apartment the spade discloses at a depth of a few feet a floor of tesselated pavement, the complete design of which, if it could be uncovered and found in as good order as some of it is, would constitute one of the best pieces of Roman pavement in England. The pattern is of regular geometrical design, as indeed are all the pavements with which the place teems, and far too intricate to attempt to describe. It is all worked in ½-inch blocks of material of three kinds—blue lias, red brick and white stone—except the border, which is in inch blocks and entirely white. The fact that the same design crops up in three distinct places, with the absence of cross walls, makes certain the suggestion of one large hall. This is as far as Mr. Hardy's explorations can carry him in determining the architecture of the building, but it has to be remembered that in every direction except on the north the walls pass out beyond his boundaries, and therefore beyond his reach. The existence of Roman remains on the surrounding property has already been spoken of, and it may be added in leaving this branch of the subject that Mr. Hardy holds firmly the opinion that a large pond of a strangely artificial looking shape just beyond his southern boundary—a relic of an old mill which once stood there—is nothing less than three or four Roman rooms filled with water and with tesselated pavement for a bed.

The whole of the ground Mr. Hardy possesses is as prolific in Roman odds and ends as the soil above is in its yield of potatoes, fruit and weeds. Space prevents reference to a tenth portion of the various proofs of the existence of a Roman dwelling-house the earth yields to the spade's touch. The interior walls of Roman houses were of stucco, and not only do large lumps of this abound, but on one side of the broken material may be seen the crude painting, representing towers,

human faces, &c., which did duty in the place of the wall-paper of the present day. The roofs were made in one solid mass by the slackening of lime, and large pieces of this material, which is light and must have served the purpose splendidly, are turned up everywhere. There was an outer covering of tiles, which are also to be found, and they, mirabile dictu, exactly resemble in shape a tile which has just lately come into popular use in this country. Drain pipes, many and varied pieces of pottery, polished and otherwise, a boar's tusk, the stone core of a pedestal, an altar, and unfamiliar bones, are only a selection of the things unearthed, all of which Mr. Hardy carefully preserves. Most wonderful of all, perhaps, is the discovery of a Roman flue, which consisted of two tiles made to fit together by flanges into an oblong shape, allowing a passage for air of about 1 inch by 10.

From this incomplete description many will doubtless be anxious to see for themselves the remarkable discovery Mr. Hardy has made, and I may say that the key of the property is always available either at Mr. Hardy's establishment or at the Bear Hotel. Proof of the importance felt in the discovery is afforded by the fact that the Bath Natural History and Antiquarian Field Club have arranged to view the remains at an early date. Sir Charles Hobhouse and the Rev. H. H. Winwood are among those who have already been over the ground.

THE MANOR OF REIGATE.*

THE parish of Leigh is not mentioned in Domesday Book, and was probably at that time part of the manor of Cherchefelle or Reigate. If the visitor seeks a by-road, retired old English village, he will find Leigh a miniature example of one. In well-wooded undulating country, shut out from the bustle of high road or rail, here is the village green with its well, the church and school, the moated manor-house and the inn, the rural shop and post office, a farmyard and some old cottages. Here have been few innovations and few changes except those incidental to the passing away of generations.

Mr. Salmon would seem to have visited Leigh in winter, his comment in his "History of Surrey" being, "At this place begins one of the dirtiest counties in England." Since 1731, however, the lost art of road-making has been recovered, and at present, instead of the mud calling for remark, we may rather observe that the roads in the county are, as a rule, exceedingly good.

The manor of Shelwood includes a considerable part of the parish. In 1156 Henry II. gave to the Prior of Merton, in frank-almoigne, Selewode and Kingswode. The tenants of the manor seem to have found the yoke heavy, and an inquest was held in the reign of Henry III., when the jury disallowed the right of the lord to compel the tenants to reap his harvest for him, but "found that they must pay Peter pence, and also that they must not marry a son or daughter out of the manor without license of the prior."

In 1654 Sir T. Brown, of Betchworth Castle, was owner, and from his son it came to Thomas Jordan, of Gatwick, and in 1806 was sold to the Duke of Norfolk. The site of the old manor-house is now occupied by Shelwood farmhouse, about a mile south-west of Leigh village. Elizabethan coins and other relics have been found here.

Leigh Place, just north of the village, is an ancient mansion. It has been slightly modernised; the moat is perfect. In Manning and Bray's "Surrey" is a view of Leigh Place, in which the drawbridge is shown as then existing. The plate was presented by Rd. Caffyn Dendy, the then owner, who had the following in a small frame put up in the house:—"The first inhabitants of this place which I can trace were the great family of Brewse, or Brewose, who followed the fortunes of the Conqueror from Normandy in 1066. They were possessed of many lordships in Surrey, and of forty-two manors in Sussex. John de Brewse having escaped from the tyrant, King John, who starved two of his brothers to death in Windsor Castle, married a daughter of Llewelyn, Prince of Wales, and died in 1232. Lord William, his son, was of Findon, in Sussex. Sir Peter de Brewse, third son of this William, had a younger son, Sir John, who resided here. The next who succeeded was Sir George, his son, who died 1419; he possessed the manors of Imworth, Walton and Bookham in Surrey, and Crawley, Sedgewick and Nuthurst in Sussex in 1432, whose son John was esquire of the body to Henry VII., a great favourite, and succeeded to many of the manors of the Brewses, 1500. Thomas, Earl of Surrey, next came to the estate in the paternal line of the Brewses."

The next family in possession of Leigh Place, so far as can be traced, was that of Arderne, in the fifteenth century, but it does not appear in what manner they acquired it. There would appear to have been some connection between the families of Arderne and Dudley. John Dudley, who afterwards became Duke of Northumberland, is said to have lived at Leigh Place, and there is a tradition that his daughter-in-law, Lady Jane Grey, occasionally stayed at the house, but this cannot be true if her visits there were to Dudley, as she was not born when he sold it. Dudley sold the estate to Edward Shelley, of Fyndon. This Edward Shelley was the second son of John Shelley, of Michel Grove, in Sussex, and ancestor of the poet Shelley and of the Lords De L'Isle, of Penshurst.

At Swain's Farm, about a mile east of the village, Ben Jonson, the poet, is said to have resided, and a room in the old-fashioned building was called the study. Stumblehole, another estate near Swain's, was held of the king, and paid castle-guard to Rochester Castle. The church (St. Bartholomew) is in the Perpendicular style and consists of nave and chancel, with a stone tower; it has been considerably enlarged. In the church are several brasses and indents of the Arderne family, formerly of Leigh Place; attached to one is a Latin inscription dated 1499; another contains whole length brasses of John and Elizabeth Arderne, with small figures of their six children; also a small brass representing the Trinity and an old monument under an arched recess. Among the modern tablets are these:—To Richard Caffyn Dendy, Esq., of Leigh Place, who died in 1832; to J. W. Freshfield, of Mynthurst, many years M.P. for Penryn and Falmouth, died 1864; also to Rev. G. Whitlock, vicar of this parish, born 1795, died July, 1871.

The register dates from the year 1579. Leigh is a polling-place for Mid-Surrey.

The manor of Brockham was granted in 1254 to John Fitz-Adrian, and the green was common land. It is encircled by nearly as pretty a village as any in Surrey, and has a church (Christ Church), now the centre of a separate ecclesiastical district.

A pleasant walk by the river and over fields connects the villages of Brockham and Betchworth, crossing the churchyard of the latter and passing out through a memorial gateway into the street of Betchworth. The word betch in Welsh signifies a rising ground or ridge. In 1316 John, Earl Warren, was lord of this manor.

Broom Park (now occupied by Mr. C. Dobson) was the residence of the late Sir Benjamin Brodie, and is still in the family, as is also Brockham Warren.

In Betchworth Church is a marble tablet with a medallion portrait, "In memory of Sir Benjamin Collins Brodie, Bart., Sergeant-Surgeon to the Queen, President of the Royal Society. Born 1783, died 1862. By his surgical skill he alleviated the sufferings of his own generation, and conferred lasting blessings on mankind." "Also of Anne, his beloved and devoted wife."

Nearly a mile and a half from Betchworth village, in the parish of Dorking, are the ruins of Betchworth Castle. The estate was once known as West Betchworth. The manor belonged to Richard de Tonbridge. "In 1377," it is recorded, "John FitzAllan, second son of Richard, Earl of Arundel, who died the preceding year, having succeeded to this estate, had license to embattle his manor-house there. A similar license was granted in 1449 to Thomas Brown, Esq., in whose possession this estate then was; he had permission also to impark his manor, and to have free warren in the same; likewise Court-leet and Court-baron, and an annual fair on Tuesday in Whitsun week. In the family of Brown, of which Ambrose was in 1627 created a baronet, this estate continued vested till the death of Sir Adam in 1690, when it devolved to his sole daughter and heir, married to William Fenwicke, Esq., who pulled down the greater part of the castle and turned the remainder of it into a dwelling-house."

During the ownership of Mr. Henry Peters the estate was kept up and many improvements made; his residence at the castle is still remembered. It came into the possession of Mr. Hope (of Deepdene), who dismantled the house; it is now a picturesque ruin. Portions of the original castle can be distinguished from the rebuilding of 1690. Many of the famous chestnut trees and part of the avenue of elms still remain, while the magnificent triple avenue of limes, 350 yards long, is almost perfect and stands in a direct line to the ruin.

Reigate is situated at the head of the long valley known as Holmsdale Hollow, the entrance to which it commands. In Domesday the town was called Cherchefelle, or the Church in the Field, and afterwards it was called Churchfield in Reigate, the earlier reading of the latter name being "Ridgegate," the passage through the ridge of the North Downs.

In the time of the Confessor the manor belonged to his queen, Edith. A market was granted by Edward III. The town returned two members to Parliament from the reign of Edward I. to that of William IV., and one from 1832 to 1867, when it was disfranchised for corrupt practices.

The parish church, St. Mary's, dates from the beginning of the reign of Henry VII. In the chancel were buried Archbishop Ussher and Lord Howard, commander of the English Navy against the Spanish Armada. He died at Haling House, 1624. Over the vestry is a library formed in 1701 by the Rev. Andrew Cranston, the then vicar, assisted by the great John

* A paper read by Mr. T. H. Alexander at the visit of members of the Upper Norwood Athenæum.

Evelyn and others; it contains 1,700 volumes, some MSS. and early specimens of printing. The register dates from 1546.

Reigate Castle, although now but a name, calls up memories of frowning walls and feudal domination, the site with the remains of moat, keep and dry graffe and the curious cave seeming to make its existence almost a present reality. It is supposed to have been built before the Conquest. The castle is mentioned by Dugdale as belonging to William, Earl Warren. During his ownership it was surrendered in 1516 to Lewis, the Dauphin of France, which event is thus related:—"In the wars between King John and his barons, headed by Lewis the Dauphin against him, this castle held out for the king till the soldiers he had entertained from Flanders deserted him and went to Lewis and some home, the Poitevins only excepted, which so weakened him and his party that Lewis being increased in power left London, and marching towards Winchester won the castle here and divers others in his way to that city, which also yielded to him." It is said that French coins have been found in the moat. Local tradition asserts that in the Barons' Cave, as the excavation under the mound is called, the barons met in conference previous to the signing of Magna Charta at Runnymede, but one county historian dismisses this as follows:—"There is a tradition current that the barons who took arms against King John and extorted from him the grant of the great Charter of Liberties and Forest Charter, held their councils previously to the congress of Runnymede in the Castle of Reigate (a fortress which then belonged to William, Earl of Warren and Earl of Surrey), and Mr. Gough has thus alluded to it in his edition of 'Camden's Britannia,' when speaking of a cavern there under the castle court:—'It is called the Barons' Cave and it is pretended that the barons conferred here before they met King John at Runnymede.' From the circumstantial narrative of the movements of the confederated nobles which is given by Matthew Paris, from the time of their meeting in arms at Stamford in the Easter week until their march to Runnymede in the June following, it would seem that the above story is altogether unworthy of credence. Besides, as William, Earl of Surrey, was one of those lords who were most firmly attached to the king, and as he did not join the standard of the associated barons till all resistance to their claims appeared hopeless, it cannot be supposed that his castle would be chosen as the place for their deliberations. It is not unlikely, however, that the Earl of Surrey and a few other lords who, like him, for awhile endeavoured to preserve their neutrality in the grand contest between the sovereign and his most indignant subjects, may have held secret consultations at Reigate Castle and even in the cavern or crypt to which the tradition refers, and which hence, possibly, obtained the appellation of the Barons' Cave.'

The cave is now entered from what was the fosse gate, whence a passage leads to a small gate opening into the castle court; branching from this passage is the Barons' Cave, a long curved crypt with pointed roof, cut out of the hard sand and having a rough bench of masonry across the end. The guard chamber, also branching out of the passage, is not indicated in the old maps, and is probably comparatively modern. There is no reason to doubt the antiquity of the remainder, which may be as old as the castle. In a document of the time of Henry VII. mention is made of the Constable of the Castle of Reigate.

The castle, although probably an important seat of the Earls of Warren and Surrey, was suffered to fall into decay, though at what period is not known. A survey, made in the twenty-first year of James I., states:—"Sir Roger James holdeth from year to year, at will of the Lords, the site of the Castle of Reygate, with the Warren and Lodge there, called the Castle Warren, containing 17 acres, 0 roods, 16 perches, worth, together with the profit of the counyes (rabbits) there, £X, for which he payeth yearly £VIII. And that the Lords of this house have a decayed castle, with a very small house, and a connie warren belonging thereto, now in the occupation of Sir Roger James."

Notwithstanding the dilapidation here alluded to, the castle is presumed to have been in a state capable of being rendered defensible, since the House of Commons judged it necessary (July 4, 1648) to refer it to their committee at Derby House to take care of it, and to put it in such a condition that no use might be made of it to the endangering of the peace of the kingdom. The "Magna Britannia" describes it as "now much ruinated, but there are remaining many of the works underground, though very imperfect, as a vault or cave leading to a door that opens into the graffe, or dry ditch, the water cave that goes under the moat and is full of water," &c. Standing as the castle did on high ground and on a subsoil of sand, there was no natural moat. In 1813, in cleaning it out, a lining of clay, 18 inches thick, was discovered, showing how the old builders had made it impervious. In 1777 the present castellated archway (sometimes described as the only vestige of the original structure) was erected by Mr. Barnes, an attorney, of Reigate, who wrote a Latin inscription for it, but which was never placed. In 1804 a very long spur was dug up in the grounds.

Part of the site of the castle and a considerable portion of the moat are in private occupation. The late Lord Somers granted the remaining portion to the Corporation of Reigate, under whose care it has been laid out as a public garden. Here the dry fosse surrounding the keep, part of the moat and the line of the outer wall may be traced. A story is sometimes told of an underground passage from the castle to the priory, or to Bletchingley—(a few miles is nothing in a legend). It need scarcely be said that this is without foundation. A public footpath encircling the south-west part of the grounds is suggestive of the ramparts of some old town. The garden walls on one side—old and probably built of the former castle walls—the irregular gabled backs of the houses below, and the roofs and chimneys of the town beyond, make up an almost Mediæval picture.

THE LATE H. H. BRIDGMAN.

THE news of the death on Thursday afternoon of last week of Mr. H. H. Bridgman, for many years an active member of the Corporation for the ward of Cheap, will be received, says the *City Press*, with keen regret by a large circle of friends, not only in the City, but in St. Pancras and various other districts of London. Coupled, however, with the regret that will be felt at the loss of so striking a personality, and the sympathy that will be expressed with the widow and family in their sad bereavement, will be a sense of thankfulness that at last the terrible suffering experienced for a long course of years has been brought to a termination by the merciful hand of death. The painful internal malady with which he was seized three or four years ago, necessitating a series of painful and dangerous operations, and involving his practical retirement from professional and municipal work, was from the first understood to be incurable, the patient himself, as well as his medical advisers and his relatives and friends, realising that there could be but one issue to the suffering. At the time he underwent his first operation hopes were entertained, however, that life might be spared for some years, and that, to a certain extent, health and strength would be temporarily restored; but, unfortunately, that hope was soon proved to be groundless, and Mr. Bridgman became to all intents and purposes a confirmed invalid. Up to a few weeks ago, as the readers of the *City Press* have been informed from time to time, the progress of the malady was slow, but during the past week a gradual change for the worse was noticeable in the patient, and the end came, as already stated, on Thursday, at about midday, the closing hours of life, happily, being marked by no suffering. A widow and family of eight are left to mourn their loss. The funeral took place on Monday afternoon at Highgate Cemetery.

The death of Mr. Bridgman removes from the City one of the most prominent personalities of the past few years. Clever as an architect, brilliant as a speaker, the possessor of an original mind, and endowed with the most versatile gifts, Mr. Bridgman, in his professional career, as a corporator and in the various walks of life he followed, achieved a distinction that few men have the good fortune to win for themselves. The success he achieved is the more to be noted in view of the fact that, at any rate during the closing years of his life, it was his misfortune to be compelled to contend, not only with the inroads of disease, but with worries arising from circumstances into which it is needless now to enter, but in which he received widespread sympathy from all who enjoyed the pleasure of his acquaintance.

Mr Bridgman was a native of Torquay, being a grandson of Mr. John Bridgman, one of the pioneers of this now popular watering-place in the early days of the present century. He was born in the year 1844, and received his education at Chumleigh Grammar School under the Rev. George Moyle, M.A. His school days over, he commenced his professional career as an architect and surveyor on the Cary estates of his native town, and for the next six or seven years devoted the whole of his time and attention to promoting the development of this popular seaside resort. Even at this early stage in his career the brilliance he subsequently displayed was manifested, and in architectural competitions many and valuable were the prizes that fell to his lot. In his leisure moments Mr. Bridgman from his very earliest years gave proofs of that remarkable energy with which he was endowed. He was one of the pioneers, for instance, of the Torquay School of Science and Art, becoming in time a pupil, hon. secretary and assistant-master, while he was also the recipient of one of the first prizes awarded to the school by the South Kensington Science and Art Department. The esteem he thus won for himself by the interest he showed in local institutions was evidenced by his being presented with several valuable testimonials when he left the town in the year 1867, in order to commence a professional career in the Metropolis.

On his arrival in London Mr. Bridgman, by means of an intro-

duction of the late Lord Haldon, secured a position of trust in the office of Mr. John Gilson, the pupil of Sir Charles Barry during the building of the Houses of Parliament, and at the time of which we are speaking an architect of great repute. The opportunities thus afforded the young Devonian of making a mark in his profession he availed himself to the full of, and in a short while he succeeded in winning for himself a prominent position among his professional brethren. Two years after his arrival in London he obtained his first public appointment, being elected one of the surveyors of the St. Pancras Vestry. Two years later he commenced to practise on his own account, and in the year 1875, upon the death of his brother, Mr. Albert Bridgman, he succeeded to that gentleman's business and removed to 42 Poultry. The columns of the *City Press* are not the proper place in which to refer at length to his professional career, but a few of the leading works in which he was engaged, and some of the successes he achieved therein may be touched upon as evidences of his ability. Perhaps the success he prized most was won in connection with the Westgarth competition for the best essay on street realignment and reconstruction in Central London. Many rising architects took part in this contest, and the fact that his effort was deemed worthy of the first prize affords conclusive evidence of the thoroughness with which he had studied the problem and the ready conception he had of the manner in which the future needs of the growing traffic of the Metropolis might be satisfactorily met. On several occasions in the columns of the *City Press* reference has been made to the scheme thus devised, and it will be remembered, perhaps, that only so recently as the close of last year, following the great fire in Cripplegate, the scheme was referred to as possessing features well worthy of adoption by the municipal authorities. Mr. Bridgman was the architect of the central fish market that it was proposed to erect on the Lambeth side of the Thames between Waterloo and Charing Cross railway bridges, and for his plans he was awarded at the International Fisheries Exhibition a prize of fifty guineas offered by the Corporation of Liverpool. Amongst the buildings erected according to his designs were the extensions of St. Pancras Workhouse, the Camden Baths and a block of shops and offices in Queen Street. He was also the originator of numerous improvements that have since been widely adopted by architects and builders throughout the country.

It was in the year 1884 that Mr. Bridgman entered upon municipal life, following a close connection of several years standing with the parochial administration of the ward in which he carried on his practice. From the first it was realised that Cheap's new representative was a "coming man," and in a very short while the anticipations thus formed were realised, and Mr. Bridgman took in the deliberations of the court the prominent part he filled until his final retirement. The chairmanships he held were several in number, and in connection with each the work he achieved was of a character that rendered his term of office a noticeable one in civic administration. As chairman of the law and city courts committee, for instance, it fell to his lot to officiate at the laying, by the Lord Chancellor (Lord Halsbury), of the foundation of the new City of London Court. During his year of office as chairman of the gas and water committee several clauses of great moment to the ratepayers and consumers were—to a great extent owing to his initiative—introduced into the Bills promoted by the various water companies in connection with the creation of new capital. One such clause paved the way for the purchase of certain undertakings by municipalities, and for awhile it seemed that an opportunity of putting an end to a monopoly so burdensome to the ratepayers would be taken advantage of. A lengthy inquiry was held at the instance of the Corporation, and, as a result, the Bill for appointing a water commission for the Metropolis was promoted. Unfortunately the legislative proposal proved abortive, and a reform so urgently called for failed to secure Parliamentary sanction. It was also during his year of office that the Bill was introduced and placed on the Statute Book for enabling the Corporation to hold a fire inquest on the occasion of any outbreak of doubtful origin occurring in the City. A little later Mr. Bridgman was appointed the chairman of the streets committee of the Commission of Sewers, and it was during his term of office that the present scheme of lighting the City by electricity was promulgated. For his services in this direction he received the thanks of the committee in a practical and gratifying form. Later he had the distinction of being chosen as the chairman of the Sewers Commission, his year of office being marked by several events of no little importance. For instance, it was at his suggestion that the rebuilding of Moorgate Street station was insisted upon, whilst he was responsible in a great measure for the carrying through of the scheme that led to the retirement of Colonel Haywood and the appointment of the present engineer. It is impossible in the space at disposal to comment upon the various other enterprises with which as a commissioner he became identified. It may, however, be mentioned that he was the first to suggest the construction of subways under the crossings at Mansion House Street for the purpose of facilitating the traffic at that point. The plans submitted, it is true, failed to secure approval, but to a certain extent the idea thus ventilated has been used in connection with the underground railway, and a few months hence will see the practical adoption, in some measure at all events, of the project originated by the subject of our sketch. Throughout his connection with the Commission the matter of improvements received his constant attention, and the desirable change now about to be carried out at the western end of Cheapside was fathered by him and advocated in and out of season until finally agreed to by the authorities.

Touching on his work as a corporator, it may be mentioned that as a member of the City of London School committee he took an active part in the reorganisation of the school following the retirement of Dr. Abbott, and the formation, under Mr. A. T. Pollard, the present head master, of a modern side. It was also on his suggestion that the Corporation celebrated the 700th anniversary of the mayoralty, and many of our readers will remember the eloquent speech in which, at Guildhall, he introduced the subject to notice, and pointed to the many historical incidents with which, in the course of the period referred to, the City and its chiefs had been closely associated. From that time until the inroads of disease compelled him to lay down his pen, he had devoted his hours of leisure to the completion of an exhaustive work dealing with the history of the mayoralty, and summarising the events of historical significance. It is to be hoped that in some way the result of his labours will ere long see the light, and that a work that cannot fail to be of the utmost interest to lovers of the City will eventually be published. Mr. Bridgman held office as corporator for the ward of Cheap from the year 1884 to St. Thomas's Day, 1896, and on the election of the late Mr. Alderman Halse as successor to Sir James Whitehead, Bart., he was appointed deputy to the ward. The office, however, he was compelled a few months later to resign, owing to failing health, and his consequent withdrawal from municipal life.

Summarising the other appointments Mr. Bridgman held, it may be mentioned that he served on three occasions the office of churchwarden of St. Mary Colechurch, and also acted for some years as overseer; was a member of the Glovers, Wheelwrights and Paviors' Companies, being a member of the Court of Assistants of the last-named guild, and was also one of the professional advisers of the London Chamber of Arbitration. His abilities were in no way confined to the "one square mile," but on the contrary, for many years he was closely identified with various municipal, parochial and charitable institutions connected with St. Pancras. In that district his death will be felt no less keenly than will be the case in the City. A Liberal in politics, Mr. Bridgman in the year 1892 unsuccessfully contested Taunton in the Gladstonian interest. He was a past-president of the United Wards Club, and a member of the Ward of Cheap Club, and of several other local institutions. He was also a member of the Society of Arts and of the London Middlesex Archæological Society, whilst the clubs to which he belonged were the National Liberal and the Devonshire.

MICHELHAM PRIORY.

ON Monday some members of the Sussex Archæological Society visited Michelham Priory. Situated on the banks of the Cuckmere, and removed in these latter days from the more frequented haunts of men, the priory with its well-preserved gatehouse is, says the *Sussex Daily News*, a delightfully picturesque place, and the archæologist, the artist and the simple lover of nature may together find manifold charms within its grounds. The property has only lately been acquired by Mr. Gwynne, who has been at some pains to discover the remains of the ancient buildings which had been masked by subsequent plantations. He has succeeded in doing much in this direction, laying bare the bases of the walls of the church and other buildings which were razed to the ground, disclosing some features of the architecture which indicate the graceful style adopted by the designers of the place, and by a general clearance of the accumulated rubbish of years of neglect exhibiting the better known portions of the priory which are standing in a manner which enables them to be appreciated. The general result is therefore eminently satisfactory.

Mr. H. Michell Whitley on Monday undertook the office of guide. In the course of some general observations he said the priory was founded in the early part of the thirteenth century by Gilbert de Aguila, of Pevensey Castle, Lord of the Eagle, and the last Lord of Pevensey of his race. The foundation was for Austin Canons or Black Canons regular of the Order of St. Augustine, an Order less strict than ordinary monks, wearing beards and caps on their heads and being attired in long cassocks with a white rochet over them. They were also furnished with a black cloak and hood. Gilbert gave to the priory his lordship of Michelham, his park of Pevensey, comprising between 800 and 900 acres, meadow lands, &c., timber

for their church and buildings, and the churches of Hailsham and Leyton. Here upon a rich soil they erected their priory buildings, which they surrounded by a moat, with The Decker, a great common, on the west and a great forest on the north. The entrance gateway, which was almost intact, dated from the latter part of the fifteenth or the early part of the sixteenth centuries. It was approached by a bridge of solid masonry, a timber bridge or drawbridge reaching over the gap now spanned by the small arch. He did not think that a regular drawbridge, with chains, as at Herstmonceux and Bodiam, had ever been used, but probably there was a light bridge which could be raised whenever necessary. Below the gatehouse was a room said to be a dungeon, but he thought it was more probably used as a cellar; while above the archway were two rooms in the tower with fireplaces, which were worthy of inspection. He mentioned also that the view from the top of the tower over the surrounding country was very fine; and taking this hint a goodly number of the visitors afterwards found their way up the narrow winding stone stairs and climbed out on to the leads, where indeed they were amply rewarded by the prospect thence commanded. Continuing, Mr. Michell Whitley remarked that the almonry and guest house for poor people probably stood on the bank at the north-east of the gatehouse, where numerous remains of buildings had been found by Mr. Gwynne. At all events, they stood somewhere in the outer court and were an important adjunct to the priory, for, however secluded the situation of Michelham now was, in Mediæval times it was on the main thoroughfare from Lewes through Hailsham to Battle and Hastings, which was well frequented. Indeed, in 1398, the advowsons of Alfriston and Fletching were bestowed on the priory, having regard, among other things, to the great cost the canons were put to in maintaining the hospitality imposed upon them by their proximity to the king's highway, frequented by the nobility of the kingdom and other travellers. The priory itself, standing back from the gatehouse, to which he next directed attention, was an Elizabethan house, about two-thirds of which had been pulled down to the ground, and to the third which remained had been added a building with mullioned windows, which was not a part of the original priory. The buildings must have been enormous, for when they were pulled down large quantities of brass and lead were sold. An extract from the official records, dated 1536, set forth the sale of 203 ounces of silver, realising 27*l.* 13*s.* 0½*d.*; all the ornaments of the church, the painted tablet stones called "paving stones," and other things below the said church were sold for 15*l.* 13*s.* 4*d.*; the movable articles in the guesthouse for 18*l.* 0*s.* 2*d.*, and the store of cattle for 78*l.* 5*s.* Thirteen waggon loads and 1,500 lbs. of lead were also disposed of; the bells, of which there were five, and which weighed 40 cwt., were sold for 26*l.* 13*s.* 4*d.*, and the various buildings were sold to divers persons for 16*l.* 9*s.* 3*d.* From another return he gathered that there were at the time of the dissolution of the priory eight canons and one novice, with twenty-four servants, eighteen waiting servants and four hinds. From a position in the open square, in the midst of the priory buildings, which he described as the cloister garth, Mr. Michell Whitley remarked that around this square, or nearly square grass plot stood the conventual church and buildings. In 1398 the buildings were spoken of as in a ruinous condition, some in part having actually fallen down, and again in 1478 the two mills belonging to the priory were in utter ruin, and the dormitory-house, with other houses and buildings, was in a bad condition. Extensive repairs must have followed, however, for in 1535 the buildings were returned as being in good order.

With the aid of a plan Mr. Michell Whitley then proceeded to indicate the probable position of the various priory buildings. The church, which in this instance, he thought, was situated to the north—his theory being that the position of the church was determined largely by the slope of the ground and questions of drainage—was aisleless and cruciform, with a central tower. On the east side of the cloister garth were the sacristy, a slype to the infirmary and the monks' cemetery, the chapter-house, the regular parlour for conversation, and the warming-house, where the brethren might have a fire, the dormitory for the canons being overhead on this side; on the south was the frater and kitchen, and on the west the cellarer building with the abbot's chamber. With the information so interestingly and kindly imparted, the visitors proceeded on a round of independent inspection, and among other features of note was a very fine crypt which Mr. Gwynne had taken care to fully expose.

The Competitive Designs for the Old Town Street improvement, Plymouth, for which a premium of 250*l.* is offered by the Corporation, have to be delivered to the borough surveyor by the 24th inst. Owing to the differences which arose with respect to some of the conditions imposed by the town authorities, it is understood that none of the local architects will be represented in the competition.

TESSERÆ.

The French Academy in Rome.

FRANCE possesses in Rome an admirably regulated academy of art, instituted in the year 1666 by Louis XIV., on the instance of the painter Le Brun. It is maintained for the advantage of young artists who display talent in a more than ordinary degree, and who are provided with means for their journey to and supported during their stay in order by the study of its works of art to imbibe inspirations and approach nearer to perfection in their own labours. Its place of reunion in 1725 was a large house on the Corso, opposite the Doria Panfili palace, which had been purchased by Louis XV. from the Duke de Nevers; at that time its body consisted of a director and twelve young students pensioned by the French Court, always the munificent patron of the fine arts. At one time prevailed an affected and mannered style, which Mengs called spirituel, and which, according to him, consisted in "transgressing the limits of the just and beautiful, overcharging both, exaggerating in all things, and aspiring to please the eye rather than the understanding." M. Sublegris, who was educated in this Academy, reformed that style, preserving all that was excellent in it, rejecting the feeble, and adding what sufficed to form a manner genuinely original. At the commencement of the present century the French Court effected an exchange with that of Tuscany, and transferred the Academy to the palace of the Villa Medici, on the summit of Monte Pincio. This is a most agreeable residence, with spacious avenues, groves, fountains, besides a sumptuous palace with two fine façades, commanding a beautiful view of the city and its environs and enjoying the best air. It was formerly the residence of Cardinal Alessandro de' Medici, afterwards Pope Leo XI., subsequently of the Ambassador of Tuscany at the Holy See. The inner façade is said to be from the design of Michel Angelo Buonarroti, and many antique sculptures are enchased in its walls. The famed statues of the Venus of Cleomene, called the Medicean; of the Apollo known as the Apollino; of the Scythian, called the knife-grinder; of the Mercury in bronze, and of the family of Niobe, which now adorn the Ducal Museum at Florence, were once all located here, with many others which would still be the pride of Rome if the law had always been in force which prohibits the exportation of works of art by the first masters.

The Pegna.

The gladiatorial combats in the Roman arenas were occasionally enhanced by structures that are suggestive of modern stage managements. At times was erected in the midst of the arena a machine called the pegna, resembling a tower, whose different storeys were garrisoned, its apex crowned with weapons and armour the prize of victory. These were besieged and taken, unless successfully defended, to represent the assault of a fortress. The pegna were made with such skill of mechanism as to open and close, to increase and diminish their altitude as if spontaneously. They were sometimes painted, at others plated over with gold and silver, their recesses were often filled with persons condemned to death, when the pegna was made to fall to pieces, precipitating these among the wild beasts. Under Diocletian the exhibition of these towers in a blaze of fire, which yet did not hurt the material, was carried to great magnificence.

The Painting of the Ancients.

From the various ancient paintings which have come down to us we may form a judgment with tolerable accuracy of the excellences and the defects of the art amongst the ancients. There can be no doubt but that the same correctness of design was required from the painter as from the sculptor. If what has happened in the case of sculpture had likewise happened in regard to their paintings, and we had the good fortune to possess what the ancients themselves esteemed their masterpieces, we should find their figures as correctly drawn as the Laocoon and probably coloured like Titian. What disposes us to think higher of their colouring than any remains of ancient painting will warrant is the account which Pliny gives of the mode of operation used by Apelles—that over his finished picture he spread a transparent liquid like ink, of which the effect was to give brilliancy and at the same time to lower the too great glare of the colour. This passage, though it may possibly perplex the critics, is a true and an artist-like description of the effect of glazing or scumbling such as was practised by Titian and the rest of the Venetian painters. This custom or mode of operation implies at least a true taste of that in which the excellence of colouring consists, which does not proceed from fine colours but true colours, from breaking down these fine colours which would appear too raw to a deep-toned brightness. Perhaps the manner in which Correggio practised the art of glazing was still more like that of Apelles, which was only perceptible to those who looked close to the picture, whereas in Titian, and still more in Bassano and others his imitators, it was apparent on the slightest inspection. Artists who may not approve of glazing must still acknowledge that this practice is not that of ignorance. Another circumstance

that tends to convince us in favour of their colouring is the account we have of some of their principal painters using but four colours only. The fewer the colours the cleaner will be the effect of those colours, and four are sufficient to make every combination required. Two colours mixed together will not preserve the brightness of either of them single, nor will three be as bright as two; of this observation, simple as it is, an artist who wishes to colour bright will know the value. In regard to their power of giving peculiar expression no correct judgment can be formed, but we cannot well suppose that men who were capable of giving that general grandeur of character which so eminently distinguishes their works in sculpture were incapable of expressing peculiar passions.

The Beautiful in Art.

When beauty is said to be the proper end of art, it must not be understood as confining the choice to one set of objects, or as breaking down the boundaries and destroying the natural classes, orders and divisions of things (which cannot be too carefully kept entire and distinct); but as meaning the perfection of each subject in its kind, in regard to form, colour and all its other associated and consistent attributes. In this qualified and proper acceptation of the word in regard to art, it may be applied to nearly all things most excellent in their different ways. Thus we have various modes of beauty in the statues of the Venus, the Juno, the Niobe, the Antinous and the Apollo, and thus we may speak, without exciting a confusion of ideas, of a beautiful peasant as well as of a beautiful princess, of a beautiful child or a beautiful old man, of a beautiful cottage, a beautiful church, a beautiful palace, or even of a beautiful ruin. The discovery or conception of this great and perfect idea of things, of nature in its purest and most essential form, unimpaired by disease, unmutilated by accident and unsophisticated by local habits and temporary fashions, and the exemplification of it in practice by getting above individual imitation, rising from the species to the genus and uniting in every subject all the perfection of which it is capable in its kind, is the highest and ultimate exertion of human genius. Hitherto shalt thou go and no further—every step in every direction from this pole of truth is alike retrograde—for to generalise beyond the boundaries of character, to compose figures of no specific age, sex, or destination, with no predominant quality or particular end to be answered in their construction, is to violate propriety, destroy interest and lose the very essence of beauty in contemptible nothingness and insipidity. Conceptions of beauty or perfection take place involuntarily in the mind, through the medium of that wonderful and powerful principle, the association of ideas; but they will be very far from distinct or correct, unless we also employ much study of the laws of nature, investigate closely her methods of attaining her purposes, observe accurately her rules of proportion, and how they are varied in every department of character, develop the connection of mind with matter, trace their reciprocal effects on each other, and learn in all cases to distinguish the harmonious, consistent and energetic from the absurd, superfluous and inefficient combinations of parts and principles.

The "Dance of Death."

The *Dance of Death* of the churchyard of the Predicants of the suburbs of St. John, at Basil, is always ascribed to Holbein, and is shown to strangers through a grate. And yet, as Vertue observed, our painter had undoubtedly no hand in it. Pope Eugenius IV. appointed the Council of Basil in 1431, and it sat there fifteen years, during which time a plague raged that carried off all degrees of people. On the cessation of it, the work in question was immediated painted as a memorial of that calamity. Holbein could not be the original painter, for he was not born till 1498, nor had any hand in the part that was added in 1529, at which time he had left Basil. Even if he had been there when it was done (which was about the time of his short return thither) it is not probable that mention of him would have been omitted in the inscription which the magistrates caused to be placed under those paintings, especially when the name of one Hugo Klauber, a painter who repaired them in 1569, is carefully recorded. But there is a stronger proof of their not being the work of Holbein, and at the same time an evidence of his taste. The paintings at Basil are a dull series of figures, of a pope, emperor, king, queen, &c., each seized by a figure of death; but in the prints which Hollar has given of Holbein's drawings of Death's Dance, a design he borrowed from the work at Basil, there are groups of figures, and a richness of fancy and invention peculiar to himself. Every subject is varied, and adorned with buildings and habits of the times, which he had the singular art of making picturesque.

Sacred Subjects in Sculpture.

Sacred subjects are far more favourable to the grand in sculpture than even the most felicitous inventions of mythology or the sublimest creations of uninspired poetry. The reality with which religion invests everything, the lofty moral which it inculcates, the deep truths which it breathes, awaken and enlist the strongest emotions of the heart, whilst the unequalled grandeur of the great events which it records presents to the chisel of the statuary objects so transcendent and unearthly that the most soaring genius could never have caught a glimpse of them even in his loftiest flights. The severity and dignity too of sacred subjects are most congenial to the grave character of sculpture, which disdains the littleness of the ignoble themes to which it is sometimes prostituted by venality or corrupt taste. Many modern sculptors have produced works which need only be named in justification of the above—Canova, Thorwaldsen, Tenerani and others. As art cannot sustain the duties of its high office unless it continues to be the expression of the soul, of the most intimate sentiment of every age in which it is developed, the influences of Christianity must operate on sculpture as on every other branch, and if these are wanting it cannot be said to answer the demand of the intellect. Even the treatment of classical subjects does not appear to us to satisfy unless those deeper meanings are conveyed which seem at times to foreshadow, or at least harmonise with, Christianity in the fable and poetry of the ancients, as in the story of Prometheus, of Psyche and many of the metamorphoses of Ovid. An immortal feeling, a sense of the infinite, is now looked for in the arts, whether their subjects are ancient or modern, and thus their essence must be Christian, though their forms may be derived from every source, even those of superstition, or history, or poetry.

Patronage of Art.

The truest patronage of the arts of design is that which leaves the choice of subject and the time of action to the unfettered judgment, the unbiassed feeling of him who would give breath to the canvas and to the marble life. The surest encouragement is that which countenances artists by the purchase of those works on which they have bestowed their labour, in giving form and substance to ideas that have originated in their own minds, which puts no limit on subject, no control on treatment, which obtrudes not direction nor insinuates suggestive interference. If patrons such as we have delineated are few, few are the artists who furnish forth unbidden emanations of their genius and specimens of their skill in high art, and for this most obvious of reasons that, having little rational hopes of sale for such works, they have confined their efforts to inferior toil. Such affords a sensible apology for the absence of spontaneous proofs of ability, but, at the same time, it indicates rather the contracted operation of public taste than that the deficient capabilities of artists have chilled the ardour of encouragement. It has neither been the absence of efficient conception nor the proofs of inferiority in execution that has deterred the true patrons of art, but it is the growing utilitarian tastefulness of the age has depressed the genius of artists. The views of profit entertained by the lower class of purchasers have fostered into prominence the efforts of mediocrity and of manual skill, while they have depressed, or at all events discouraged other exertion of mental greatness. "The grossness of pedlary" has banished, or nearly so, from the walls of our exhibition-rooms works in the highest class of art, works that would have emanated from our artists if uncontrolled, self-choosing and self-directing.

GENERAL.

The Caedmon Memorial, Whitby, was unveiled on Wednesday. It is an Anglican cross 20 feet high, and was designed by Mr. Charles Hodges, of Hexham. An address was delivered by the Poet Laureate.

The Spire of St. Michael's Church, Liverpool, which is the highest in the city, stands in need of restoration. About 20 feet of the 215 feet will have to be taken down and rebuilt.

The Grave of Bishop William Cartwright, the last of the Nonjuring Bishops, was discovered this week in Shrewsbury Church. He practised as an apothecary in the town.

The Foundation-stone of the Gloucester Free Library was laid on Friday last. The architects are Messrs. Waller.

At the Sanitary Institute the twenty-sixth course of lectures and demonstrations for sanitary officers will commence on October 17, and will be continued on Mondays, Wednesdays and Fridays, at 8 P.M. The lectures will be given by well-known authorities. There will be also practical inspections and demonstrations.

Brocklesbury Hall, the Lincolnshire seat of the Earl of Yarborough, which was almost completely destroyed by fire last March, is to be rebuilt, and the work is to be commenced at once.

St. Hilda's Mission Church, which has been erected in Parkinson Lane, Halifax, was dedicated on the 15th inst. The church, which has sitting accommodation for 300, has been erected at a cost of about 2,000*l.*

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than 2 P.M. on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

LIVERPOOL.—Oct. 3 (time extended).—Designs for new buildings for Royal Institution (50 guineas, 20 guineas). Mr. Harold Waterhouse, hon. sec., 3 Cook Street, Liverpool.

REIGATE.—Oct. 6.—Designs for Municipal Buildings (limit 15,000*l.*, premiums 50*l.*, 30*l.* and 20*l.*). Particulars from C. J. Green, town clerk, Station Road, Redhill.

WIVENHOE.—Sept. 29.—For water supply and drainage schemes. Particulars from C. W. Denton, 8 East Stockwell Street, Colchester.

CONTRACTS OPEN.

ABERDEEN.—For erection of a villa at Culter. Messrs. Beattie & Macdonald, architects, 21 Bridge Street, Aberdeen.

ABERDEEN.—Sept. 24.—For erection of sleeping apartment for men servants at North Kilmonae on the Haddo House Estates. Mr. Charles G. Smith, Estate Office, Haddo House, Aberdeen.

ALNWICK.—Sept. 27.—For alterations and additions to herd's house and farm buildings, Alnwick Moor. Mr. Wm. Robson Hindmarsh, jun., architect, Alnwick.

ALNWICK.—Sept. 28.—For alterations and additions to workhouse at Wooler. Mr. Robt. Middlemas, clerk, Alnwick.

ANNFIELD PLAIN.—Sept. 26.—For alterations to business premises. Mr. Ayre, Railway Villa, Annfield Plain.

BANBURY.—Sept. 28.—For reconstruction and improvement of public swimming-bath. Mr. N. H. Dawson, borough surveyor.

BARNSLEY.—Sept. 28.—For erection of five cottages, &c., in Spring Street. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnsley.

BEVERLEY.—Sept. 30.—For erection of registrar's offices and extension of the County Council offices. Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowlalley Lane, Hull.

BEXLEY HEATH.—Oct. 4.—For erection of caretaker's house at the Upland schools. Mr. Walter J. Weaving, 199 Broadway, Bexley Heath.

BIRMINGHAM.—Oct. 4.—For erection of four cottages at Solihull Station, near Birmingham, and of one at Milcote Crossing, near Stratford-on-Avon, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

BRADFORD.—Sept. 26.—For erection of a finishing-shed at Brick Lane Mills. Messrs. Isitt, Adkin & Hill, architects, Prudential Buildings, Bradford.

BRIDLINGTON. — Sept. 30. — For erection of Yorkshire Foresters' orphanage and convalescent home. Mr. Robt. J. Beale, architect, 9 Victoria Street, Westminster.

BRIGHTON.—For erection of six houses. Mr. C. H. Court, 15 Beresford Square, Woolwich, Kent.

BRISTOL.—Sept. 26.—For erection of a cookery-room and boys' additional classroom at the Avon Vale Board school, St. George. Mr. J. Mackay, architect, Richmond Place, Kingswood.

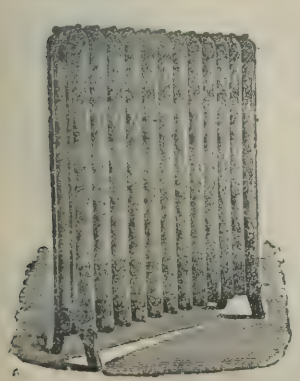
BRISTOL.—Sept. 26.—For erection of a laundry at South Street, Bedminster, and a gymnasium at Barley Fields, St. Philip's. Mr. W. V. Gough, architect, Bridge Street, Bristol.

BUXTON.—Sept. 26.—For rebuilding the Otterhole Bridge St. John's Road, and building stabling, &c., in the cattle market. Town Surveyor, Town Hall, Buxton.

CANTERBURY.—Sept. 30.—For demolition of premises and the erection of five shops and dwelling-houses in Northgate Street. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

CARDIFF. — For additions to Druidstone, S. Mellons. Messrs. Lansdowne & Griggs, architects, Metropolitan Bank Chambers, Newport, Mon.

CARK.—Oct. 8.—For building of a barn and outhouses at Cark. Mr. John Hall, Cark.



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CHEPSTOW.—Sept. 26.—For rebuilding the George Hotel, Chepstow. Messrs. Veall & Sant, architects, Cardiff.

CLAPHAM.—Sept. 30.—For erection of engineering works at Manor Street. Mr. W. D. Caroe, 8A Whitehall Place, S.W.

CLEATOR MOOR.—Sept. 27.—For erection of boiler seating and chimney. The general office of the Cleator Moor Co-operative Society, Limited.

COLCHESTER.—Sept. 29.—For erection of town hall buildings. Mr. H. C. Wanklyn, town clerk.

CORNWALL.—Oct. 4.—For erection of a lighthouse, dwellings, &c., at Pendeen, about one mile from Boscaswell, Cornwall. Mr. C. G. Verity, 31 Golden Square, London, W.

CRAWLEY, CARSHALTON AND WALLINGTON.—Oct. 1.—For erection of four houses at Crawley, four houses at Wallington, two houses at Carshalton. Mr. William Buck, architect, Horsham.

CWM.—Sept. 28.—For rebuilding the Royal Oak Hotel. Messrs. Rosser & Roberts, architects, Victoria Chambers, Abercarn.

DARLINGTON.—For alterations and additions to the steam laundry. Messrs. Martin & Davis, architects, Skinnergate, Darlington.

DARTMOUTH.—Oct. 1.—For alterations and additions to the old gaol for converting same into strong rooms. Mr. T. O. Veale, borough surveyor, Castle View.

DURHAM.—Sept. 28.—For erection of a retaining wall and footpath along the bank of the river near South Street. Mr. W. T. Jones, architect, 7 North Bailey, Durham.

EDINBURGH.—Sept. 30.—For taking-down and reconstructing part of tenement at north-west corner of Bank Street. Burgh Engineer, 1 Parliament Square.

ELGIN.—Sept. 26.—For erection of two houses in Rothes. Mr. R. B. Pratt, County Bank House, Elgin.

ELGIN.—Sept. 27.—For erection of two semi-detached cottages. Mr. Geo. Sutherland, Elgin.

GREENWICH.—Oct. 13.—For erection of a workhouse for about 800 inmates on a site near Grove Park. Mr. Thos. Dinwiddy, architect, 12 Crooms Hill, Greenwich.

GUILDFORD.—Oct. 6.—For extension of the infants' room at the school buildings at Stoughton. Mr. Edward L. Lunn, architect, 36 High Street, Guildford.

HALIFAX.—Oct. 5.—For erection of a tramway-car shed at the junction of Free School Lane and Skircoat Road. Mr. Edward R. S. Escott, borough engineer, Town Hall, Halifax.

HARTLEPOOL.—Sept. 29.—For erection of destructor-house, engine and mill-house, cottage, boundary walls and chimney at the new sanitary depôt in Clifton Street. Mr. H. C. Crummack, borough engineer, Town Hall, Hartlepool.

HEBBURN-ON-TYNE.—For rebuilding of house and shed, Carr Street. Mr. Jos. W. Wardle, architect, South Shields.

HUDDERSFIELD.—Sept. 28.—For erection of ten dwelling-houses at Deadwaters, Folly Hall. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

HULL.—Sept. 29.—For extension of the electric-lighting station, Sculcoates Lane. Mr. A. E. White, city engineer, Town Hall, Hull.

HUNSTANTON.—Sept. 26.—For alteration and enlargement of the foreman's house at the gasworks. Forms of tender can be obtained at the Council Offices, Hunstanton.

ILKLEY.—For erection of a detached house. Messrs. Isitt, Adkin & Hill, architects, Prudential Buildings, Bradford.

KEIGHLEY.—Sept. 27.—For erection of five dwelling-houses, Hainworth Wood Road. Messrs. W. H. & A. Sugden, architects, Cavendish Street, Keighley.

KEIGHLEY.—Sept. 29.—For erection of three shops and houses, Cavendish Street. Messrs. W. & J. B. Bailey, architects, Bradford and Keighley.

KENDAL.—For erection of the Dyke Hotel at Tebay. Mr. John Hutton, architect, Kendal.

KEW.—Oct. 3.—For removal of existing bridge and construction of new masonry bridge over the river Thames, together with alterations of approaches and construction and subsequent removal of temporary bridge over the river. Sir John Wolfe Barry, K.C.B., and Mr. C. A. Brereton, engineers, 21 Delahay Street, Westminster.

LEAMINGTON.—Sept. 27.—For erection of a refreshment arbour in the Jephson Gardens. Mr. F. G. Cundall, 41 The Parade.

LEEDS.—Sept. 26.—For erection and alteration of shop premises in Woodhouse Lane. Messrs. James Charles & Sons, 98 Albion Street, Leeds.

LEEDS.—Oct. 1.—For extension of Kirkgate Market. Mr. Thomas Hewson, city engineer, Municipal Buildings, Leeds.

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LEEDS.—Oct. 1.—For erection of 24 through cottages on the West Riding Athletic Ground, Meanwood Road. Mr. John E. Preston, architect, 32 Northbrook Street, Chapel Allerton.

LEICESTER.—Oct. 1.—For alterations and additions to the museum buildings (late school of art), Hastings Street. Mr. E. Geo. Mawbey, borough surveyor, Town Hall, Leicester.

LEIGH.—Oct. 12.—For erection of new kitchens at the sanatorium, Astlee. Messrs. Banks, Fairclough & Stephen, architects, Leigh.

LLANDOVERY.—Sept. 29.—For construction of abutments, wing walls and piers, partly in masonry and partly in concrete, of a highway bridge to be erected over the river Towy at Glanrhyd. Mr. Rees James, surveyor, Town Hall, Llandovery.

LONDON.—Sept. 26.—For cleft pale oak boundary fencing at Brockwell Park, for the London County Council.

LONDON.—Sept. 27.—For erection of a bothy and alterations to conveniences at Parliament Hill, and the erection of a cart-shed, bothy, office, &c., at Southwark Park, for the London County Council. Mr. C. J. Stewart, clerk, County Hall, Spring Gardens, S.W.

LYME REGIS.—Oct. 15.—For erection of five cottage almshouses. Mr. Walter J. Fletcher, Wimborne.

PORTSMOUTH.—Sept. 28.—For erection of dispensary and offices, &c., alterations and repairs to the old buildings, and alteration of the hot-water service, sanitary work, paintings, &c., at the workhouse infirmary. Mr. C. W. Bevis, architect, Elm Grove Chambers, Southsea.

PORTSMOUTH.—Oct. 10.—For erection of a public elementary school in Stamshaw Road to accommodate 600 boys, and for converting the existing Stamshaw Board school into a school for girls and infants only. Mr. G. E. Smith, Glendore, Victoria Road North, Southsea.

RAMSGATE.—Oct. 5.—For erection of refuse destructor, with buildings, sheds, chimney shaft, &c. Mr. T. G. Taylor, surveyor, Broad Street, Ramsgate.

ROSS.—Sept. 27.—For erection of a post office. Mr. Alan Paull, 6 Quality Court, Chancery Lane.

RUTHIN.—Oct. 17.—For alterations and additions to house at Brynhyfryd, including new school buildings in connection therewith. Mr. James Hughes, architect, Denbigh.

SALFORD.—Sept. 29.—For alterations to w.c.'s, lavatories, &c., at the model lodging-house, Bloom Street. Mr. Samuel Brown, town clerk, Town Hall, Salford.

SALISBURY.—Sept. 29.—For additions to the aged men's day-room of Salisbury Union workhouse. Messrs. John Harding & Son, architects, 58 High Street, Salisbury.

SALTBURN-BY-SEA.—Sept. 26.—For erection of a tower and spire to the church of Emmanuel. Messrs. Clark & Moscrop, architects, Darlington.

SCOTLAND.—Sept. 30.—For erection of a dwelling-house at Burnmouth, Knockando. Plans may be seen at Burnmouth.

SHEFFIELD.—Sept. 30.—For alterations to the Horseshoe inn, Shiregreen. Mr. G. A. Wilson, architect, Hartshead Chambers, Sheffield.

SHEFFIELD.—Sept. 26.—For erection of boiler-house, chimney, coal store and tank at the Fir Vale workhouse. Mr. John Clark, architect, 55 Norfolk Street, Sheffield.

SHIPLEY.—Sept. 26.—For erection of engine and boiler-houses, stabling, workshops, cottages, &c., at Dockfield. Messrs. Samuel Jackson & Son, architects, Tanfield Chambers, Bradford.

SHOREHAM.—For erection of a pair of small houses at Shoreham. Mr. H. Adams, Victoria Road, Shoreham.

SOPHIA (BULGARIA).—Nov. 21.—For erection of eight public offices, viz., a Ministry of Public Works, Ways and Communications, a Ministry of Commerce and Agriculture, a Ministry of the Interior, a Ministry of Public Instruction, a Ministry for Foreign Affairs and Public Worship, a Ministry of Justice, and an Audit Office. Particulars can be obtained at the Commercial Department of the Foreign Office between the hours of 11 and 5.

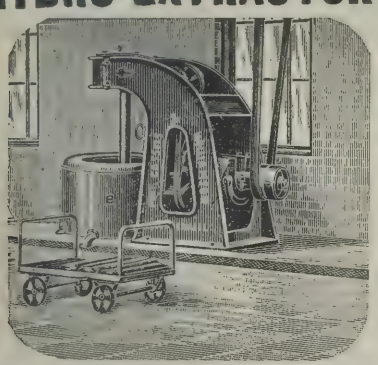
SOUTH SHIELDS.—Sept. 28.—For construction of an underground public convenience at the Market Place. Mr. S. E. Burgess, borough engineer, Chapter Row.

SWANAGE.—Oct. 12.—For erection of a police station. Mr. Walter J. Fletcher, architect, Wimborne.

TRURO.—Oct. 4.—For construction of an engine-shed and other works at Truro, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

TUNBRIDGE WELLS.—For erection of fifty-three four-roomed cottages and five blocks of tenements. Mr. W. C. Cripps, town clerk.

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UPPER EDMONTON.—Sept. 28.—For erection of a new infirmary pavilion at the workhouse, Union Road. Mr. T. E. Knightley, architect, 106 Cannon Street, E.C.

WALES.—Sept. 30.—For erection of Grand Hotel and stabling, Port Talbot. Mr. George E. Robinson, architect Cardiff.

WALES.—Oct. 18.—For erection of an assembly hall and other additions and alterations to the school at Llandaff. Mr. G. E. Halliday, architect, Cardiff.

WALSALL.—Sept. 27.—For enlargement of the post office, Messrs. Harris & Harris, 9 Benet's Hill, Birmingham.

WEDNESBURY.—Sept. 30.—For erection of isolation hospital buildings, boundary walling and other brickwork in Dangerfield Lane. Mr. E. Martin Scott, borough engineer.

WESTBURY-ON-SEVERN.—Oct. 3.—For erecting new kitchen, stores, laundry, committee-room, tramp wards, receiving wards, porter's lodge, &c., at the workhouse, Westbury-on-Severn. Mr. W. Fitzgerald Jones, architect, 21 George Street, Gloucester.

WEST HAM.—Oct. 4.—For repairing interior of the Abbey Mills pumping station, West Ham, including the non-working parts of the machinery and all the ironwork, &c., also inside and outside of the Isle of Dogs pumping station. Engineer's Department, County Hall, Spring Gardens, S.W.

WIMBLEDON.—For alterations and additions to Wimbledon Liberal and Radical Club, consisting of new hall (brick), lavatory, &c., and new drainage. Specifications and plans to be seen at the Club, 95 Merton Road, Wimbledon.

WOLVERHAMPTON.—Sept. 30.—For structural alterations and additions to the Brick Kiln Street school. Mr. T. H. Fleming, architect, 102 Darlington Street, Wolverhampton.

WOOBURN.—For erection of chimney, about 6 feet internal diameter, 175 feet high. Messrs. Thomas & Green, Limited, Wooburn, Bucks.

WREXHAM.—Sept. 28.—For erecting boundary walls to separate fever hospital from workhouse grounds. Messrs. J. Morison & Son, architects, King Street, Wrexham.

IN the course of excavations now in progress in the Bull Ring, Birmingham, a cellar cut in the solid sandstone has been discovered. It was evidently part of the basement of the old Shambles.

TENDERS.

ASHTON-UNDER-LYNE.

For sewering Hill Street, from Cavendish Street to Bentinck Street, and for kerbing and flagging Gower Street and Athol Street. Mr. J. T. EARNSHAW, borough surveyor.

R. C. FISH, Ashton-under-Lyne (*accepted per schedule*)	£

BANBURY.

For providing and laying surface-water sewers, manholes, catchpits, &c., in Centre Street, North Street, West Street and Old Grimsbury Road, for the Town Council. Mr. N. H. DAWSON, borough surveyor.

S. Orchard & Son	£297 0 0
J. S. KIMBERLEY, Britannia Road (*accepted*)	263 0 0

BEXHILL-ON-SEA.

For erection of business premises at the corner of Wilton Road and Marina. Mr. WM. COOPER, architect, 21 Havelock Road, Hastings. Quantities by architect.

H. Noakes	£12,125 0 0
Simonds & Co.	10,897 0 0
H. Cruttenden	10,879 0 0
J. Martin	10,700 0 0
M. Martin	10,690 0 0
A. H. White	10,538 0 0
Padgham & Hutchinson	10,450 0 0

Excavations and concrete foundations.

J. Piper	390 8 3
S. Carey	302 12 6
E. GUTSELL, Silverhill (*accepted*)	289 0 0

CAMBRIDGE.

For erecting professors' houses at Westminster College, Cambridge. Mr. HENRY T. HARE, architect, 13 Hart Street, Bloomsbury Square, W.C. Quantities by Mr. G. FLEETWOOD, 3 New Court, Lincoln's Inn, W.C.

W. Sindall	£4,123 0 0
S. F. Harriday	4,050 0 0
W. Bell & Son	3,998 0 0
W. SAINT (*accepted*)	3,876 0 0

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G. BELL & SON, Sheffield (*accepted*)	£1,384 0 11

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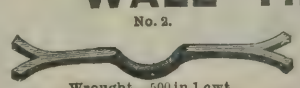
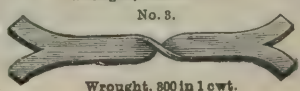
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H. Potter	£571 2 6
Bunning & Son	536 0 0
F. JOHNSON, Chelmsford (*accepted*)	528 10 0

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For paving about 360 superficial yards with grit in Whalley Road. Mr. ARTHUR DODGEON, surveyor.

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Exors. of A. BROADLEY, Clayton-le-Moors (*accepted*)	99 3 4

CORNWALL.

For erection of a drill shed at Gwavas Lane, Newlyn. Mr. OLIVER CALDWELL, architect.

Accepted tenders.

J. & J. White, Newlyn, masonry	£229 10 0
J. James, Penzance, carpentry	119 5 0

Whole tenders.

A. Chapman, Penzance	435 0 0
J. S. Traganza, Mousehole	380 0 0
Harvey & White, Newlyn	358 0 0
Hosking & White, Newlyn	348 0 0

CUMBERLAND.

For erection of business premises and dwelling-house at Great Broughton. Mr. J. S. MOFFAT, architect, Church Street, Whitehaven.

Accepted tenders.

Wren & Lindsay, Cockermouth, mason and brickwork.
Grave & Son, Cockermouth, carpenter and joiner.

DEVON.

For erection of a farmhouse at Belsford, in the parish of Harberton, near Totnes.

BROOK, Totnes (*accepted*) . . . about £700 0 0

DOWNPATRICK.

For supply of 260 tons coal, to be delivered at the workhouse carriage free, for the Guardians.

H. CROSKERY, Downpatrick (*accepted*), 15*s.* 3*d.* per ton.

DOVER.

For erection of a workshop, &c., adjoining the car shed at Maxton. Mr. HENRY E. STILGOE, borough engineer.

J. Parsons	£439 12 2
G. Munro	422 17 2
Austin & Lewis	389 8 0
H. B. ELLIS (*accepted*)	381 18 6
Surveyor's estimate	375 0 0

EASTHAM.

For repairs to Eastham Bridge.

VALE, Stourport (*accepted*) £450 0 0

EDINBURGH.

For sewerage and paving works.

Accepted tenders.

Brunton & Son, paving Southville Street, Portobello	£657 18 2
A. Wallace & Son, Ann Street and Upper Dean Terrace	253 15 0
Waddell & Son, Clerk Street and West Preston Street	220 0 0
R. C. Brebner & Co., works on sewers in Pilrig Street	202 18 0
A. Waddell & Son, Gorgie Road	196 0 0

GREENWICH.

For rebuilding a boundary wall. Mr. THOMAS DINWIDDY, architect, 12 Croom's Hill, Greenwich.

Watts	£261 0 0
Leng	190 0 0
W. Mills	144 0 0

GUISBOROUGH.

For erection of a storehouse and the taking-down and rebuilding of a boundary wall at the workhouse.

E. CRUDDAS & SON, Guisborough (*accepted*) . £356 8 11

HALIFAX.

For about 800 yards super of setting in Rochdale Road, King Cross.

A. Beverley	£223 15 4
S. BEDFORD, Halifax (*accepted*)	171 13 4
G. Kenyon	170 0 0

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HAM.

For sewering, levelling, paving, metalling, channelling and making good a portion of Lock Road. Mr. W. WARNER, surveyor.

G. Bell	£449 0 0
W. Adamson	390 0 0
W. Swaker	350 0 0
S. ATKINS, Queen Elizabeth Road, Kingston-on-Thames (*accepted*)	345 0 0

HAMPSTEAD.

For erection of a block of residential flats to be called Priory Court, Mazenod Avenue, N.W. Messrs. PALGRAVE & CO., architects, 28 Victoria Street, S.W. Quantities by Mr. GEORGE STEPHENSON.

Stephens, Bastow & Co.	£23,339 0 0
Allen & Sons	22,500 0 0
F. Gough & Co.	21,534 0 0
J. Bennett	19,945 0 0
F. T. Chinchen	19,590 0 0
Smith & Sons, Norwood*	19,516 0 0

* Recommended for acceptance.

HOXTON.

For alterations and repairs to the Bell public-house, Felton Street. Mr. J. G. NEEDHAM, architect, 18 Lower Clapton Road, N.E.

T. H. Jackson	£327 5 0
R. Ridgeway & Sons	229 10 0
A. & T. WILSON (*accepted*)	207 0 0

Gasfitting.

J. Steadman	25 10 0

IRELAND.

For erecting a pump in the Ash Walk, Ardee.

P. MURPHY, Drogheda (*accepted*)	£4 15 0

For erection of the O'Connor memorial fountain at Ballycastle, co. Antrim. Mr. S. K. POPE, architect, 27 Portland Street, Southampton.

D. Christie	£365 0 0
DARRAGH & VERDON, Ballycastle, co. Antrim (*accepted*)	300 0 0

For construction of a breakwater at Derrygonnelly.

P. FLANAGAN, Main Street, Derrygonnelly, co. Fermanagh (*accepted*)	£68 10 0

LONDON.

For erection of a new factory at 17 Albion Street, King's Cross, N., for Messrs. Stephenson, Mager & Co. Mr. H. A. EMMETT, architect, Monnery Road, Tufnell Park, N.

		A.
Holliday & Greenwood	£4,089 0 0	£129 0 0
Patman & Fotheringham	3,791 0 0	87 0 0
Scrivener & Co.	3,129 0 0	97 0 0
FOORD & SONS, Brentford (*accepted*)	2,985 0 0	96 0 0

A. Extra for lead roof.

For erection of two blocks of flats, Trouville Road, S.W. Messrs. BOCHMER & GIBBS, architects, 11 Spring Gardens, S.W.

Turtle & Appleton	£9,330 0 0
Britton	9,300 0 0
L. WHITEHEAD & CO., LIMITED (*accepted*)	9,250 0 0

MORECAMBE.

For laying water-mains along Marine Road from a point opposite the Midland Hotel stable yard gateway to Bold Street, and along Alexandra Road extending from a junction with the above water-main on Marine Road to Westminster Road, with cill fittings. Mr. JOHN BOND, surveyor.

J. JOHNSON, Lancaster (*accepted*)	£1,365 10 10

For sewering, levelling, &c., various streets. Mr. JOHN BOND, surveyor, Council Offices, Morecambe.

I. Gorton	£1,259 17 4
R. ESCOLME, Morecambe (*accepted*)	297 18 7
J. Johnson	261 17 10
E. Ireland	37 10 6

PONTYPOOL.

For erection of offices, &c., at Pontymoile. Mr. D. J. LOUGHER, architect, Bank Chambers, Pontypool.

W. Arthur	£1,015 10 0
C. H. Hambleton	1,045 0 0
Morgan & Evans	1,047 0 0
F. C. Parfitt	1,065 0 0
BAILEY BROS., Pontnewynydd (*accepted*)	922 0 0

ROCHDALE.

For painting cabmen's shelter in the Butts, Royds Street police-station, and mortuary behind town hall.

CHADWICK & HEMINGWAY (*accepted*).

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RIPON.

For laying 1,000 square yards of cement concrete in the Market Place.

J. Ford	£275 0 0
S. McFARLANE, Leeds (*accepted*)	230 17 6
J. Speight	225 0 0
J. Roberts	220 1 4
A. Walker & Son	219 11 9
Jones Annealed Concrete Company	204 14 0

Ironwork.

S. McFarlane	79 14 0
J. Ford	71 0 6
J. Speight	66 15 6
A. Walker & Son	59 3 9
J. Roberts	34 0 0
H. A. Fawell	32 10 6
W. BENSON, Ripon (*accepted*)	21 12 9

RUABON.

For erection of a Wesleyan chapel at Glyn Ceiriog, near Ruabon. Mr. R. T. JONES, architect, 3 Cambrian Terrace, Llangollen.

R. Williams	£408 0 0
Jones & Evans	368 2 6
R. Jones	303 0 0
J. M. JONES, Oswestry (*accepted*)	261 0 0

RUSHDEN.

For painting, &c., at the waterworks pumping-station at Wymington, and at the isolation hospital, Rushden. Mr. W. B. MADIN, town surveyor.

Waterworks pumping station.

G. L. Shelton	£23 0 0
W. Spencer	23 0 0
A. T. Nichols	13 10 0
WHEELER & SON, Newton Road, Rushden (*accepted*)	7 10 0

Isolation hospital.

W. Spencer	24 0 0
A. T. Nichols	12 0 0
G. L. Shelton	12 0 0
WHEELER & SON (*accepted*)	12 0 0

RUGBY.

For repairs to the branch stores, Hillmorton. Mr. J. T. FRANKLIN, architect, Rugby.

Young	£118 0 0
Harris	114 0 0
Satchell	105 0 0
Hopkins	98 0 0
DYCHE & SHARPE, Rugby (*accepted*)	97 5 0

SCOTLAND.

For additions to the Burgh Road Trust stables, Nether Common, Inchinnan Road, Paisley.

Accepted tenders.

Robertson & Gilchrist, mason	£168 0 0
D. Wilson, joiner	57 16 2
Keenan & Kelso, slater	26 2 7
Stewart & Hendry, plumber	6 4 4

SOUTHAMPTON.

For erection of school buildings, Ludlow Road, Woolston. Messrs. MITCHELL, SON & GUTTERIDGE, architects, 9 Portland Street, Southampton.

Witt Bros.	£6,950 0 0
Playfair & Toole	6,846 0 0
H. Cawte	6,137 0 0
H. Stevens & Co.	6,123 0 0
Jenkins & Sons	6,097 0 0
Rashley	5,946 0 0
Hinton Bros., Woolston, Southampton *	5,411 0 0

* Accepted subject to approval of Education Department.

ST. LEONARDS-ON-SEA.

For decorations, &c., to the Sussex Hotel, Marina. Mr. W. COOPER, architect, 21 Havelock Road, Hastings.

Hot-water service.

A. Wilard	£106 16 0
A. A. HART, Hastings (*accepted*)	97 0 0

Decorations.

W. E. Brown	590 0 0
J. & C. Bovis	495 0 0
J. HARVEY, St. Leonards (*accepted*)	492 10 0

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Also, Testimonials from Dr. Hassall, September 26, 1868; the late Dr. Letheby, February 15 1865, and December 1872.

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WHITSTABLE.

For erection of two 14-roomed villas on the Tankerton Estate. Mr. SMYTHE, surveyor, London.

Hardwell, Sons & Co.	£1,600 0 0
W. R. Smith	1,520 0 0
L. L. LEEDER & Co. (*accepted*)	1,512 0 0

WOOLWICH.

For removal of 11 water-closet apparatus, with cisterns and other plumbing-work, at the workhouse.

Greenaway	£326 13 10
Mills	193 0 0
Conoley	182 0 0
Richardson	170 0 0
A. H. Inns	166 0 0
H. DOULTON & Co. (*accepted*)	143 0 0
Chapman Bros.	125 0 0
Beazley	125 0 0

BEMBRIDGE BUILDING LAND.

WE referred in our last issue to the important sale of building land situated at Bembridge and Brading Harbour, Isle of Wight, which was to be held on Tuesday last by Messrs. Douglas Young & Co. The sale was duly held, and must be accounted an eminently satisfactory one, as every lot offered was purchased after brisk competition, and the total amount realised was 13,890*l*. The property comprised several large building plots and 520 acres of land which was reclaimed from the sea about twenty years ago and is now principally used for grazing purposes.

Messrs. Douglas Young & Co. announced the sale of the Queen's Park Estate, Brighton, at the Mart on Wednesday, and the Ilford Park Estate, at Ilford, yesterday.

MESSRS. WOOLGAR & ROBERTS'S press-cutting and general information agency notify us that they have removed from 58 to 109 Fleet Street.

A MEMORIAL plaque to the third Marquis of Exeter, grandfather of the present marquis, has been unveiled in the church of the Holy Sepulchre, Northampton. The memorial, erected by past and present officers of the Northamptonshire Militia, of which the deceased nobleman was lieutenant-colonel commandant and honorary colonel for the united period of forty-one years, records the marquis's connection with the regiment and bears the regimental and family mottoes.

ELECTRIC NOTES.

THE Liverpool lighting committee at the periodical meeting decided to extend the electric mains in Newington and Tarleton Street. The electrical engineer's report for the month of August showed that the total supply to private consumers was 119,600 units of electric energy, as compared with 83,260 units supplied during the corresponding period of last year. For Corporation purposes the supply amounted to 142,981 units, as against 104,616 units supplied in August 1897.

AT a meeting of the Kirkcaldy Town Council committee in connection with the proposed electric lighting and tramway schemes, it was unanimously agreed to give notice at once of their intention of applying for a provisional order for the electric lighting, and Parliamentary powers to lay down an electric tramway. The preliminary notices will be issued immediately, and Professor Kennedy is to be asked to supply the plans and all professional advice. The area that will be sought to be lighted with electricity will be the High Street, power being secured to extend the same. The tramway route will be the original plan from West Bridge to Dysart, with circular tour viâ the Den and Victoria Roads.

A START has been made in the construction of an electric railway that is to connect Waterloo with the terminus of the Great Central Railway at St. John's Wood. The work has not yet advanced very far, indeed, it does not extend beyond the erection of a staging in the river, close to Hungerford Bridge. At this point it is intended to sink shafts, through which most of the earth excavated will be brought to the surface. Starting from Waterloo the line will pass under the river at the side of the South-Eastern railway bridge, under the Fire Brigade pier, and then underneath Northumberland Avenue, at the end of which will be a station. The line will then strike across to Oxford Circus, at which point it is proposed to build another station, and thence it will run to the Metropolitan Railway station at Baker Street, and on to the Great Central Railway.

ELECTRIC-LIGHT development in Edinburgh is making rapid strides, as is evidenced from the following figures:—In the first fifteen weeks of 1895-96 equal to 10,450 8 candle-power lamps were joined on and 16,739 were applied for. In the corresponding weeks of 1896-97 4,875 were joined on and 16,712 were applied for. In 1897-98 for the first fifteen weeks 8,882 8 candle-power lamps were joined on and 26,298 applied for. In the present year the committee had joined on in the fifteen weeks from May 15 14,044 and had applications

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equal to 29,490 8 candle-power lamps. During the same period the consumption in 1895-96 was 40,640 units ; in 1896-97, 92,312 units ; in 1897-98, 185,021 units, and for the same period this year it had been 375,628 units, showing a steady increase from year to year for the first fifteen weeks of about 100 per cent. The increase for the whole year of 1896-97 over the previous year was 86 per cent., that of 1897-98 over 1896-97 was 88 per cent., and so far this year promised equally well, and it was estimated that there would be an output of 75 per cent. over last year. Taking it at this, there would be 3,463,558 units sold for private lighting at an average price of 3·15*d.*, giving an income from that source of 45,459*l.* 3*s.* 10*d.* The public lighting being 9,940*l.* and 50*l.* from other sources, they had a gross revenue of 55,449*l.* 3*s.* 10*d.* The total expenditure was estimated at 43,949*l.* 3*s.* 10*d.*, including 19,190*l.* for interest and sinking fund, thus leaving a surplus of 11,500*l.* Of this sum the committee recommended the Council to put 7,000*l.* to the reserve fund, raising it at the end of the financial year to 15,000*l.* The balance of 4,500*l.* went in relief of the rates.

THE beginning of work for the conversion of the Broadway cable line into an underground electric railroad will be viewed by New Yorkers with unmixed satisfaction, says the *New York Tribune*. The underground trolley has proved itself to be an unqualified success. It is as much an advance on the jerky cable traction as the cable was on the horse cars which offered an apology for locomotion in our streets long after other cities enjoyed real rapid transit. New York has been behind the times partly through its own fault, but also partly because invention was slow to meet the conditions of our congested streets. The overhead trolley was vastly more convenient, comfortable, and economical than the cable, but it was of necessity barred from our business centres, for the stringing of a network of heavily charged and uninsulated wires over our roadways was not to be thought of. The underground trolley is really a new thing. It seems only a few months ago that experiments were being made in Harlem to find out if it could be used under our winter conditions. The results so far exceeded expectation that the Madison Avenue line was equipped for electricity with the intention of leaving the cable roads in operation for some time to come. But the popularity of the new method is so great that the railroad company has determined to respond to the public desire promptly, and we may hope to see the smooth-running cars in Broadway with the beginning of next summer. The public complacency over the new work in Broadway is in itself a high tribute to the Metropolitan Street Railway Company. That corporation has not done business in New York without earning its share of criticism for failure to respond to the needs of the travelling public. But let a company do as the Metropolitan has recently shown a disposition to do, strive to deal with the people liberally, with the highest regard for their rights, and the people will reward them with enthusiasm. As Mr. Macdona, the counsel for the company, says, a year ago the Metropolitan had seventy-odd injunction suits on hand, while now delegations of property-owners are calling to offer it rights of way through streets where it never thought to go. It is impossible that this goodwill should not add to the profits of the road. Men will not ride in cars which typify niggardly disregard of their convenience when they can patronise people who try to consider their comfort. With the new motive power in Broadway the surface transit facilities will be wonderfully improved, and the parallel lines will so diminish congestion that it may not be utterly utopian to hope that some way may be found to handle the crowds without the present barbarous crowding. If the Metropolitan Company will devote itself with a liberal spirit to that problem instead of giving it up as a bad job at the outset, it is possible that by next year a man may go uptown in Manhattan Island in the busy hours without mauling and humiliation.

BUILDING AND BUILDERS.

A SCHOOL is in course of erection at Cardonald, N.B., at a cost of about 2,000*l.*

TURTON parish church is to be reseated and decorated at a cost of nearly 1,000*l.* Owing to the presence of dry-rot in the floors the work has to be completed immediately.

PLANS have been prepared by Mr. J. Groom, architect, 3 Broad Street Buildings, Liverpool Street, for an important block of warehouses to be erected in Great Arthur Street, Golden Lane.

THE foundation-stone was laid on the 17th inst. of a church in Gerald Road, Pendleton. The building will be erected by the Dominican Fathers, who will expend on it 10,000*l.*

BETWEEN 9,000*l.* and 10,000*l.* are to be expended on a public hall and post-office buildings which are about to be erected at Wells from designs by Mr. John Johnson, architect, 9 Queen Victoria Street.

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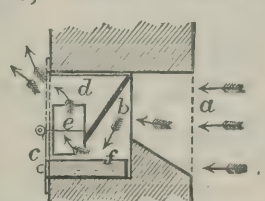
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THE foundation-stone was laid on the 15th inst. of a mission church, to be known as St. Saviour's, in the parish of St. John's, Coventry. The new building will seat 300 persons and is estimated to cost 2,600*l.*

A LARGE Primitive Methodist chapel and school premises are in course of erection in Hinckley Road, Leicester, in place of the St. Nicholas Street chapel, which is being demolished for a town improvement.

A SERIOUS accident occurred last week at St. Botolph's Church, Wood Street, Cheapside, which is undergoing repairs. A scaffold fell, so seriously injuring four men that they had to be taken to St. Bartholomew's Hospital.

PLANS for the erection of a new isolation hospital at Scarborough at a cost of 15,000*l.* have been passed by the local authority. Thirty-two beds will be provided, sixteen in the scarlet-fever block (four private), ten in the typhoid block (two private), two for measles and diphtheria and two for observation.

THE demolition of old buildings between New Street and Union Street, Birmingham, is to be commenced on November 1, preparatory to the construction of the new arcades. The building contract has been let to Mr. E. J. Charles, of Moseley.

THE excavators, bricklayers and masons' work in connection with the erection and completion of new bank at Ripon, for the Knaresbro' and Claro Banking Company, has been entrusted to Mr. Anthony Lyons, contractor, of Norton Malton, to designs by Mr. Arthur A. Gibson, architect, Harrogate.

THE memorial-stones of a new chapel at Swansea, which will be known as Rhyddings Chapel, were laid on the 8th inst. Mr. P. J. Thomas, of Bridgend, has prepared the plans, and the contract has been let to Messrs. Weaver & Co. The cost of the new chapel is to be about 1,550*l.* It is being built in the Gothic style of architecture, and will seat nearly 550 persons.

THE foundation-stone of the new municipal buildings of Govan, N.B., has been laid. The building, which is situated at the corner of Govan Road and Summertown Road, is being erected at a cost of 32,000*l.*, and will be completed in about eighteen months. When completed, the new buildings will consist of the council chamber, offices for the different burgh departments, a public hall capable of accommodating 2,000 persons and a small public hall to seat 500 persons. The architects are Messrs. Thomson & Sandilands.

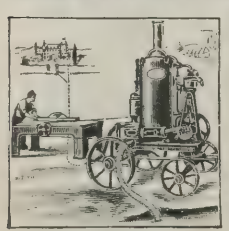
THE memorial-stone was laid last week of St. Stephen's Mission Hall, the erection of which has been commenced on a site in Crown Street, Carlisle. The hall is intended for parish meetings of all kinds as well as religious services, and will accommodate from 120 to 130 persons. The plans have been prepared by Mr. Pogson, architect, and provision has been made whereby the hall can be enlarged so as to seat about 50 more people, or the space may be utilised for class-rooms. Exclusive of the furnishing, the hall will cost about 650*l.*

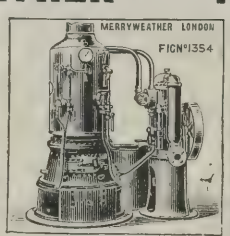
AT a special meeting of the Town Council of Colchester a letter was received from the Local Government Board sanctioning the necessary loan for the erection of a new town hall at a cost of 36,000*l.*, and the work will at once be proceeded with. The tower and chimes for the new building, estimated to cost 2,000*l.*, will be given by the mayor (Alderman James Paxman, J.P.). The borough member (Sir Weetman Pearson) has contributed a new organ for the assembly-room and gifts of stained-glass windows, statuary and paintings are promised by leading townsmen.

AT a recent meeting of the Aberdeen Harbour Commissioners it was resolved by nineteen to four votes that the graving dock be reconstructed on its present site, that it should be lengthened by moving the site of the entrance eastwards to the extent of 75 feet, that it should be widened and deepened, and that a sliding caisson be substituted for the entrance in place of gates. The floor of the dock will be constructed on a level plane throughout, instead of having a rise of 3 feet. A pontoon dock will also be provided on the south side of Albert Basin. Mr. Henry H. Wake, Mem.Inst.C.E., the board's consulting engineer, estimates the cost of the reconstruction of the dock at 116,211*l.*, to which must be added the sum of 9,251*l.*, being the extra cost of a sliding caisson for the entrance, making together 125,462*l.* This sum is exclusive of the cost of the pontoon dock, amounting to 7,000*l.*

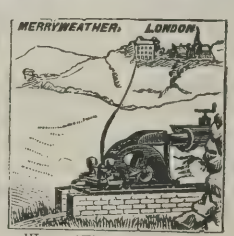
THE Postal Department has decided to expend 200,000*l.* on a scheme which makes provision for dealing more efficiently with the increasing postal and telegraph work in the Metropolis, and under which better accommodation will be provided for the staff. Three new buildings will be erected at once. The east block of St. Martin's-le-Grand will be demolished with the exception of the outward walls, and within a new structure will be erected suited to modern requirements. While the work is in progress a portion of the business will be

MERRYWEATHER on WATER SUPPLY TO COUNTRY MANSIONS, &c.

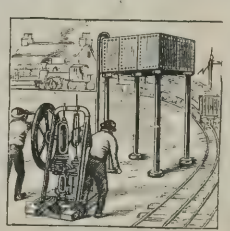

Estate" Steam Pumping and Driving Engine.



Light Pumping Engine and Boiler.

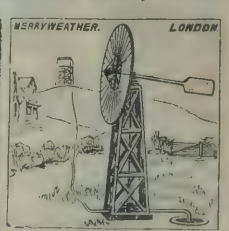


Water Wheel Pumps.

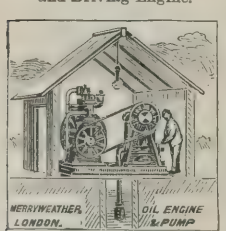

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"Squire" Portable Fire Engine.



Windmill Pump.



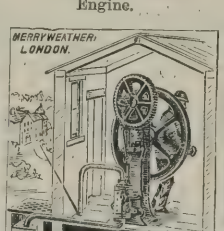
Oil Engine and Pump.



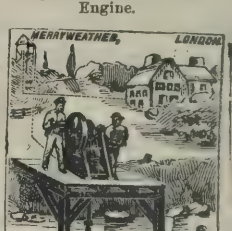
Estate Manual Force Pump.



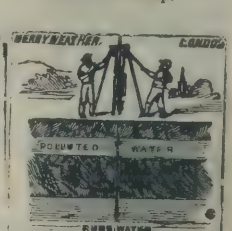
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transferred to the Mount Pleasant offices in Clerkenwell, to which a new wing is being added. These parts of the scheme will cost 150,000*l.* The Department has purchased the business premises of Messrs. Barnard & Sons, manufacturing silversmiths, Angel Street and King William Street, which will at once be demolished, and a new building erected on the site, which will provide ample dining and cloak-room accommodation for the staff of 3,000 telegraph clerks at St. Martin's-le-Grand. The sum of 50,000*l.* will be spent on this undertaking. As soon as a suitable site can be obtained, it is proposed to build a new post and telegraph office in the East Strand, where business has developed so rapidly in recent years. The present building has been taken on a short lease from the Duke of Norfolk: but the shop property (including the post office) extending from Surrey Street to Norfolk Street will have to come down shortly, when the leases expire.

THE foundation-stones of a new Baptist chapel, to be erected by the members of the Yates Street chapel, which has now become inadequate to their requirements, were laid recently at Aston Manor. The design of the new structure, which will be built of red brick with stone dressings, is in the old English style of architecture. The body of the chapel measures 65 feet by 40 feet, and will accommodate 400 persons. It is approached by an imposing entrance to Thomas Street and an open porch leading into side lobbies. The building will be heated by means of the low-pressure hot-water system, and special attention has been paid to the acoustic properties.

THE corner-stones of a new Constitutional Club at Farsley have been laid. The building with the furnishings will cost about 2,500*l.* Mr. G. C. Gamble, Bradford, is the architect, and the style adopted is Norman Gothic, with a tower over the entrance. On the ground-floor there will be an entrance-hall, a reading-room and assembly-room, 10 yards by 11 yards, an anteroom and two lock-up shops. The first-floor will contain a billiard-room large enough to hold four tables, a smoke-room and secretary's office. The basement will be utilised for a kitchen, two bath-rooms, heating apparatus and a cellar.

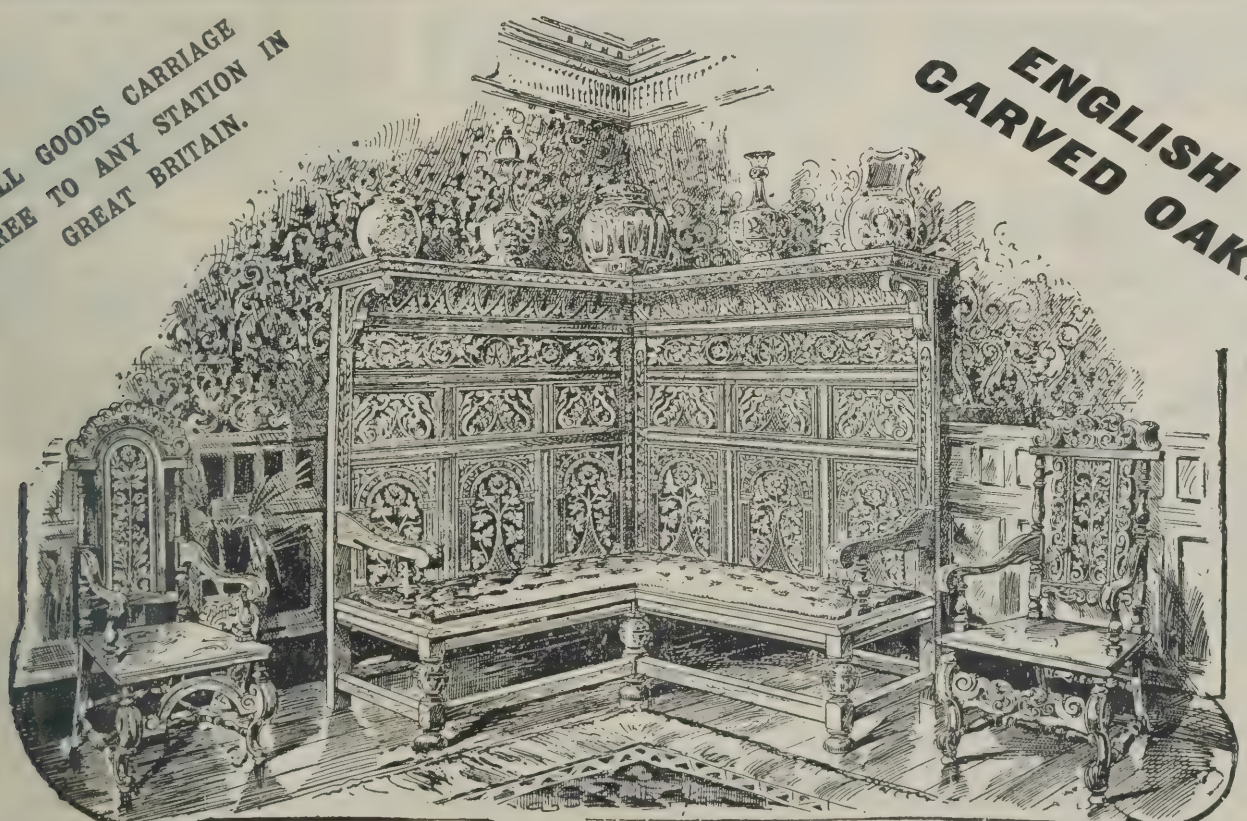
THE foundation-stone of the public library and museum in course of erection at Elmbank, Kilmarnock, was formally laid on the 17th inst. by the wife of the donor, Mr. James Dick, Glasgow, who is a native of the town. The new building is estimated to cost 11,000*l.*, and the style of architecture adopted is Italian, the leading feature of the design being a portico at the main entrance, surmounted by the figure of Britannia and the Kilmarnock arms. The frontage is 138 feet in length, with a depth of 114 feet. On the ground floor are the reading-room, library rooms and lecture-hall. On the first floor the main staircase leads to a spacious vestibule, with dome of coloured glass, to the right and left of which are the two wings of the museum, each having a total area of 1,750 square feet. The architect is Mr. R. S. Ingram, and the principal contractor Mr. Andrew Calderwood.

AT a meeting of Dunoon commissioners held on the 13th inst. it was agreed to borrow 17,800*l.* for the purposes of water extension, hospital, special sewers, roads and pier. It was also agreed to insure the new pier and offices for 16,800*l.*, and to erect turnstiles at the entrance to the pier. A recommendation of the parks committee that power to erect a pavilion be inserted in a bill to be promoted for this and other purposes was agreed to. A proposal for the extension of the electric lighting at the pier and gardens was remitted to a committee. A recommendation of the piers committee to consider the advisability of forming a harbour and esplanade on the East Bay was approved, and remitted to the board in committee. Mr. Bennett gave notice of motion that competitive plans showing improvements in East Bay should be advertised for.

THE erection of the new Italian hospital in Queen Square has been begun, on the site formerly occupied by the institution in the old mansion which was originally the nursery for Queen Anne's children, the adjoining Gloucester Street being named after the little duke. The new building will be an exceedingly handsome one of red brick and stone dressings, and is from the designs of Mr. Cutler, while the contract is held by Messrs. Holloway Bros., of Battersea, the time for the execution of the works ending in July next. The total cost (20,000*l.*) is being borne by Commandatore J. Ortelli, whose benevolence is well known to his fellow-countrymen, though subscriptions towards the fittings and furniture will be gladly received. The façade

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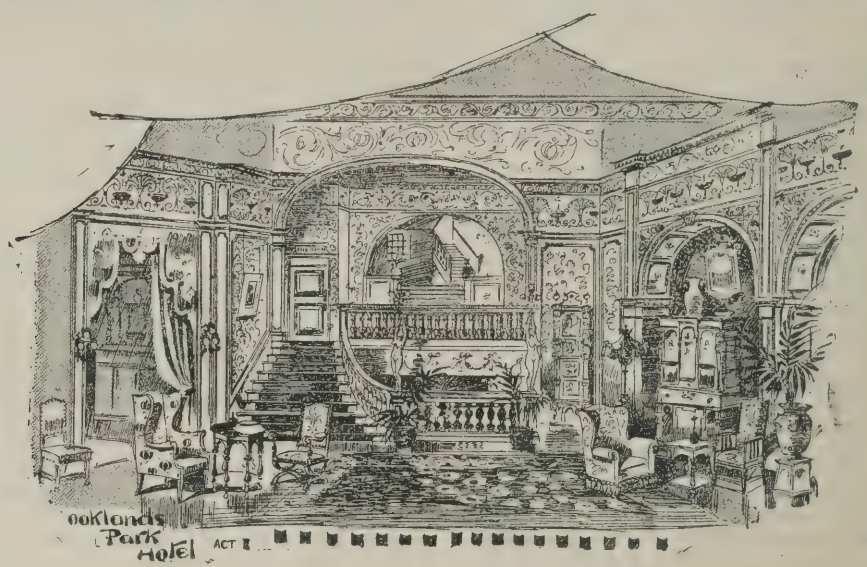
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towards Queen Square, where the main entrance is to be situated, is five storeys high, while the Devonshire Street front is broken halfway by a tower surmounted by a dome, which is to form the chapel of the institution. South of this will be a number of isolated wards, where paying patients can also be accommodated, and all the arrangements are planned on the latest scientific and sanitary principles.

TRADE NOTES.

MESSRS. OETZMANN & CO., of the Hampstead Road, have supplied all the stage furniture and appointments for the latest



Drury Lane triumph, "The Great Ruby." Of the richness of mounting of which, some idea can be gained from the above sketch representing one of the principal scenes.

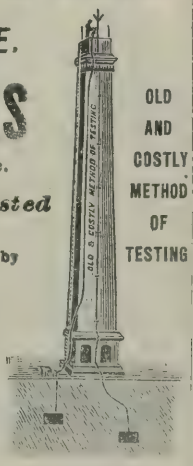
LINO-LATTICE is a name given to a system of sound proofing for floors, partitions, &c., for which it is claimed that it is an absolute preventative of dry-rot, non-inflammable and vermin and insect proof, besides being lighter, cheaper and more efficient than any system now extant. By the lino-lattice system the pugging is laid on lattice-work between the joists, combined with the use of non-conducting sound strips laid on top of the joists or on the face of partition-studs, thereby ensuring the almost complete non-conduction of sound. The non-conducting strips may be used alone, producing, it is said, results far superior to those of any known system. The cost of the entire system per square is about equal to that of the common method of mortar pugging, but the dead weight is less than one-eighth.

THE Union Workhouse Infirmary, Mansfield, is being warmed and ventilated by means of Shorland's patent double-fronted Manchester stoves, with descending smoke flues. Messrs. Shorland are also supplying and fixing the apparatus by which the Girls' Intermediate Schools, Cardiff, will be warmed and ventilated.

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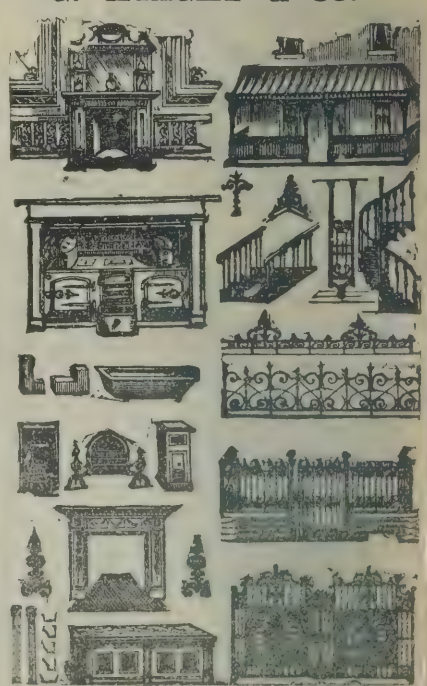
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A NEW penknife-sharpener (Jones's patent) has just been brought out, the object of which is to afford a simple and efficient means of sharpening pen and other knives. It is the acme of simplicity, is complete in itself, and is said to contain sufficient of the sharpening medium to render the instrument effective until worn out, thus dispensing with the necessity of applying any fresh composition or keeping in hand a separate supply. Being always in a semi-moist state, it prevents the blades from heating or softening in the process of sharpening. It is inexpensive (6*d.*), and can be obtained at 75 Alderney Street, S.W.

VARIETIES.

MR. CHARLES WYNDHAM'S new theatre in St. Martin's Court is expected to be ready to be opened in May.

PEMBROKE CHAPEL, Liverpool, long the scene of the ministry of Mr. Augustine Birrell's father, the late Dr. Charles Birrell, has been reopened, after undergoing extensive alterations.

THE dedication of a new Congregational church for Crosby, near Liverpool, took place on the 15th inst. The building has cost nearly 7,000*l.*, and is intended to seat 636 persons.

A NEW girls' school and pupil-teachers' centre, erected by the Smethwick School Board in Crockett's Lane, were opened on Friday last. They were erected at a cost of 6,678*l.*, or 8*l.* 15*s.* 6*d.* per head.

A NEW theatre is to be erected in Harrogate, where such a building is greatly needed, as the Town Hall, which has hitherto had to do duty for the purpose, has become entirely inadequate.

A BEAUTIFUL statue of Apollo standing in the vestibule of the Hartly Institute, in Southampton, was recently thrown over by boys and smashed to pieces. It was of great value, and was presented to the town by a former influential resident.

THE school buildings in connection with St. Peter's Church, Horbury, have recently been enlarged by the addition of new classrooms, a movement which was initiated as a local memorial of the Queen's Diamond Jubilee, and were formally opened on the 17th inst.

THE winter session of the lectures and courses of preparation for the Surveyors' Institution examination of March 1899, presided over by Mr. Philip E. Pilditch, F.S.I., &c., are now commencing, and gentlemen desirous of joining should communicate at once with the Secretary, Surveyors' Lectures, 2 Pall Mall East, Charing Cross, S.W.

THE new high school at Keswick was formally opened on the 16th inst. by the Bishop of Hereford. It owes its present important development to the munificence of the late Mr. Henry Hewetson, a native of Keswick, and a successful London merchant, who, by his will, gave 33,000*l.* after the death of his sisters, and in the meantime he provided an annual income of 400*l.*

AT the monthly meeting of the Holywell Urban Council a letter was read from Father Beauclerk asking permission to erect a small crane or windlass at St. Winefride's Well, to help in bathing cripples. It would have to be clamped to the stone buttresses of the well, but would be movable. The council decided to defer consideration of the matter until next season.

PLANS for a new light railway to run from Dover along the eastward cliffs to Martin Mill, near St. Margaret's Bay, were submitted to the Dover District Council. The railway is to cross three public roads on the level, one of which affects the Kent County Council, and the matter had, therefore, to be deferred for submittal to their surveyor.

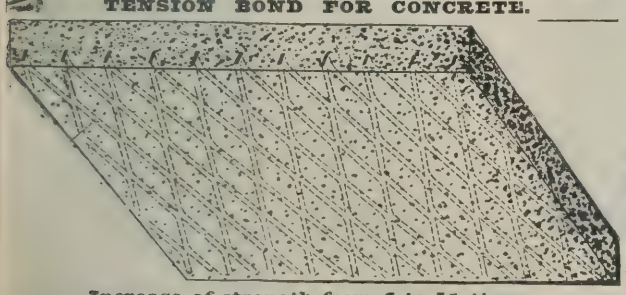
DURING a recent performance of "The White Blackbird" at the Broadway Theatre, Deptford, considerable excitement was caused by a portion of the ceiling failing on to the heads of several persons in the pit. The ceiling had only been finished a short time, and it is supposed that the portion of it that fell not being thoroughly set, gave way owing to the heat of the building. No serious injury was sustained.

THE council of the borough of West Ham has just completed the erection of a pile of buildings, situate close to Stratford Church, in Romford Road, for use as a public technical institute for the locality. The structure and its environs occupy about an acre and a half, and the cost was some 60,000*l.*

ST. PAUL'S, Goswell Road, which was designed by the late Ewan Christian, and the late vicar of which was the well-known philanthropist, the Rev. Styleman Herring, is now undergoing thorough internal cleaning and decoration in gold and colour, with a large painting in the east end of the church representing the Lord's Supper. The building will be decorated throughout under the direction of the architect, Mr. Romaine Walker.

EVERYONE concerned with the management of the Alexandra Palace is to be congratulated on the brilliant success achieved on Saturday last—the occasion being Pain's benefit—when between 50,000 and 60,000 people assembled and attested their satisfaction with the liberal fare provided. Fireworks were of

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course the staple ingredient in the entertainment, and in addition to the ordinary representation of the destruction of Pompeii, a very brilliant display was given on the south front of the Palace, consisting of a fine set-piece representing the "Taking of Khartoum," flanked on either side by fire-portraits of the Sirdar and Gordon, together with a liberal display of aërial fireworks of every description. During the progress of this portion of the entertainment Hardy, the intrepid American successor to Blondin, performed some astonishing feats on the high wire, but suffered from the disadvantage of attention being divided between his performance and the pyrotechnics. However, he did not seem to take this to heart, and everyone else was satisfied.

THE new Wesleyan mission hall, opposite the Broad Oaks Works, Hollis Lane, Chesterfield, was formally opened for divine service on the 14th inst. For many years the Wesleyan body in the town have carried on a successful work in the old British School in Hollis Lane, but in consequence of the increase of population in that portion of the borough and the desire of more persons to worship there than could be conveniently accommodated, the officials of the circuit decided to erect a building which would serve the dual purpose of a Sunday school and mission hall. The work progressed rapidly during the summer months, and a very commodious, if somewhat plain and unobtrusive, building is the result. The cost of the structure is 1,500*l.*

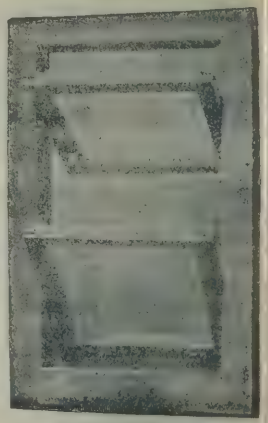
THE little church of Holmesfield, which has been closed for three months for renovation and the addition of a chancel, was reopened on the 11th inst. Since it was closed a chancel has been added, the gallery, which extended on the north and west sides of the church, has been left only on the west side, windows being added on the north side, and the old-fashioned high-backed pews have been replaced by more comfortable and more modern seats. The change effected has not only considerably enhanced the appearance of the interior and supplied proper side stalls for the choristers, but has increased the seating accommodation which before the alterations allowed for a congregation numbering 400 persons. The church has also been thoroughly cleaned and painted. The cost of the alterations and additions amounts to 725*l.*

A BUILDING in the course of erection in Govan Road, Govan, collapsed on Monday afternoon, carrying with it a number of workmen, five of whom were killed outright and three were so severely injured that they had to be sent to the Western Infirmary in an ambulance waggon. Willing hands were quickly at work to drag out the buried workmen, which was a matter of much difficulty and danger. The building was occupied in the lower flat as a grocer's establishment, and a grocer's assistant and a woman customer were amongst the injured. An investigation has taken place by order of the Procurator-Fiscal and the municipality of Govan. The experts' reports are being prepared.

THE great tower at the entrance of Haddon Hall is said to be in danger. The large overhanging turret has caused the wall to lean forward, and unless something is done to stop the movement a disaster may occur. A slight settlement of the great curtain wall to the south of the tower, which has occasioned that wall also to lean westwards, has accelerated this movement in the tower. It is recommended that to arrest the movement a new 3-feet thick wall, well bonded to the old walls, should be built back to the fifteenth-century wall. Another proposition is that the lead roofing and gutters, which were found past repair, should be taken up and recast on the site, and then relaid as before, any repairs needed to the roof timbers being undertaken at the same time.

EARLS COLNE (Essex) Grammar School, which has been erected at a cost of 5,000*l.*, was opened on the 13th inst. The building is of red brick, faced with Mark Gentry's bricks, and covered with Thomas Peake's (of Tunstall) "Perfector" tiles. The windows are of Elizabethan style, with lead lights. Half-timbered work is employed under the eaves and in the gables. Entering by the main entrance, a door on the right gives access to a spacious and lofty dining-hall, which is fitted with dog-grate and a finely carved Bath stone chimneypiece specially designed for the house by the architect. The walls are coloured. On the ground floor are also drawing-room, study, kitchen, scullery and china closet. There are five large dormitories on the first floor, two sick-rooms with nurses' room, having easy means of communication with both. The lavatory is fitted with twelve large basins and three baths. The ground floor comprises, in addition to those offices already mentioned, recreation-room, music-room, entrance hall for the boys, cloak-room, vestibule and other offices. The laundry, washhouse, coalhouse, boothouse and other outbuildings are approached by a covered way from the back entrance. A large water-tank is fitted on the tower. Several skylights, in addition to the other windows, provide excellent light at the top of the building. All the rooms are fitted up

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with gas from the Earls Colne gasworks. The master's upstair apartments comprise a number of large bedrooms, dressing-room, bath and lavatory. The kitchen and scullery are fitted up with Ashton and Green's ranges. The front of the house overlooks Chalkney Woods, in the Colne valley. The windows of the large dining-hall contain the twelve signs of the Zodiac. The ceilings are of panelled plaster. The floors are carried on two iron girders, cased, placed on elaborate carved stone corbels. There are several winding staircases, with French polished handrails. The work has been carried out by Mr. Zach. Rogers, contractor, of Earls Colne.

THE new Board schools at Goldsworth, Surrey, were formally opened on Monday last. They occupy a commanding position above the level of the road, and are both substantial and effective in design. The site, about an acre in extent, was purchased by the School Board for 890*l.*, and Mr. S. Welman, architect, instructed to get out plans and specifications. There are two distinct school buildings. The mixed school stands back some distance from the road which it faces, while the infants' occupies a position at right angles to it, on the east side of the site. Fronting the road on the opposite side is the head-master's house. The whole of the buildings correspond in style. Though the big school is a mixed one—boys and girls being taught together—there are separate entrances, opening on to separate playgrounds, each gained in its turn by separate entrance-gates. The infants' school is in the girls' playground. The buildings are of red brick throughout, exterior and interior, the roofs being covered with tiles. The mixed school consists of a hall, 71 feet by 25 feet and 23 feet in height, and five classrooms, one 28 feet by 24 feet 6 inches, three 24 feet 6 inches by 25 feet, and one 20 feet 6 inches by 25 feet. The hall, which is unfurnished, is fitted with horizontal bar, adjustable parallel bars, a set of rings (six), a pair of rings, climbing-rope and a box-horse, with mattresses and other necessary adjuncts. Besides being used for gymnastics and physical drill, the hall will be available for limelight lectures, entertainments and school gatherings in general, for all of which purposes it is eminently suitable. Both hall and classrooms are well lighted, the upper part of the several partitions being of glass. Provision is made for building five additional classrooms on the south side of the hall when such extension becomes necessary. The hall and the two end classrooms are fitted with incandescent gas, and the whole building will be warmed by the Anglo-Canadian hot-water system, the boiler-house being situate under one of the end classrooms. There are altogether eighteen radiators, and iron gratings covering the pipes run along the big hall. Both hall and classrooms, it is needless to say, are thoroughly well ventilated. The two entrance-porches are tiled. The infants' school consists of a big hall, 52 feet by 22 feet, with half-glass folding doors in centre, and one classroom with gallery containing desks for sixty children. This building will be warmed by hot-air stoves and lit by oil lamps. The entrance-porch is similar to those of the mixed school. Two more classrooms may be added to the infants' school when necessity arises. At the rear of each playground is a covered playshed, 40 feet by 18 feet, adjoining which are the usual offices.

DEMOLITION OF BUILDINGS.

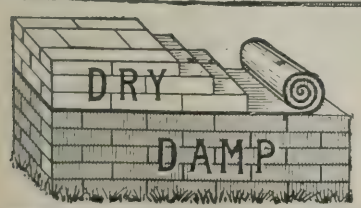
A MODE of demolition which would cause less inconvenience than is desirable in torrid weather is suggested by Mr. W. Woodward, architect. He writes:—"An idea which a short time ago I saw being carried out in Nuremberg I have just adopted in the pulling-down of two houses in Regent Street, and with most satisfactory results. I took a main pipe to the top of the old houses, with branches, to each of which was attached an indiarubber hose, with sprinkler at the end. Before the work was pulled down the walls and ceilings were sprinkled with water, and then the débris was likewise sprinkled with water before it was basketted out to the carts in the street. The result was that the usual clouds of dust, with their attendant mischief and annoyance to the public and to shopkeepers, were entirely absent, and the 'wreckers' were at the same time benefited. I venture to commend the idea to the London County Council, who might well insist upon its adoption in all cases of pulling-down old premises in London."

THE SEWERAGE OF DOUGLAS.

THE Town Council of Douglas have had the schemes of several engineers for the drainage of the town before them, and eventually adopted the plans of Mr. G. W. Stevenson for a high and low level system. When, however, the sanction of the Tynwald Court was asked and the matter was referred to a committee of the court, a considerable section of ratepayers opposed the plans on the ground that Douglas could be satis-

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factorily drained by gravitation. The committee asked the Town Council to reconsider the matter. Mr. Stevenson at first thought that he could prepare a sufficient gravitation scheme, but when he went into the question he felt compelled to adhere to the high and low level system. The Council then decided to obtain the opinion of Mr. James Mansergh, C.E. His report virtually endorses Mr. Stevenson's plans, and it is to be gathered that Mr. Mansergh is of opinion that Douglas cannot be satisfactorily sewered unless mechanical means of raising the sewage in the lower part of the town are employed.

THE REGISTRATION OF PLUMBERS.

The annual distribution took place on Monday evening, in the hall of the Manchester Young Men's Christian Association, of prizes gained in connection with a competition and exhibition of plumbers' work which was held in the City Art Gallery last April. The competition was promoted by the Council for Manchester and district of the Association for the National Registration of Plumbers. Mr. W. H. Munro presided, and in a brief address commended the work of the Association. Dr. M. Howe (London) delivered an address on the registration of plumbers and domestic sanitation. He said it was upon the efficiency of a system ensuring the qualification of plumbers and enabling the public to recognise the qualified man that sanitary plumbing materially depended. He urged that registration should be provided for by Act of Parliament. If the Plumbers' Registration Bill became law it would be easier than it now was to maintain the good work carried on by the Association. The trade no less than the public desired it. Public health largely depended upon the quality of the plumber's work. The time had come when the trade should be subjected by Parliament to the control of a national council.

Mr. Lees Knowles, M.P. (who has charge of the Registration of Plumbers Bill in the House of Commons), said that all parties in the House were committed to the principle of the Bill, the main object of which was to afford additional safeguards to the public health by enabling persons employing plumbers to select, if they so desired, men who had given some evidence of qualification. When it was shown that the creation of a monopoly was not intended, opposition to the Bill was withdrawn. The object was worthy of the support of any Government, and he hoped strong representations would be made by supporters of the measure throughout the country which would ensure the early passing of the Bill.

The prizes were then distributed by the Lord Mayor (Mr. Alderman Gibson). The prize work, which is to form the nucleus of a local sanitary museum, was handed over to Mr. J. R. Wilson, as representing the technical instruction committee of the City Council. A resolution in support of a system for the registration of qualified plumbers was passed, and it was decided to invite the City Council and the Salford Borough Council to co-operate in framing a scheme of representation for the two municipalities in the Bill which the Government might be asked to bring in. The Lord Mayor, replying to a vote of thanks, commended the work that is being done by the Registration Council for Manchester and Salford.

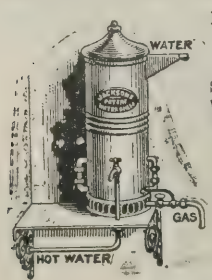
ST. MARY'S CHURCH, BOLSOVER, DERBYSHIRE.

This church, it may be remembered, was almost entirely destroyed by fire on January 24, 1897. The only remaining portions of the old building are the thirteenth-century tower and spire, portions of the outside walls of the fourteenth-century chancel, the Cavendish chapel (erected A.D. 1618) and the north porch and parts of the outside walls of the north aisle and transept (the latter used as a vestry), which were built about twenty years ago.

The former church provided seats for about 500 adults, and it was desired to increase the accommodation as much as possible, retaining the portions of the old building which were not destroyed by fire, and without adding to the length of the church. This has been done by extending the south aisle laterally, about 100 additional seats being thus obtained, the north and south aisles now being of almost equal width, instead of the north aisle being about twice the width of the south aisle, as it was before the fire.

The nave has been made 3 feet 6 inches wider than the one destroyed, thus being restored to the central axis between the western tower and the chancel, as the original thirteenth-century nave evidently was. A triple arrangement of roofs over the nave and aisles has been adopted, the nave arcades being carried on octagonal pillars with capitals, as before.

Most of the remaining portions of the building having been of the fourteenth-century period or style, it has been considered best to build the new portions in the same style, in order to produce as far as possible a harmonious whole.



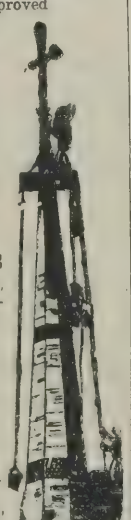
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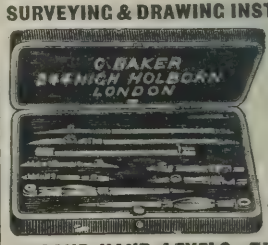


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The external walls are of Bolsover Moor stone, with Weldon stone for the window tracery, &c. Ancaster stone throughout has been used for the interior, the walls, which were formerly plastered, being now lined with stone, those of the tower having been repaired and pointed only. The woodwork of the roofs is chiefly pitch pine, the whole stained palm-leaf green. The roofs are covered with Buttermere green slates. The new roof of the Cavendish chapel is of oak, with carved beams, pendants, &c., and enriched plaster panels, in the Jacobean style and covered with lead. The floors under the seats are of wood blocks. The passages are paved with "terrazzo" and cube marble mosaic. The chancel floor is of marble mosaic, with Devonshire marble steps.

The slab tombstones found in various parts of the church have been relaid in the floors of the transept (vestry) and under the tower. Several ancient stone coffin-lids with incised crosses have also been discovered, and have been fixed round the base of the tower walls inside.

An old piece of carving representing the Nativity (probably part of a fourteenth-century altarpiece) has also been preserved and fixed to the wall inside the porch.

The new carving has been modelled on that in the chapter-house at Southwell Minster. The doors, seats, choir-stalls, &c., are of oak. The font was formerly in Chesterfield parish church, and has been presented to Bolsover Church by the Vicar of Chesterfield. The pulpit, designed by the architect, has been given by Major Hallowes.

The total cost of the rebuilding and restoration, with such fittings and furniture as are at present provided, is about 9,000*l.* Another 1,000*l.* will be required to complete the work.

The architect is Mr. Louis Ambler, A.R.I.B.A., 7 Arundel Street, Strand, London. Mr. J. C. Walker is the clerk of works. Messrs. Bowman & Sons, Stamford, are the contractors.

The heating has been carried out by Mr. James Gray, Chelsea, by hot water, on the low-pressure system.

Messrs. John Taylor & Co., Loughborough, have recast and rehung the bells, with cast-iron framing.

The mosaic floors have been executed by Messrs. Mainzer & Co., Berners Street, London; and the wood-block floors by Messrs. Charteris & Longley, London.

Mr. George Wragge, Salford, Manchester, has made the gasfittings, of wrought-iron and brass.

The fireproof steel door to the Cavendish chapel is by Messrs. Chubb & Sons, London.

Messrs. Jones & Willis, London, have supplied the ornamental wrought-iron door-hinges and furniture.

Mr. C. Lowe, Sheffield, is the organ builder. The organ case is being made by Messrs. Bowman & Sons, from the architect's designs.

Messrs. Smith & Co., Derby, have provided the new clock.

The stone carving has been executed by Messrs. Tuttell & Son, Lincoln.

THE USHER HALL, EDINBURGH.

A SPECIAL meeting of the Edinburgh Town Council was held on the 15th inst., Lord Provost Mitchell Thomson presiding, to consider and, if so advised, to fix upon a site for the Usher Hall. The following motions were given notice of:—

By the Lord Provost and Bailie Sloan: Remit to the Provost's committee to consider and report as to a suitable site for the new city hall to be erected under Mr. Usher's gift.

By Messrs. Cameron and Murray: Remit to the Lord Provost's committee to consider and report as to the area bounded on the south by Lauriston Place, on the west by Graham Street, on the north by Keir Street and on the east by the Vennel, as a suitable site for the Usher Hall.

By Messrs. Gibson and William Gray: Remit to the Lord Provost's committee to consider as a site for the Usher Hall the ground situated to the west of the new Council Chambers and extending towards St. Giles Street.

By Messrs. Waterston and Balfour: That Chambers Street corner and Lindsay Place be chosen as the site under the gift by Mr. Usher.

By Messrs. Brown and Gulland: Remit to the Lord Provost's committee to consider and report as to the suitability of Atholl Crescent and Coates Crescent as a site for the new city hall.

By Messrs. J. C. Dunlop and Innes: That it be remitted to the Lord Provost's committee to look out for a site for the Usher Hall in the line of Melville Street.

The Lord Provost, on taking the chair, said it was extremely probable that they should have another meeting on this subject, and perhaps they might think it advisable that day that they should meet in private. All the particulars in regard to the sites would be brought out again. He moved that the Council go into committee.

Treasurer M'Crae seconded, and the Council sat in private.

The Council in committee had before them the above-mentioned and other sites, which had been located in red colour by Mr. Morham on a large scale map. Among those marked were St. Andrew's Church, James Square, the middle portion of the western division of George Street, north side; George Street and Castle Street, north-west corner; Queen Street Gardens, opposite St. David Street; Queen Street, between Hanover Street and Frederick Street west of No. 22; Queen Street, corner of St. David Street; Earl Grey Street, Alva Street and Queensferry Street, Melville Street and Stafford Street; Melville Street, west division; Atholl and Coates Crescents, in centre of street; centre of Atholl Crescent, with back to Canning Street; Charlotte Square (restricted); Lothian Road, Castle Terrace and Cambridge Street; Lauriston Street, Graham Street, Keir Street and Vennel; High Street, from City Chambers to St. Giles Street; music hall, with buildings on east and west sides. In all twenty-three sites were marked on the map. The Council sat about two and a half hours. The Lord Provost at the outset made a long speech, and was followed by councillors who advocated particular sites. An excellent feeling, it is stated, prevailed throughout, the object of the Lord Provost in guiding the discussion being to get the views of the councillors on a few possible sites which could afterwards be more fully reported on. A good many were submitted, and a show of hands was taken upon them, the result being the inclusion in a leet of the following sites:—(1) High Street from the Council Chambers to St. Giles Street; (2) Atholl Crescent, with the back to Canning Street; (3) George Street and Castle Street corner; (4) Chambers Street corner; and (5) Melville Street and Stafford Street. A remit was made to get particulars regarding these sites against another meeting to be shortly called.

APPLICATIONS OF ELECTRIC POWER.

AT the meeting of the Section of Mechanical Science of the British Association at Bristol on Monday, the 12th inst., Mr. W. H. Preece presided. Three papers were read consecutively and discussed together. They were as follows:—"Electric Power in Workshops," by A. Siemens; "The Application of the Electric Motor to Small Industrial Purposes and its Effect on Trade and on the Community generally," by A. H. Gibbings, and on "Electric Power and its Application on the Three-phase System to the Bristol Waggon and Carriage Works," by W. Geipel.

Mr. Siemens pointed out that the first development in this direction took place in connection with the small line exhibited in Berlin by Dr. Werner Siemens in 1879, and in the present day there is, he considered, little doubt that in the near future horse and steam tramways will disappear altogether. In overcoming heavy gradients the ultimate triumph of electricity is assured. Although even the heaviest goods train can be drawn by electric motors, Mr. Siemens pointed out that it would be a fallacy to deduce that it would be advantageous to replace the steam locomotive on all existing railways by electric motors, as economical factors have to be considered as well as technical features. Electric transmission is best applied where the demand for power is constant rather than intermittent. The paper next dealt with the losses that must be met with in carrying out a system of power transmission by electricity. The first point to consider was that the available mechanical energy had to be converted into electrical energy, and such a transformation involves loss. The ease with which electrical current can be carried and other advantages more than counterbalance this loss, which is not excessive, 84 per cent. of the i.h.p. of a steam-engine being available at the terminals of a dynamo in the form of electrical energy; whilst electric motors will produce over 90 per cent. of the electrical energy supplied to them in the shape of mechanical power. The art of insulating conductors has improved to an extent that, whereas a short time ago currents of 2,000 volts were considered a limit, there are now a number of successful electric systems employing currents of 10,000 volts pressure. The use of alternate currents, the employment of transformers, permits the use of low-pressure generators and motors, high-pressure currents being used in the conductors, but in this there is the loss of double transformation. The author was of opinion, however, that were a trustworthy alternate current motor invented this system of transmitting power would be the dominating one. Unfortunately alternate current motors refuse to start without being first synchronised by external means, are liable to stop when overloaded, and their speed cannot be varied. A continuous current system is simpler and cheaper at first cost and cheaper in maintenance. The installation of electric-power transmission for working the machine tools and other appliances in the works of Siemens Brothers & Co., at Charlton, was next described in detail, the author giving some very valuable figures as to cost, &c. He states that six years' work has shown that the system is perfectly trustworthy, and that an expected great saving in the cost of attending to the motive power has been fully realised. The total cost of motive power during the year 1897 was 9,900*l.*, or 2*d.* per Board of Trade

ectrical unit, and 1·71*d.* per brake horse-power per hour exerted by the motors.

Mr. Gibbings, the city electrical engineer at Bradford, gave a long list of handicrafts to which electrical power might be applied with advantage. Among the obstacles that prevented the introduction of such a system are extreme aversion to innovations which characterise the industrial world, in this country especially; the unsuitability of alternating currents for motors where the power exceeds two or three horse-power; want of confidence. The want of capital to purchase the needed plant is a most practical obstacle, especially in the case of small tradesmen, and he suggested that electric supply undertakings, whether private companies or public corporations, should let out on hire good motors. The paper concluded with a reference to the manner in which the advantage of electric power for small and independent workshops is being recognised in France, Germany, Switzerland and the United States.

Mr. W. Geipel commenced his paper by speaking of the need for economising power on account of the future exhaustion of our best coal deposits. Small scattered steam-engines needed 6 lbs. to 10 lbs. of coal per indicated horse-power per hour, the various sources of loss being dealt with in detail at some length. The author based many of his conclusions on the experience gained by the Bristol Waggon Works, where what appeared, from the author's description, to have been an extremely faulty steam-engine plant has been replaced by a system of electrical transmission. In making this change full consideration was given to the merits and demerits of the direct current and three-phase system. The first cost of the two appeared to be practically the same, but advantages were shown by the three-phase system in regard to absence of commutators and that the current passes direct through clamped terminals. In this system the generators and motors are of better mechanical design, and the three-phase motors can be left running for long periods without attention, even when considerably overloaded. There is also freedom from possibility of breakdown as compared with the direct-current system.

Mr. Preece stated that the inquiry to be conducted as to the best method of employing electric traction on the Underground Railway in London would throw light on the points in dispute, the directors having determined to thoroughly and impartially investigate the subject in all its bearings.

BARRY DOCKS.

A PAPER was read in the Section of Mechanical Science by Mr. R. C. H. Davison, C.E., describing the Barry Docks, with especial reference to the new works. The president of the section, Sir John Wolfe Barry, K.C.B., is the designer of the docks at Barry and consulting engineer to the Barry Railway Company, and Mr. Davison is resident engineer. The first Barry Dock was opened for traffic nine years ago. Some of the largest vessels that have entered Barry Dock are the ss. *European*, of 8,194 gross tonnage, 475·9 feet long, 55·2 feet broad and 35·9 feet deep, and the ss. *Milwaukee*, of 7,317 gross tonnage. The average tonnage, however, of vessels frequenting the dock is about 1,500 tons and the average cargo about 2,500 tons. Dock No. 2 has an area of 34 acres; that of the main dock is 73 acres. The site has been almost entirely reclaimed from the foreshore. The northern side of the dock is for coal export, and will have ten high-level fixed tips and two high-level traversers; the southern and western walls are for imports, and will have twenty-one movable hydraulic pedestal cranes, and a quay space behind them of over 600 feet in depth. The eastern wall has an 80 feet entrance built in it, the lower portion being temporarily built up, leaving a depth of 5 feet at high water on neap tides. This entrance leads into a timber pond of six acres, and by passing by a 20-feet opening through the railway embankment that encircles it, another timber pond of 35 acres is entered. To provide for locking at neap tides the latter can be used as a reservoir of water for the docks, as the 20-feet passage will be fitted with wooden gates. The tip towers on which the tips stand are 300 feet apart and of masonry. Those at the western end have pitched slopes between them, and those at the eastern end where the foundation is good have walls. The object of projecting the tips beyond the line of the dock side is to enable vessels to scarf; that is, the bow of a vessel at one tip can lie inside the stern of the vessel at the next tip, and so on. The dock walls, excepting those between the tip towers, are vertical, and of rubble masonry, the top 20 feet having a punched face projecting forward so as to cover the rock face-work of the lower portion. The height of the walls from dock bottom to coping is 46 feet 6 inches. The southern wall is 3,338 feet long, and straight. The hydraulic pipes and mains are carried at the back of the walls under the crane roads. The foundations are on marl or magnesium limestone, and no difficulties were experienced in the dock, except in making the slopes and getting in the deep foundations, when some slips took place. The junction-cut joining the two docks is 1,000 feet long, the width at the main dock being 130 feet, which narrows to 80 feet as it enters Dock No. 2 through a masonry passage. At this passage there is a sliding wrought-iron box caisson gate, 88 feet long and 20 feet broad, with a lifting deck to carry the road and railway traffic. When not in use the deck is lowered and the caisson slid into a recess under the quay. The caisson gate has two faces and can take the pressure on either side, so that the level of Dock No. 2 may be kept either higher or lower than the main dock at tide time. The caisson gate has three large sluice-ways through it, giving an area of 330 feet. The weight on the sill is regulated by air-chimneys. The sides of the junction-cut have pitched slopes passing under timber jetties, which extend along each side, with gangways from them to the shore. It was originally intended to use two sections of timbering, one to be built in the dry and the other after the dam was removed. But the ground proved to be extremely bad and full of water, want of space rendered it impossible to take out the mud to a flatter slope than 1 to 1 and the proximity to the main dock required the most absolute caution. The section in the dry was not carried towards the main dock as far as it was at first intended, but an intermediate section was decided upon, which was built with the junction-cut flooded to a depth of 16 feet between the dam and the caisson gate. As the pitching and slopes were brought up, the water was raised by means of a 15-inch syphon from the main dock. Dock No. 2 on its completion was also filled by the same means, the water passing through the caisson gate sluices from the junction-cut. The dam next the main dock having been thinned down as far as it was deemed safe, by means of winch handcart bogey roads, the water in the junction-cut was raised to the same level as that in the main dock, and the top of the dam worked off into waggons and dredging started.

INDUSTRIAL CONCILIATION.

A PAPER was read in the Economic Science and Statistics Section of the British Association by Mr. L. L. Price on "Industrial Conciliation." He referred to a paper read on the same subject when the Association met at Bath in 1888, and reviewed the progress of industrial conciliation during the intervening ten years. At first sight such a retrospect might seem discouraging, for scarcely a year had passed without some conspicuous industrial quarrel; but, on the other hand, public attention had been drawn to the subject, expert ability had been applied to the criticism and discovery of remedies, and experimental knowledge had been gained. Influences prejudicial to industrial peace had unquestionably been recently at work. A tendency on the part of the men to deny plenipotentiary authority of negotiation to their representatives had accompanied, and partly neutralised, an increasing willingness on the part of employers to receive and negotiate with such representatives. This was, perhaps, the fact of most evil omen for the future, and it was connected with deeper phenomena. A spirit of unrest had been abroad in the labour world, both among the new and the older unions. Socialistic aspirations had encouraged large ambitions, and the advocacy, for example, of a "living wage," if interpreted comprehensively, was opposed to some pacific modes of settling industrial quarrels. A reversion to older methods of policy and a resistance to improved machinery and processes of manufacture, especially at a time when foreign competition was becoming more severe, and making more dangerous that tendency to take the business of life more easily, which seemed to be characteristic of the times, was a phenomenon which could hardly be ignored; and it might even be doubted whether public opinion, which was becoming a more potent force in industrial disputes, did not exercise some influence prejudicial to lasting peace. For this public opinion was sometimes ill-informed and often impatient. It was liable to be carried away by such phrases as those of "a living wage" and of "collective bargaining," which required careful discrimination. Public opinion impatiently asked for State intervention, but, in view of some recent circumstances, that demand required very careful consideration; and the experience of New Zealand was not applicable to England, except with large allowances for difference of conditions. Mediation rather than arbitration seemed still the appropriate *rôle* of the State, and the progress of voluntary conciliation and arbitration, though sometimes unnoticed, was not inconsiderable. Two important features in the recent history of voluntary methods deserved notice, the first being the position and prospects of the sliding scale, which had been declining in favour, and the second the growth in prominence and utility of mediation as contrasted with arbitration.

Mr. W. M. Acworth pointed out that Mr. Price had not dealt with the special case of large classes of municipal servants

and servants of public companies; he should be glad if he would tell them how far what he had said applied to those special classes. Then he would have been glad to hear what effect Mr. Price considered free labour had on the relations of organised employers and men.

Mr. H. Wilson desired a definition of what Mr. Price had termed successful arbitration. Was it not possible that a dispute between master and workmen might be brought to an end, and yet very permanent harm done to the industry? Mr. Price had spoken rather tenderly of public opinion; but where, he asked, would they find a person who owed his success in life in the slightest degree to conciliation or arbitration? Any little success any of them might have achieved was due to flying directly in the face of those ideas which were known as "public opinion."

Mr. B. Martin pointed to the very important tendency in the present day towards federation, which led him to anticipate that in a few years' time there would be two great federated organisations face to face, representing capital and labour respectively. He urged that labour disputes should be settled in some authoritative way, in order that the disastrous dislocation of the industries of the country might be avoided.

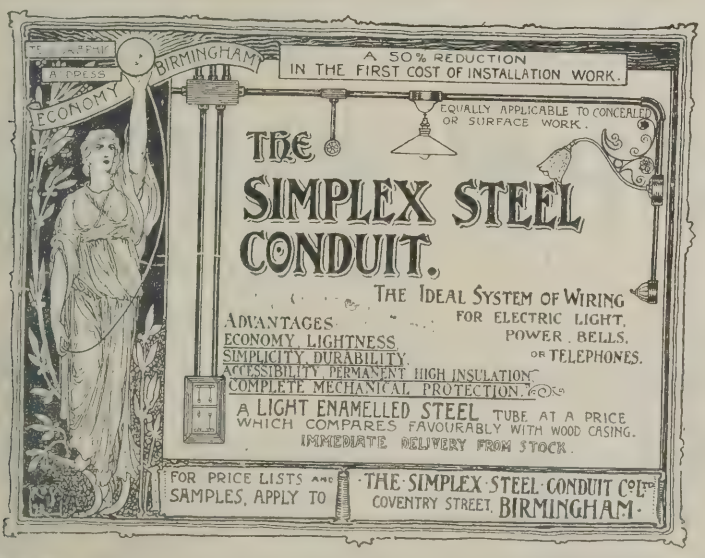
Professor Gonner, in drawing attention to recent disputes between capital and labour, said he was of opinion that at some point the State must declare that it had interests as distinct from the interests of one side or the other. With regard to public opinion, what economists had to do if they found it exerted ignorantly or injudiciously, was to endeavour to educate it so that it might be exerted aright. The problems to be solved in regard to this question were the particular function which public opinion could fulfil, and the particular ways in which the State could intervene, ultimately compulsorily and certainly always strongly.

Mr. J. R. MacDonald characterised Mr. Price's paper as having too much the aspect of special pleading. He considered the federation of masters of infinitely more importance than the other matters on which special stress had been laid by him. Then another element in the problem was the formation of large limited liability companies, controlled by managers, who did not approach the men with that old-fashioned conscientiousness which the employer used to exercise. With regard to industrial peace, he did not agree with peace at any price; certain principles must be maintained before the conditions of industrial peace could be accepted.

Mr. J. Angell considered it of fundamental importance to the future industrial prosperity of the country that political economy should be taught in primary schools.

Mr. G. H. Wood, speaking as a working man, contended that the principles of political economy were as well known to the working classes as to the middle classes and the manufacturers. The delegates at the recent Trades Union Congress were, he affirmed, unanimously in favour of compulsory industrial arbitration brought about by the State, with power to settle disputes and inflict a penalty on the party which disregarded the award. It was felt, however, by the delegates that this would place another weapon in the hands of employers to defeat the end the working men had in view, though he did not hold that opinion himself. With regard to improved machinery, the working man's objection to it was that it did not directly benefit him; he felt that improved machinery should be used for the benefit of the working man and the inventor, and not the capitalist or employer only.

Mr. Price replied to the various criticisms. While it was quite true that there had been a considerable tendency to the growth of federations, they must set against that the frequency of demarcation disputes, which were most difficult to adjust. They also found masters contending with masters where interests were opposed. There were, he considered, inherent forces at work which, when the federation became very large, would tend to break it up. He did not consider that they would be likely to see all the employers organised in one great federation and all the workmen in another. He was not an advocate of industrial peace at any price, for it was conceivable that there were higher ends in view. With regard to the labour disputes of semi-public servants, he was of opinion that some method of compulsion would have to be applied to settle them. The question of free labour was a very difficult one. He held that on the whole there was less evil when negotiations were conducted between organisations on either side than when they were not, though the incidental consequence might be in some cases the displacement of free labour. Though the whole subject under discussion was beset with difficulties, yet there had been considerable progress in the adjustment of minor disputes. Regarding the interference of the State, unless extreme caution were used it would be found that the State was regulating wages. He was of opinion that there was not much opportunity for the State to do more than it had done by giving publicity and exercising mild persuasion. Public opinion, when educated, was likely to exercise a more potent influence than that exercised by the State.



"THE BANQUET."

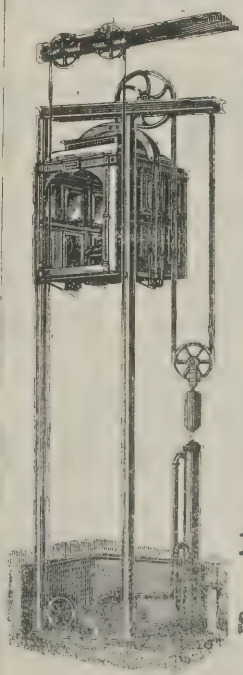
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THE CABOT TOWER.

THE erection of a lofty tower on Brandon Hill to commemorate the connection of the Cabot family with Bristol was commenced on June 24, 1897. The foundation-stone was laid by the Marquess of Dufferin and Ava, who on the occasion of his visit was enrolled an honorary freeman of the city. The tower was completed a couple of months ago, but it was thought appropriate that the formal opening should be deferred till the visit of the British Association to the city, and the Marquess of Dufferin consented to perform the ceremony. The tower, which has been erected in the centre of the platform upon which the guns captured in the Crimean War stood, is a square structure of ornamental character, adapted from a well-known example in the Department of the Loire, in France. It has buttresses at the angles from base to summit. There are two stages, each of which is relieved with an ornamental balcony, which adds much to the appearance of the tower. The floor of the upper balcony is 75 feet from the base, and above this there is an octagonal spire of 30 feet, making the total height 105 feet. The tower is ascended by means of a circular staircase of good width to the first stage, and above that there is a spiral staircase to the second stage. The style of the design furnished by Mr. W. V. Gough is typical of the style prevalent in England at the time of Henry VII. The spire of freestone is surmounted by a gilded figure mounted on a globe, also gilded. The platform on which the tower is erected is square and is 42 feet across, and at the angles there are epaulments occupied by the Russian trophy guns. From the top of the tower, which is 364 feet above sea level, a magnificent panoramic view can be obtained of Bristol and neighbourhood. At the base of the structure there are panels for the reception of bas-reliefs bearing inscriptions. Over the panel at the main entrance is the Bristol coat of arms, whilst on the east side is the royal coat of arms of Henry VII., under which is a tablet bearing the following inscription :—"This tower was erected by public subscription in the sixty-first year of the reign of Queen Victoria, to commemorate the fourth centenary of the discovery of the continent of North America on June 24, 1497, by John Cabot, who sailed from this port in the Bristol ship *Matthew*, with a Bristol crew, under letters patent granted by King Henry VII. to that navigator and his sons Lewis, Sebastian and Sanctus." On the south side, under the Merchant Venturers' Arms, is a tablet bearing the following inscription :—"This tablet is placed here by the Bristol branch of the Peace Society in the earnest hope that peace and friendship may ever continue between the kindred peoples of this country and America. 'Glory to God in the highest, and on earth peace, goodwill towards men.'—Luke ii. 14." On the west side the panel is surmounted by the coat of arms of Venice. Brass plates have just been affixed to the balustrade of the upper balcony indicating the direction and distances of various cities in England and abroad, and also pointing out the buildings of interest to be seen from the balcony. On the plates, too, are engravings of the buildings mentioned, and also an indication of the height of the balcony, viz. 334 feet above Ordnance Survey datum. Amongst the names of places on the plate on the west side is that of "Canada," which, it is stated, is about 2,400 miles distant, and is the land first seen by Cabot A.D. 1497.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C. from whom all particulars and information relating to Patents may be had gratuitously.*]

APPLICATIONS FOR PATENTS.

18942. Andrew Allen, for "Improvements in roofing."

18955. J. W. Thomas, for "Improvements in chimney-pots and the like."

18990. Alfred John Bewick Ward, for "Self-locking flooring blocks, tiles or other blocks."

19035. Albert Lichtenthaeler, for "Improvements in and relating to hollow shafting and ventilating apparatus comprising the same."

19161. Stephen Isaac Adams, for "Improvements in bricks."

19237. Gustav Kruse, for "Improvements relating to the means for joining together stone or earthenware plates or blocks for building purposes."

19251. William Ormrod and John William Wild, for "Improvements in or connected with brickmaking machines."

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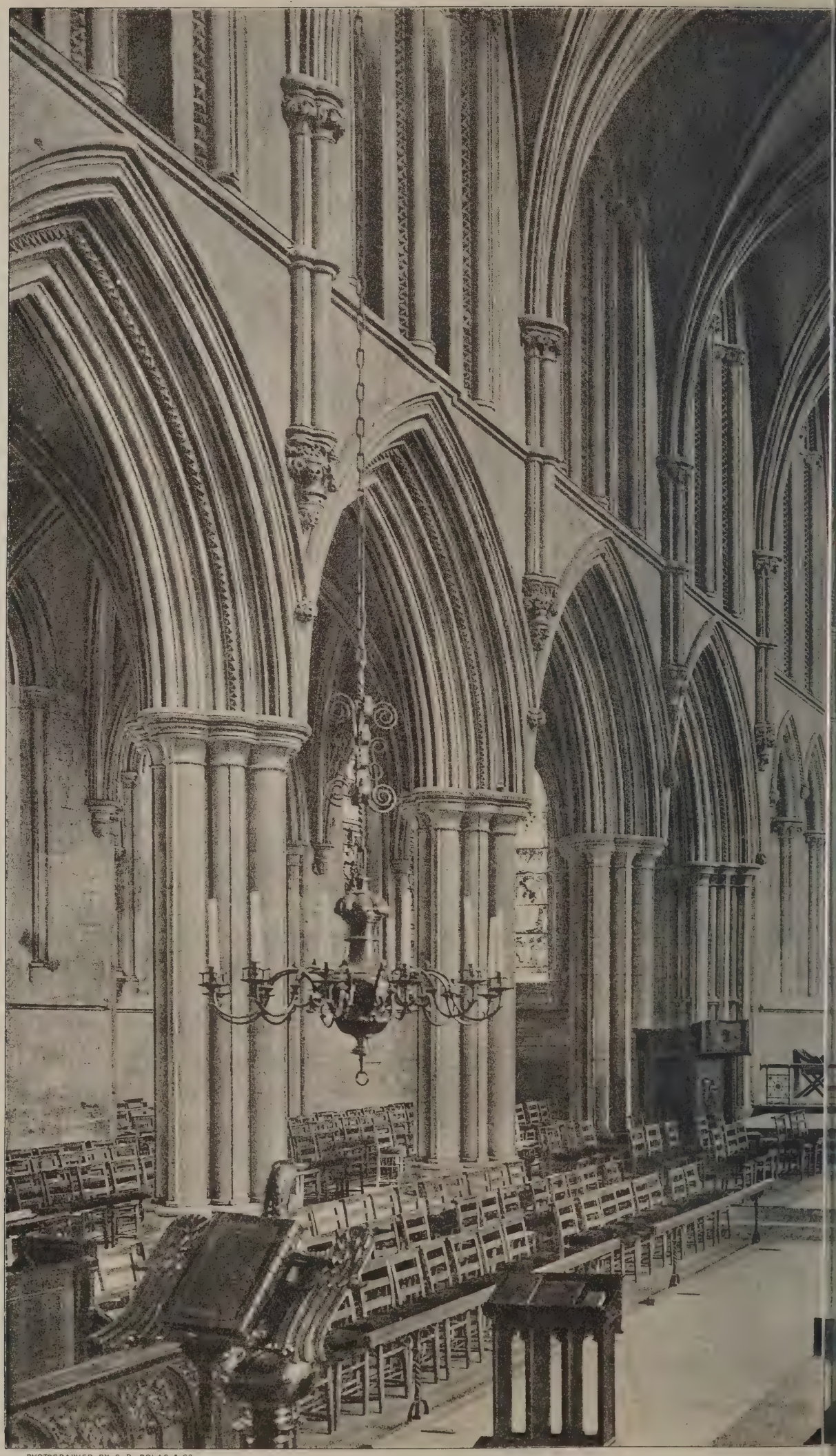
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THE WEEK.

ONE of the signs of the approach of winter, which is not so formidable a season to the student of art as it is to other people, is the card of admission to the lectures of the Royal Academy of Arts. Welcome as it is, a student would be glad if it presented a less stereotyped character. Why must the subjects of the architectural lectures always remain unannounced, as if the peace of the world would be disturbed if they were known? Is it creditable to the Academy to find it stated year after year that "arrangements for the delivery of lectures on sculpture have not yet been made?" The first lecture of the chemistry course will be delivered by Mr. A. H. CHURCH on Monday, October 10. The subjects treated this year are "Grounds for Painting," "Classification, &c., of Pigments," "Selected Palettes," "Vehicles and Varnishes," "Methods of Painting," and "Conservation of Pictures." The lectures on anatomy by Mr. W. ANDERSON commence on October 31, and the demonstrations on November 14. Sir W. B. RICHMOND'S course opens on January 9 in next year. The subjects treated will be as follows:—"Poetic and Realistic Design," "The Art of Sir EDWARD BURNE-JONES," "TINTORETTO and TITIAN," "Style," "Character as represented in Portraiture."

WE congratulate Mr. JOHN BRETT, A.R.A., on the ability displayed by his son Mr. MICHAEL BRETT as a barrister, although the argument employed will raise a fluster in many a council chamber and Local Board office. It related to that *vexato quæstio* the responsibility for the cost of pavements, which has disturbed many a house owner in suburban districts. Mr. JOHN BRETT lives at Wandsworth, and the District Board of Works demanded from him 145*l.* 17*s.* 11*d.* as a share of the expenses for paving Putney Heath Lane. When the case came before Mr. ROSE at the South-Western police-court it was contended by Mr. M. BRETT that the lane was not a new street within the meaning of the Act, and therefore repairable at the expense of the general body of ratepayers. He cited cases showing that the judges had held that in deciding whether a certain thoroughfare was a new street or not, attention should be paid to the general character of the houses in the neighbourhood. With that theory the magistrate concurred. For the District Board it was argued by Mr. YOUNG that if such a conclusion were accepted then it would follow that a road lined with small houses could be called a street, while a road sparsely lined with large houses of rental of over 100*l.* a year could not be termed a street. The Board would have to wait till the gaps between the large houses were filled before calling on the owners to pay for the paving. That was a serious affair for the authorities. Mr. YOUNG asked to be allowed to withdraw the summons, but, on the application of Mr. BRETT, the magistrate declined, and the summons was dismissed on a question of fact. Many sufferers who have been mulcted in charges for paving will regret that a similar point was not raised in their cases; but how are authorities to meet the difficulty of paving roads like Putney Heath Lane? The general body of ratepayers are opposed to paying expenses which are supposed to be mainly for the benefit of individuals.

THE Church Congress this year is engrossed with the discussion of subjects that are in a measure connected with art, although few would care to admit the fact. But architecture has contrived to show its power. The Rev. Dr. JESSOPP, who is a most genial writer on church history, read a paper on the relations of clergy and laity. His theory was that originally the laity bore their part in the government and the management of the churches. But gradually the clergy gained the upper hand, and in councils and synods of the third century the laity were indeed allowed to be present, but merely on sufferance or little more. The architectural history of the earliest churches, said Dr. JESSOPP, afforded interesting evidence of the steady growth of exclusiveness. The clergy were continually gaining ground, as against the laity, and the laity were continually losing it. Perhaps the most noticeable of all the architectural changes was the development of the early lattice work (cancelli), which divided the Holy Table from the too near approach of the laity, into those beautiful chancel screens, which were the delight and admiration of all lovers of art. He sometimes wondered that, upon these same beautiful screens, with their gates and doors all duly closed against the common folk, there never was inscribed the pagan warning, *Procul, o procul este profani!* The question of chancel screens is one which has caused much controversy, and there can be no doubt that in some countries the screen was protective rather than symbolic. Another point touched was the influence of Rome in the earliest conversion of England. That is an important problem, for it comprises the question of the origin of primitive churches, and especially whether they were derived from a Roman type. The Bishop of BRISTOL, who is learned in archæology, said that the whole of England, with the exception of Kent, was converted from Northumbria. In that case the original Christian churches would be probably derived from Anglo-Saxon buildings; but Professor COLLINS, who followed him, said the English Church began in Kent, not in Northumbria, and he spoke of PAULINUS'S church at York as if it were an important building. When two authorities differ so much it becomes extremely difficult to write a history of English ecclesiastical architecture.

AT a conference of municipal engineers held in connection with the Sanitary Institute on Wednesday, Mr. DE COURCY MEADE, who presided, explained the measures taken by the Corporation to provide dwellings at a reasonable rent for the working classes in Manchester. There had been erected, he said, on the cleared sites (*a*) blocks of five-storey tenements approached by a common stairs and balconies; (*b*) blocks of tenements of two and three storeys, with separate entrance and stairs to each set of tenements; (*c*) terrace cottages of five rooms each; and (*d*) a model lodging-house. Drawings of the buildings were exhibited. The Manchester Corporation were also erecting (*e*) cottage dwellings in the outskirts of the city, about 2½ miles from the cleared areas, where land was less costly; these cottages varied somewhat in character, and contained from five to seven rooms each. The buildings class (*a*) had been occupied about three years, and were let at rents which yielded a moderate return upon the cost of erection. The two blocks (*a*) of five-storey buildings cost about 87,000*l.*, exclusive of the cost of sites. The latter, with old buildings thereon, cost about 54,000*l.* Single-room tenements were let at 2*s.* 6*d.* per week; the rent of two or three-roomed tenements varied from 3*s.* to 5*s.* per week. In addition to these new buildings, much had been done in the improvement of existing dwellings, and the conversion of "back-to-back" houses into "through" houses. This work, though excellent where it was effected, had a tendency to cause overcrowding elsewhere, as the number of persons that could be accommodated in the converted and improved dwellings was much less than was crowded into the "back-to-back" houses before alteration. A paper was read by Dr. F. J. SYKES before the conference of municipal representatives, in which he said that the cubic space per head in dwellings was the most difficult point of all to deal with in practice, and must be regarded sanitarily as the most important. Calculated on a physiological basis, the requirement for the human adult was 10,080 cubic feet. We were continually bemoaning the large death-roll of consumption, or tubercular phthisis, essentially a disease spread by crowding, and the medical profession was now strongly advocating the cure and mitigation of the disease by fresh-air treatment. Was it out of place to advocate even more strenuously the prevention of the disease by fresh air, by the provision of more cubic space, and especially by raising the present inadequate minimum standard? The minimum standard should be advanced to 400 cubic feet at the very least. Dr. SYKES said that to erect and certify buildings was one thing, to prevent them from being used other than in the manner intended was quite another thing, and they were living in a fool's paradise if they thought that they were going to succeed in providing the working classes with more breathing-space without having the means of preventing it being compressed to its original proportions.

SIXTEENTH-CENTURY CONTRACTS.

IF we take the agreements entered into for the vaulting and other works at King's College Chapel, Cambridge, as examples of the contract deeds in use in the early part of the sixteenth century, we cannot fail to be struck with their simplicity, especially if we compare them with the documents which serve a similar purpose for less important works that are signed, sealed and delivered every day throughout England. In deeds which bound the provost and scholars of the college, and to which the young Harry the Eighth was indirectly a party—for the authorities on one side were described as acting on the advice and agreement of Thomas Larke, the surveyor of the king's works at the college—there was little possibility of careless draughting. The lawyers employed would endeavour to provide against every contingency as is done in our day. Moreover, the correspondence between the various contracts suggests that the form employed as a basis was one which was accepted as having conformity to usage, for the old lawyers were well aware of the advantage which arises from the avoidance of the use of terms and clauses which were not familiar to any of the parties. We may therefore presume that the contractors, John Wastell, master mason, and Harry Severick, one of Wastell's wardens, who were the other parties to the indenture, could not in case of dispute plead that they were deceived by phraseology that was indefinite.

Wastell and Severick agreed in 1512 to make and set up, or cause to be made and set up, at their costs and charges, a good, sure and sufficient vault for the great church. It was to be workmanly wrought, made and set up after the best handling and form of good workmanship. Although the modern vocabulary is more extensive it is still difficult to define the quality of work with precision by means of words alone, and after all, the brief specification expresses what is desirable as well as a more copious phraseology. The work was to be carried out according to a plan signed by the executors of Henry VII.

The contractors next agreed to provide and find at their cost and charges as much good, sufficient, able stone from the Weldon quarries as should suffice for the vault. They were also to supply lime, sound scaffolding, moulds and every other thing required or necessary, as well as workmen and labourers.

The timber for the scaffolding was to be supplied to the contractors, and apparently was not constructed upon the part of the chapel which was to be vaulted. This seems plain when we find it was agreed that the contractors were on the conclusion of the work to have the timber of two of the "severeyes" or compartments for their own use and profit, as a recompense for "the great cost and charge they shall be at in removing the great scaffold there." It is also worth noting that plant and tools were lent to the contractors, which they were to return to the college authorities when the vaulting was finished. The period allowed for the work was three years, reckoning from the day when the works were commenced.

The total amount to be paid for the vaulting was 1,200*l.*, or at the rate of 100*l.* per severey. The money was to be advanced in such sums as would be sufficient to pay the masons and other workmen, and also to settle the bargains for stone. The accounts for each severey were to be settled before the next was commenced. The surplusage remaining after the payments for wages and materials was to be handed over to Wastell and Severick.

It will be observed that the contractors were restrained with a tight hand. The vaulting was to be executed in portions which allowed of the closest superintendence by Master Thomas Larke, the king's surveyor. The accounts for stone would aid in enabling him to ascertain that the quality was kept up to the original standard. The wages bills would show whether there was any diminution in the number of competent or free-masons. Simple and brief as was the deed, it was sufficient to insure the production of a roof beneath which, according to the legend, Sir Christopher Wren was puzzled, and professed his inability to construct a rival work.

Another contract of 1513, in which John Wastell alone appears as contractor, relates to the construction and erection of twenty-one finials for the buttresses of the chapel or "grete churche." The quality of the work was described in terms similar to those used in the foregoing contract. The finials were to be according to plans conceived and made for the purpose, and to correspond with a finial which already existed. But it was stipulated that all the new finials were not to be exactly alike in their dimensions; some were to be larger, and the contractor was to follow the special moulds or models made for them. He was also to construct a tower at one of the corners of the church in the position which the surveyor, Master Larke, would assign, and from a plan in the surveyor's possession. The stone used was to be derived from the Weldon quarries. The contractor was to be lent old scaffolding timber as well as plant, which were to be delivered up on the completion of the buttresses and tower. The price to be paid was 6*l.* 13*s.* 4*d.* a finial, or 140*l.* for the twenty-one, with 100*l.* for the tower.

In this contract it was stipulated that sixty free-masons were to be constantly employed. In order to secure them the surveyor was to furnish John Wastell with a commission by which they could be taken from other employment. In case any of the masons or labourers happened to be unprofitable, or by his evil demeanour hindered the progress of the operations, then the surveyor was to endeavour to have the work performed "by such ways as hath been there used before," which we suppose means that despotic action became allowable. The provost, scholars and surveyor, for Master Larke appears prominently as a party to this contract, were to furnish five shillings' worth of iron for each buttress. If more iron was required, John Wastell was to obtain it at his own cost and charge. Finally, the contractor bound himself, his heirs and executors in the sum of 300*l.* of good and lawful money of England, and the provost, scholars and surveyor bound themselves in a like sum to carry out all the covenants.

A third contract relating to King's College Chapel was entered into with John Wastell in 1514. The work to be executed was vaulting. In two porches Yorkshire stone from Hampole quarries was to be used: in seven side chapels and nine chapels behind the choir the favourite Weldon stone was to be again used. For the work forty free-masons were to be kept continually. The amount to be paid was 25*l.* for the vaulting of each porch, 20*l.* each for the chapels in the body of the church, and for the nine chapels behind the choir, which were to be of coarser work, 12*l.* each. In addition, for the battlements 100*l.* was to be allowed.

There are two contracts for the stained-glass windows. On one side, in addition to the provost of King's College, who at the time was Robert Haccombleyn, were found William Holgylle, the clerk, master of the Hospital of St. John Baptist, called the Savoy beside London, and Thomas Larke, who was advanced from the surveyorship to be archdeacon of Norwich—or rather he was allowed to hold both offices, a survival of the old combination of technical and ecclesiastical duties which William of Wykeham made famous. On the other side we find Francis Wylliamson, of the parish of St. Olave, Southwark, and Symond Symondes, of the parish of St. Margaret, Westminster, glaziers. The latter party agreed, at their own proper costs and charges, "well, surely, cleanly, workmanly, substantially, curiously and sufficiently to glaze and set up, or cause to be glazed and set up, four windows on the one side of the said church and two windows on the other side, with good, clean, sure and perfect glass and orient colours, and imagery of the story of the Old Law and of the New Law after the form, manner, goodness, curiosity and cleanliness in every point of the glass windows of the king's new chapel at Westminster, and also according and after such manner as one Barnard Fflower, glazier, lately deceased, by indenture stood bound to do, and according to such patterns as shall be delivered for to form glass and make the aforesaid four windows." Two of the windows were to be set up within two years, and the remaining four within the three years that followed, "without any further or longer delay." The glaziers bound themselves to "strongly and surely bind the windows with double bands of lead for defence of great winds and other outrageous weathers." The price to be paid was sixteen-pence sterling per foot. The artists were probably not men of substance, for they were compelled to obtain as sureties John à More, esquire, John Kellet,

yeoman, GARRARD MOYNES, joiner, HENRY JOHNSON, cordwainer, who agreed to be bound in 200*l.* that the contract would be duly carried on.

The second contract was with the following glaziers, viz. GALYON HOONE, of the parish of St. Mary Magdalen, Southwark; RICHARD BOWNDE, of St. Clement Danes; THOMAS REVE, of St. Sepulchre's; and JAMES NYCHOLSON, of St. Thomas Spyttell, Southwark. They were to glaze and set up eighteen windows, including the east and west windows, under similar conditions to those of the preceding contract, the king's new chapel at Westminster being the standard. They were also to set up any glass which was prepared by others, and to bind it with double bands of lead, the price for this work being twopence a foot. For their own glass they were to receive twenty-pence a foot. GALYON & Co. were evidently more skilful designers than WYLLIAMSON and SYMONDES, for they agreed to supply good and true patterns, for which WYLLIAMSON and SYMONDES were to pay such sums as Masters WILLIAM HOLGYLLE and THOMAS LARKE considered reasonable. GALYON & Co. bound themselves to lodge 500 marks as security.

From the contract it is manifest that in the beginning of the fifteenth century in England glass painters did not always follow their own designs. The arrangement about the preparing designs for WYLLIAMSON and SYMONDES is sufficient evidence. But the introduction of the name of BARNARD FFLOWER also suggests that the imitation of the style of an artist who was no longer living was sometimes made obligatory. If we knew more about the arrangements which were followed at the time, we might discover that the beginning of the sixteenth century and the end of the nineteenth century were much alike in adopting the division of labour as an aid to economical and expeditious execution.

Fortunately the windows have survived the vandalism which was successful elsewhere, and has deprived so much Gothic masonry of the colouring which was intended to be a foil to the severity which is unavoidable with work in stone. Still, as the poet says :—

> While from our sight
> With gradual stealth the lateral windows hide
> Their portraitures, their stonework glimmers, dyed
> In the soft chequerings of a sleepy light.

It is also clear that for the proper execution of masons' work more reliance was placed on the surveyor's superintendence than on a specification of portentous length. The masonry was to be well and workmanly wrought, made and set up after the best handling and form of good workmanship according to the plans, and whether that was the case rested on the testimony of the surveyor. If he found the men were not working properly he was able to correct them "by such ways as hath been there used before," for in a building in which HARRY THE EIGHTH was interested, an occasional interference with the liberty of the subject would be tolerated.

Apart from their interest as legal documents, the contract deeds are evidence that the popular belief about the vaulting being a work of HENRY VI. is erroneous. WORDSWORTH commands us to

> Tax not the royal Saint with vain expense,
> With ill-matched aims the Architect who planned—
> Albeit labouring for a scanty band
> Of white-robed scholars only—this immense
> And glorious work of fine intelligence.
> . . . that branching roof
> Self-poised, and scooped into ten thousand cells,
> Where light and shade repose, where music dwells
> Lingering—and wandering on as loth to die.

The plans for the vaulting were prepared in the reign of HENRY VII., and were realised in the beginning of the reign of HENRY VIII. The excellence of the work reveals that the skill of the Mediæval masons had not altogether died out in England, for, as M. VITET says, when speaking of King's College Chapel :—"Le luxe de la décoration des voûtes ne peut pas être poussé plus loin."

The Next Ordinary Meeting of the Society of Engineers will be held at the Royal United Service Institution, Whitehall, on Monday next, October 3, when a paper will be read on "Protective Metallic Coatings for Iron and Steel," by Mr. Sherard Cowper-Coles.

THE CENTENARY OF LITHOGRAPHY.

THE centenary exhibition of lithographic art, which was to be held at the Society of Arts, will, according to the official announcement, have a less central position. Some of the dismal structures on the west side of the Exhibition Road at South Kensington have been assigned to it. Lithographs will there be out of place. The Lords of the Committee of Council have never done one act to foster the art, whilst the Society of Arts from time to time endeavoured to inform the public about its advantages. Excellent examples of the art were produced to illustrate some of the papers read in John Street, Adelphi. Moreover, the revelations about the mismanagement at South Kensington cannot be encouraging to collectors. Taking all things into account, we do not anticipate that the exhibition, which is to open about November 1, and will not be closed for four months, is likely to do much towards the revival of an art which has many of the advantages of etching in its favour, and is suitable for uses where etching would be out of place.

Like many other discoveries which were valuable to the world, lithography owes its origin to an accident. ALOYS SENEFELDER, whose name is inseparably connected with the process, was the son of an actor in the Munich Theatre. The lad wished to follow his father's example, but actors rarely are pleased to see their children on the stage. ALOYS was sent to the University of Ingolstadt to study law, but he cared more for amateur performances in which he took part and for attempts at playwriting. He was unable to pay for printing one of his plays, and he tried to discover some substitute for type. Copying the manuscript on copper-plates with an etching needle appeared the most feasible means, but the expense of the plates was a drawback. In order to be economical, he practised writing backwards on a piece of Kellheim stone or flag. As an amateur he was ignorant of the usual way of preparing the ground for an etching on copper. He tried a composition of wax and soap with lampblack. One day ALOYS had to make out an inventory for his laundress, and as paper was not at hand he scribbled the items with the composition on his Kellheim stone, intending to copy them afterwards on paper. The stuff hardened, and as he had already made experiments in stereotyping, he concluded that if he could obtain sufficient relief, copies of the inventory might be produced. By means of an acid he was able to act on the calcareous stone, and the principle of lithography might then be considered as discovered.

Lithography is a simple example of chemical attraction and repulsion. Lines, letters or figures which are drawn by greasy ink will be increased in height if more of the same kind of ink be rubbed over them. On the other hand, they will repel water or acid. Speaking generally, the process consists, first, in drawing on a calcareous stone with prepared ink; secondly, in bringing the inked parts into relief by adding infinitesimal layers of ink by means of a roller, and by depressing the other parts with the aid of an acid. In that way the stone may be considered as having some analogy with a forme of type or with a woodcut. But a relief made of greasy ink has not the endurance of metal type or of boxwood. If printing-ink were applied to the stone with the expedition that is usual in typography the parts which are drawn would be quickly obliterated, and a black surface varying in density would be the only result. By damping the stone with water, which is repelled by those parts alone which are drawn, it is feasible to apply the inked roller over the whole surface, for the ink will amalgamate only with the drawing, and will be repelled by the damp portion. There is constantly an operation of mutual attraction and repulsion in progress as long as prints are taken from the stone.

The whole process appears very simple now, but SENEFELDER could only develop it by slow degrees. It was easy enough to take a copy of a washerwoman's inventory by pressing paper with the hand over the stone, but when a large amount of work had to be printed off more force was needed. SENEFELDER was obliged to treat printing as if it were pile-driving, by allowing a weight to fall from a height in order to press the paper closely to the stone. But that method was not only cumbrous, slow and costly; as uniform pressure was uncertain prints were sure to be irregular in appearance.

The earliest examples were defective if tested by the standard which was subsequently attained. It appeared then as if the new art was best adapted to become a rival of typography. A greater variety of letters could be produced than the typefounder was able to cast, and it became easy to make facsimiles of manuscripts. The Germans give more attention to ornamental writing than we do in England, and lithography enabled addresses, title-pages, diplomas, &c., to be executed in large numbers on economical terms. The art was also found to be adapted for plans and diagrams. But the early pictorial subjects could not be considered as successful. The reason was that so long as polished stones were used monotony was inevitable. When it was found that by rubbing one stone with another, a layer of sand intervening between them, a "grain" varying in coarseness could be obtained at will, then the gradation needed for pictorial effect was available. Chalk drawings were easily imitated.

Some artists have almost instinctively recognised the resources of the art. SAMUEL PROUT was not considered by JOHN BRITTON as competent to assist in making drawings for the "Cathedrals" and other publications. The artist's style was not adapted for copper-plates. But PROUT's lithographs of continental cities are more effective than BRITTON's plates. The copies which were made by engravers on steel from PROUT's drawings for the "Annuals" have not a tithe of the "go" we see in his own lithographs. LOUIS HAGHE's work is more elaborate, for he was a trained lithographer, but it does not suggest the power of seizing characteristics at a glance which is so manifest with PROUT's plates. "H. B." DOYLE's caricatures correspond with PROUT's, for there is rarely any appearance of working up to gain effect. A similar spirit inspired the majority of the French artists who devoted themselves to original compositions on stone. GAVARNI's lithographs appear to represent phenomena that varied with the hours. RAFFET and CHARLET suggested the whimsicalities of French politics, the public opinion which is scarcely formed when it vanishes, the loyalty which is only a step to hate, with an expedition which no journalist could match. DELACROIX found he was under less restraint when drawing on stone than when painting, and the artist is not to be comprehended if we exclude his lithographs from our purview. Many others could be mentioned who have gained success from understanding that lithography is an art *per se*, and must not be confounded with etching or other modes of representation in black and white. Not that elaborate effects are excluded. There are plates by DECAMPS which rival his works in oils, although deprived of his luminous colouring.

To Germany we are indebted for the art, and the artists have toiled as if they alone were entitled to supply the world with plates. If statistics were forthcoming, it would probably be found that during the century more lithographs were issued in Germany than in the other parts of Europe. German work is commonly most conscientious, and therefore the copies of pictures in public galleries are in accuracy almost equal to photographs, while possessing some slight traces of the draughtsman's individuality; but in a collection of German lithographs we rarely can discern the sparkle and life which are found in French work, although it may be no more than a copy.

In both Germany and France lithographs are still published for which a high but reasonable price is demanded. With us costly plates are unknown. In middle-class houses lithographs are rarely seen on the walls. The art is supposed to be adapted for trade purposes alone. It is superseded now by etching, photography and various reproductive processes. If the coming exhibition will convince people that lithography is not unworthy the attention of able painters and of the public, any expenditure which may be necessary will not be grudged. But preceding exhibitions which were also opened under the auspices of the Science and Art Department do not warrant an expectation of attaining so satisfactory an end.

The First Ordinary Meeting of the Liverpool Architectural Society (fifty-first session, 1898-99) will be held at the New Law Library, 41 Castle Street, on Monday next, October 3, at 6 P.M.

SOUTHWELL MINSTER.

THE report presented by Mr. Street to the Bishop of Lincoln, and which we reprinted last week, satisfied neither the friends nor the foes of restoration. Several letters on the subject were addressed to *The Architect*. In the first place, we were asked by the Society for the Protection of Ancient Buildings to publish a copy of a remonstrance addressed to Mr. Street. It ran as follows:—

To G. E. Street, Esq., R.A.

Dear Sir,—The committee of the "Society for the Protection of Ancient Buildings" takes the first opportunity of replying to your letter of September 16, addressed to the Society through its hon. secretary, and of referring also to a letter which you addressed to *The Architect* on the same subject. It will be convenient to make this a reply to both, by sending a copy to the editor for publication.

In your letter to the hon. secretary you complain that the Society should have accused you of advising the removal of the fourteenth-century screen, and in your letter to *The Architect* you say Mr. Morris's statement (on this point) is "exactly the reverse of the fact." The committee may be allowed at once to express surprise at both these objections, since it did not repeat the common assertion without believing there were good grounds for accepting it. The proposal to remove the screen was commonly spoken of wherever the "restoration" of Southwell was discussed, and your name was so unreservedly connected with it, especially at Southwell, where our inquiries were chiefly made, that the committee could not think it was doing you any injustice in repeating the common report. The following were some of the more public statements:—In a letter to the *Times* Canon Venables said, after describing the difficulty of adapting the church to its new conditions, "There are several solutions of the problem proposed by distinguished members of the architectural profession;" and he places this first—"To cut the knot boldly by pulling down the choir screen." This letter produced a reply from you, in which you acknowledged that it seemed to have been written in consequence, to some extent, of the report you had made. The severest remarks in Canon Venables's letter were directed against the proposal to remove the screen, and your reply appeared to be addressed more particularly to them when you said, "So far from regarding my proposals as outrageous, I confess I prided myself on the common-sense character which marked them." You certainly speak here of more than one proposal, and the reference is clearly to that which had excited most opposition.

The committee would refer you next to an article in the *Evening Standard*, December 1877, which says, "The choir screen is not to be removed as reported, its detention having been unanimously decided on at a recent chapter." If this article were "communicated," as it may well have been, it would be proof that the bishop and clergy of Lincoln were under the impression that your proposal to remove the screen was a serious one, and the committee might be excused for adopting an opinion founded on their authority. Still, after receiving your letter of September 16, it would have been bound to withdraw the statement, though it was given only as an "understanding," and, as shown above, founded on reasonable assumption, if you had not yourself, by the publication of the report, given the committee the only confirmation that was needed. After reading this report the committee must frankly say it cannot see in what respect its statement is inaccurate. Among the proposals you there make this is the one that, if not most directly recommended, is more frequently suggested than any other. It is needless to quote the passages, since the report has been so recently published, but the committee may point out how curiously the editor of *The Architect* confirms the Bishop's reading, though he had your disclaimer before him to guide his opinion. He says:—"If the screen be no longer useful, if its removal indeed would be a convenience, and at the same time lead back to the original arrangements of the church," he would "go with you" in removing it. Again, "If it comes to marring the true ancient test of the fabric at large, or sacrificing the less ancient interpolations (meaning the screen), you would let the interpolations go." This is his summary of your doctrine. He clearly thinks that the drift of your report involved the removal of the screen, and that the Bishop thought so is proved by the formal discussion in chapter. The Society cannot be too thankful that this suggestion was not adopted. Acknowledging all the inconvenience it may cause, it thinks the question of removing it or not should never have been raised. These old buildings, monuments of the ancient art and faith of the people, are not the peculiar property of those who at any time happen to have them in charge. A modern congregation in one of our ancient churches is bound to submit to some inconvenience rather than disturb features which are historical or characteristic. You will agree so far with the Society in this opinion as to regret the many unnecessary changes that suggestive congregations have made in old churches. But for the indulgence of passing fancies the ancient altar might now be standing in

the choir of Southwell, and a bishop's throne would have awaited the consecration of the first bishop. Both altar and throne were removed as useless encumbrances by the authorities of the day, and we now find that the choir was not better fitted for the performance of divine service by the change. It would be a matter of future regret if this last revolution at Southwell should have deprived the choir of its only remaining piece of ancient furniture. As you have challenged the Society on the question of the right conservation of these buildings the committee have made these remarks. You see that there is a radical difference between us as to the proper treatment of an ancient monument. The Society cannot recognise any semblance of conservation in the removal of existing features to make way for conjectural reproductions of others that have been left. It thinks the true conservatism and the safer course is to maintain whatever is substantial and historical, even though its proper use may for a time have passed away. In stating these opinions the committee asks leave to point to another part of your report for the illustration it gives of the possibility there often is of accommodating seemingly unsuitable buildings to our wants, if the wish to do so be strong enough. Your recommendation that the obstructive screen should be used as a singing gallery and orchestra when a large congregation assembles in the nave is so rational that we are sorry it should have been weakened by the companionship of any alternative.

In conclusion, the committee disclaims any intention of making statements meant to be "damaging," and regrets you should be under the impression that you have been unfairly treated. In the matter under discussion it does not think it went beyond the limits of warrantable assumption; but if you can show that you have received unfair treatment at its hands it would be anxious to offer you ample apology in any form you could suggest.

Signed, on behalf of the Society for the Protection of Ancient Buildings,

T. NEWMAN MARKS, Secretary.

9 Buckingham Street, Strand, W.C.:
October 25, 1879.

To the epistle Mr. Street sent the following reply:—

Sir,—I have but just received your long letter of October 25, and though I hardly know whether to be most amazed or amused at its contents, I suppose I must answer it at length, as it is not likely that those who read it will have before them the correspondence in the *Times* of September 1876, to which you pretend to refer, even if they are able to refer to my own words in my letter to the Bishop of Lincoln, printed in *The Architect* about the beginning of last October.

Mr. Morris's statement was that I "advised the removal of the fourteenth-century screen." Having in my letter to the Bishop advised that it should not be removed, having never given any other advice, and having at some length defended that advice and none other in the correspondence with Canon Venables in the *Times* of September 1876, I was surprised at the charge, and expressed my surprise to Mr. Morris.

Your letter is the formal justification on behalf of your Society of Mr. Morris's statement.

Instead of dealing with what I have myself written, you refer to "common report." Canon Venables wrote that there were several solutions of the problem suggested by "distinguished members of the architectural profession." He describes these contradictory proposals. One he says was "to pull down the choir screen;" another was "to retain the screen and to use it as an orchestral gallery for the choir." This letter of his, as you say, produced a reply from me, and in the full trust that no one would be able to refer to my reply, you describe it as being a general defence of my proposals, and assert that what I was more particularly defending was the removal of the screen, and that my letter evidently referred to this proposal. Now it is clear from the one or two sentences of this correspondence quoted by you that you must have had it before you when you wrote your letter. I am sorry that this should be the case, for, incredible as it may seem, it is the fact that in my letter in reply to Canon Venables there is not one word from the beginning to the end of it in favour of the removal of the screen. My whole argument was an elaborate one in defence of its retention and use. Canon Venables referred to the opposing schemes of "several distinguished architects." One of these schemes was mine, and I defended it. And I should have thought that the mere fact that I elaborately argued for the retention of the screen would have made it clear even to your Society that I could not at the same time have recommended its removal. Indeed, it is vexatious to have to refute such evident nonsense. The following extracts from the letter which I wrote to the *Times*, in which you say I advocated the removal of the screen, will, I hope, be clear enough. "When I was at Southwell I had the pleasure of opening and discovering the two staircases which lead to the gallery over the screen, and which, as Canon Venables knows, were not built to lead to an organ. I looked at this question with the greatest desire to suggest no departure from old arrangements, if they could possibly be harmonised with modern requirements, and in spite of Canon Venables's statement that it seems incredible that any one should gravely propose to convert this gallery into a singing gallery, I have no hesitation whatever in allowing that I did so, and for the simple and common-sense reason that the screen was originally erected for that purpose, and that purpose almost only." I went on to explain that, with the altar restored to its old place, and with the screen retained and utilised, "the laity may then be placed in the nave, where also will be the pulpit and the lectern; while the Epistle and Gospel will be said again as of old from the gallery over the screen. Not one single feature of the old arrangement will be tampered with in any way, and every portion of the building will be used just as it was intended to be used by the builders who so grandly fashioned it for us." And after protesting against Canon Venables's proposals as being "destructive to the internal perspective of the nave, which has never been tampered with," I finished my letter by the following sentence, out of which you have picked a few words, under the impression (I must suppose) that no one would know what a false impression they produced. "So far from regarding my proposals for this church as being so outrageous as Canon Venables considers them, I confess I prided myself on the common-sense character which marked them almost as much as upon the fact that they involved no alteration whatever in the fabric, while they restored every part of the church to its proper and original arrangement and use, in entire harmony with the simple and usual order of our English church service."

The proposal for the removal of the screen was not made, could not have been made, by one who wrote in this way. It was, I presume, the recommendation of some very "distinguished architect," and not one word was said about it in the correspondence with Canon Venables, in which, nevertheless, you assert that it was clearly this scheme which I was defending. On October 12, 1876, Canon Venables answered my letter in the *Times*. He said of course not one word in support of your hypothesis that I was really proposing the removal of a feature when I was showing how it might be preserved and used; but he wrote as follows:—"I may be permitted to say, with regard to the stone screen between the nave and the choir, that I am well aware that Mr. Street has to a certain extent Mediæval precedent for the use to which he proposes to put it as a singing gallery." My reply to this letter closed the correspondence, and was printed in the *Times* of October 17, 1876. This is what I said:—"What I desired was, to try whether by using the church without any such novel arrangements," as Canon Venables proposed, "we could not make it suit all our purposes just as well as it suited those of its builders." I went on to point out that the Mediæval practice was a dangerous authority for the Canon to quote, for if Mediæval architects had been told that it was necessary to keep a high screen they would have refused to acknowledge the necessity, and would have done as seemed best to them. As, however, they did not remove the screen, "we have, on archæological grounds, to submit to the inconvenience with the best grace we can; and the best mode of doing this is to restore the screen, as far as possible, to the use for which Canon Venables admits that it was erected. If the whole of my recommendations to the Bishop of Lincoln were followed, Southwell Minster would be about as conveniently arranged a church as any in England." "On Sunday the congregation at Matins and Evensong might all be seated in the nave, in full sight of pulpit, lectern, and litany desk, on the nave floor, and of the choir men and boys in the singing loft over the screen, who would be equally well heard," &c. "In this way every part of the church would be used as it was intended by its builders to be used; and seeing how entirely our Anglican services are founded upon those pre-Reformation services for which the church was built nothing is more natural than this should be both possible and convenient." I concluded the correspondence with these words:—"My scheme for using the old choir screen is slightly too bold, and (apparently) too novel for 'safe' people to follow. But a little more courage in dealing with such questions would often save us from the perpetration of schemes for which our successors will not thank us."

I think these extracts are sufficient evidence of the animus which can lead you to represent them as proving that I recommended the removal of the screen. In my report to the Bishop—which having been recently printed can be referred to—I pointed out at considerable length why and how the old rood-screen should be preserved and used. Having done this I told him that there were other possible courses which I much doubted whether he would like to be responsible for. One of these possible courses was the removal of the screen. On this my words were, "Therefore I do not recommend the removal of the old screen," though I thought and still think even that would be preferable to a third course, which I described at length, which it is not necessary now to describe. In a few words, it is sufficient to conclude by saying that I am not responsible for what the editor of the *Evening Standard* or of *The Architect* may have said or thought. But I observe one

the curious fact that there is no evidence in anything that you adduce that anyone even supposed that I had advised the removal of the screen. The chapter, you say, had the proposal before them. But it was no proposal of mine ; my sole connection with the whole business was the giving a letter of advice to the Bishop of Lincoln. This was, I believe, never published in any way till your misrepresentation of its contents obliged me to print it. I am not the architect of Southwell Minster, and have never made any plans for its alteration. I have only done my best to prevent any destruction of any of its old features, and as the old screen seemed to me to be in some risk of being destroyed I devoted myself especially to proving that there was no reason whatever for getting rid of it, and that it might, if people would but have some common sense and no prejudice, very well be made useful for modern service just as it was for those for which it was built.

Indeed, the charge you make against me reminds me of a paragraph in *Truth*, in which the editor expressed a pious hope that "London Bridge will not be rendered hideous by Mr. Street's plan to widen it by facing the present granite arches with iron arches." I have done my best to prevent any removal of any old feature, including the screen in Southwell, and your Society calmly asserts that I have advised the screen's removal. I write to Mr. Morris, telling him how completely he is mistaken, and he replies that he will inquire into the facts. I then publish my report, with a reiteration of my opinion that the screen ought not to be touched, and then I receive your elaborate statement of your reasons for believing that, in spite of my statement and my report to the contrary, I did nevertheless recommend the exactly opposite course to that which I supposed and said I had been taking. Truly on one side or the other words are used to disguise the facts, and the world must judge between us.—I am, your obedient servant,

GEORGE EDMUND STREET.

14 Cavendish Place, W. : November 3, 1879.
T. Newman Marks, Esq., Secretary.

Another letter from the Society followed :—

Sir,—I beg leave, on behalf of the Society for the Protection of Ancient Buildings, to make a few remarks on Mr. Street's letter printed in your issue of the 18th ultimo.

The Society gladly acknowledges that the proposal to remove the screen was not Mr. Street's favourite plan, and inasmuch as it was not his favourite plan it regrets that any expression it has used should have led to the conclusion that it was ; but after carefully reading his letter the committee does not find in it any proof that the other plan was not also put forth by him.

The letter to the Bishop of Lincoln is distinctly a "letter of advice," and is supposed to deal with practical questions or with questions that might become so. When, therefore, Mr. Street says he should not object to be responsible for the removal of the screen, were he not of opinion it might be utilised as it stands, he clearly advises the Bishop, if he cannot adopt Mr. Street's opinion of the usefulness of the screen, to remove it.

That the Bishop could not accept Mr. Street's plan for utilising the screen is not surprising to those who consider the difficulties of a Bishop's position between the contending ecclesiastical parties of the day. If the Society may venture to use Mr. Street's words, the plan was too bold and too novel for safe people to follow. It was then but natural that the Bishop and chapter should turn to the alternative plan as the practical one and discuss that.

If the discussion was more than Mr. Street intended, he may at least be said to have anticipated it when he provided the Bishop with so many arguments in support of the plan discussed. The committee cannot but think, on this point, that all misconception might have been avoided by much simpler means. It regrets the discussion was for a moment raised, even though the plan was condemned. That such a plan should have been even suggested, still more that it should have appeared under the sanction of Mr. Street's name, is, in the opinion of the Society, a misfortune greater that it can express. This proposal sustained by his authority will be a continual encouragement to those who are but too ready to pull about our ancient buildings for any fancied necessity of the day, while it must make the task of this Society more difficult.

Signed, on behalf of the Society for the Protection of Ancient Buildings, NEWMAN MARKS, Secretary.

9 Buckingham Street, Strand, W.C. ;
November 13, 1879.

Mr. Christian, the architect for the restoration, was absent from England during the controversy, but on his return he wrote us the following letter :—

8A Whitehall Place, London :
November 15, 1879.

Sir,—Having taken this year rather a longer holiday than usual for the purpose of visiting a portion of Canada and the United States of America, I have been blissfully ignorant of the correspondence in your columns, in which, from August 30 onwards, my name has so often appeared. With one exception, I have not much to complain of in what has been written on either side, and as my reply to the memorial from the Society for the Protection of Ancient Buildings to the Ecclesiastical Commissioners has been given in full, I have but little to add as regards that Society's action. I would only further observe that had I not cleared away the modern galleries, with all the abominations they concealed beneath them, the exquisite beauty of the choir aisles could never have been seen, nor the structure adequately repaired, and as to the pews below, it is quite inconceivable to me how any one with a particle of artistic feeling could desire the retention of such mean and contemptible specimens of the worst period of church fittings.

But as you have also printed Mr. Street's report to the Bishop of Lincoln upon the general subject of refitting, I think the correspondence cannot be deemed complete without the addition of my report to the Ecclesiastical Commissioners in reply thereto, which I have now their permission to send you, and enclose herewith.

As regards the letter of Sir Edmund Beckett it was only to be expected that he would delight in the opportunity of taunting with inconsistency the advocates of a new high roof at Southwell and the retention of the old one at St. Albans ; but the cases are really widely different. At Southwell an altogether modern roof of poor construction and inferior covering is to be replaced by one of massive oak timbers, covered with lead, in exact accordance with the ancient lines and interfering with no later structural work. At St. Albans it was desired to save a genuine specimen of Mediæval construction and a ceiling of considerable beauty and interest, believed to be capable of sound repair, together with several structural features in connection therewith, which would be wholly inconsistent with the restoration of a new roof of the earlier pitch.

To the concluding remarks in that letter, unjust and ungenerous as I know them to be, I do not care to reply, excepting to remark, that if architects were capable of acting on such principles as are there attributed to them the sooner they ceased to be employed the better it would be for the buildings entrusted to their care.—I am, Sir, yours faithfully,

EWAN CHRISTIAN.

The occasion was too tempting to be neglected by the present Lord Grimthorpe, then Sir Edmund Beckett, and the following characteristic letter from him was published in *The Architect* :—

Sir,—I am out of the way of seeing *The Architect* at present, but that of August 30 has been sent to me with an account of the falling-out of those dear friends of a few months ago, "the careful and conservative architect" of the Ecclesiastical Commission, Mr. Christian, and the very high priest of "vigorous conservative restoration," Mr. Street, on the one hand, and the Anti-Restoration Society, whose secretary is Mr. W. Morris, on the other. The last time we heard of them together they were denouncing the rebuilding of the old high roof of St. Albans, with a flat ceiling under it, as before, on the ground that the (in two senses) late low roof only wanted some repairs to make it last for centuries, though now that it is down and its utter rottenness visible to everybody, the only wonder is that it had not fallen and killed a congregation. It certainly would have fallen soon if we had believed Sir G. Scott's assurances that it was sound.

It is distressing to see those two eminent recent allies of that Society now incurring their wrath, and I suppose that of the Antiquaries too (unless they have no local agitator at Southwell to stir them up), for the following catalogue of iniquities. They are charged between them with removing a flat ceiling and low roof, which they do not even allege to be rotten, or anything worse than ugly, and making the church look low, as if that were anything in an antiquarian and "interesting" point of view ; indeed, the ugliness of the apparently roofless nave of St. Albans created its special interest to the P.S.A. and his fellows. Not only are they doing that, but actually substituting an open roof also for the flat ceiling, on the ground that it will prove handsome. Mr. Street is further charged with proposing to remove the great stone screen of the fourteenth century, though that remarkable piece of vigorous conservatism has been stopped by some higher authority. They are avowedly partners in the guilt of abolishing some modern plaster screens, which Mr. Morris pronounces "very interesting," and Mr. Christian "most flimsy copies of some earlier ones." And as a climax of atrocity they are sweeping away some galleries and deal pews, which Mr. Morris calls "modern and poor in quality, but quite adequate for cathedral requirements," meaning apparently that people can sit in them. Was there no "three-decker" pulpit also to overtop the galleries, and for the anti-restorationists to weep over, or to buy by auction, and set up and lecture from in their museum of expelled modern antiquities and "unique" ugliness and putrefaction? It is not too late for them to apply for the rotten

remains of our roof here. A good deal of it can be compactly supplied in jars of dust.

However, they are not worth talking about. I should as soon offer to give lectures on church building at the Royal Academy of St. Luke or the University of Bedlam as argue with them. The really lamentable spectacle is the falling away from the high conservative principles of last year by the two leaders of that strictly impartial party of the R.I.B.A. and the antiquaries who volunteered to come here, and returned so full of indignation at our daring to replace that rotten and in every way good-for-nothing low roof, which was far worse than they say the Southwell one was, by a new one of the original height. Mr. Christian, indeed, tramples on Mr. Morris's ignorant denial of the original roof at Southwell triumphantly enough; but he is unfortunately trampling still more on the Christian and Street of last year, as Mr. Morris has just sense enough to see. For he expressly refers to St. Albans as a parallel case, though not so strongly as he might against them, and many sentences of the letters on both sides might have served equally well for either controversy, only the architects have changed their side.

Not that we proposed anything here parallel to Mr. Street's removal of the fourteenth-century screen of Southwell, though we have an enormously high screen of the fifteenth, which most people consider a mistake of the later monks (the same who began lowering the roof), and a great misfortune, as it prevents 130 feet of our 520 feet of internal length from being seen from the body of the church, including its three finest arches and the lady chapel. I wonder what Mr. Street would have said about us to his two societies and the *Times* if he had found us proposing to remove, or even to lower, the great altar-screen.

I never expected to have to be grateful to the Anti-Restoration Society. But I am for this delightful exposure, and the more so because it is so mutual. After this no one can be blind to their artistic taste (which they actually profess), or to the fact that their "preservation of ancient buildings" means the preservation of every modern debasement and defilement of them, and letting them go to ruin for the amusement of antiquaries. And as for the architects, whom they have at last quarrelled with, no one but themselves could have convinced the public that it makes all this difference whether they are employed to do restoration jobs themselves or go as volunteers to criticise the work of other people in a perfectly unbiassed state of mind—unbiassed even by personal grievances of their own, unluckily made public just too soon, as I remarked in the *Times* last Christmas Day. Yours obediently, Edm. Beckett.

THE TEMPLE OF THERMON.

FOR some little time past the Greek Archæological Society has been excavating in the neighbourhood of Thermon, the place of assembly for the ancient Ætolians. Professor Sotiarides, a distinguished scholar who is in charge of the operations, is of opinion that the Temple of Apollo, which has recently been discovered, dates apparently from the seventh century B.C. It is built on a cemetery, where may still be seen the bones and ashes of the dead preserved in large vases of earthenware. Five iron and copper swords and two buckles were also found in the large field which contains the cemetery and temple. The foundations of the temple indicate, the Professor says, that it pointed due north and south, like the ancient temples of the Etruscans in Italy. The sacred enclosure was divided into two galleries by six wooden columns, of which the bases are still preserved. The temple was 38 metres in length and 12 metres in breadth. Of the twenty marble columns which went round it the bases and various parts are preserved. Several heads, beautifully modelled in clay and coloured, stood on the cornice of the temple. Inscriptions, some giving the decrees of the Ætolian Assembly, have also been found, and are of exceptional interest.

TESSERÆ.

Horns as Title-Deeds.

AMONGST the various methods of transferring inheritances in use with our ancestors, says Pegge, was that of conveying them by a horn either in frank almoigne, or in fee, or in sergeantry. Ingulphus, abbot of Croyland, particularly specifies the horn amongst those things whereby lands were conveyed in the beginning of the Conqueror's reign. At first, he says, many estates were transferred by bare word of mouth, without any writing or charter, only by the lord's sword, or helmet, or horn, or cup; and many tenements by a spur, a scraper, a bow and some by an arrow. The Borstal horn is one example. Edward the Confessor had a royal palace at Brill, or Brehul, in Bucks, to which he often retired for the pleasure of hunting in his forest of Bernwood. This forest, it is said, was much infested by a wild boar, which was at last slain by one Nigel, a huntsman, who presented the boar's head to the king; and for the reward the king gave to him one hide of land, called Derehyde, and a wood called Hulewode, with the custody of the forest of Bernwood, to hold to him and his heirs "per unum cornu, quod est charta prædictæ forestæ." The original horn was all along preserved by the lords of Borstal under the name of Nigel's horn, and in 1773 was in the possession of John Aubrey, son and heir of Sir Thomas Aubrey, Bart., to whom this estate has descended without alienation or forfeiture from before the Conquest to the present time, by several heirs female from the family of Nigel to that of Aubrey. Of still more ancient date is the Pusey horn, "a real ox-horn two feet one-half inch long, the circumference in the largest part one foot, in the middle nine inches one-fourth, at the small end two inches one-fourth." On a ring of silver gilt that girt it was the following inscription:—"Kyng Knowde (Canute) geve Wyllyam Pewse this horne to holde by thy lond." Bugle-horn will occur to every one as being derived from buculus or bucula. Thus Johnson, word "bugle, bugle-horn," writes "from bugen, Saxon, to bend, Junius; from bucula, Latin, a heifer, Skinner; from bugle, the bonasus, Lye. It is very natural that the term of the beast should be applied to the horn. See bugle," and at that word Johnson writes "old French bugle, bos, Lacombe. A bull in Hampshire is called a bugle." It is worthy of note that Littleton (word bison) calls that beast a bugle. Many of these ancient horns—that at York affords a fine example—were of ivory and richly carved; but we have selected the two horns above described because they clearly belonged to some animal of the genus bos, though certainly not to the European bison or aurochs.

Goethe and Art.

Goethe's mind dives into the past, not with the cold abstractedness of the antiquarian, but with the fervour of the poet who transfers his life into that of ages gone by. Thus, when he resigns himself to classic recollections, his mind becomes, as it were, steeped in the sunshine of Greece and ancient Rome; it is an apprehension of the past, connecting it with the present and the future. A trait that peculiarly distinguishes Goethe is his deep reverence for art, and high sense of the dignity of its office. Art, as he regarded it in the abstract, was the power of embodying the noble and beautiful in soul—a power possessed in common by all its different branches—so that the essential purpose of all was the same. To awaken admiration has been defined as the office of poetry, and so it is with the plastic arts; they should create admiration not merely objective but sympathetic, quickening a feeling that corresponds with the dignity of the sentiment conveyed in their forms. Goethe, with the greatest veneration for the antique, never imposed a servile imitation of its models; with the philosophy of an original mind, he enjoined the artist to appropriate to himself the spirit and the thought which gave its expression to the antique in order to arrive at conceptions equally perfect.

The Italian Piazza.

"Place," according to the French rendering, is the only word that occurs as corresponding to the Italian "Piazza." In England a strange mistake is often made as to the meaning of the word piazza, by employing it to signify the surrounding porticos, as in the case of Covent Garden, instead of the large area they enclose, which is the real piazza or place. Pope in one of his letters authorised this mistake. Another error is to confound a cupola with a dome. Dome or duomo properly signifies the cathedral or principal church in a city or great town. This being in Italy (whence we have both terms) generally crowned with a cupola, has occasioned the mistake of the whole for the part.

Training of the Eye.

The works of the ancient sculptors were produced not by measuring but in consequence of that correctness of eye which they had acquired by long habit, which served them at all times, and on all occasions when the compass would fail. There is no reason why the eye should not be capable of acquiring equal precision and exactness with the organs of hearing or speaking. We know that an infant, who has learned its language by habit, will sometimes correct the most learned grammarian who has been taught by rule only; the idiom, which is the peculiarity of language, and that in which its native grace is seated, can be learned by habit alone. To possess this perfect habit, the same conduct is necessary in art as in language, that it should be begun early, whilst the organs are pliable and impressions are easily taken, and that we should accustom ourselves while this habit is forming to see beauty only, and avoid as much as possible deformity or what is incorrect. Whatever is got this way may be said to be properly made our own; it becomes a part of ourselves, and operates unperceived. The mind acquires by such exercise a kind of instinctive rectitude which supersedes all rules.

NOTES AND COMMENTS.

MR. RUSKIN has spoken severely about the modernising of Rouen, which has caused the destruction of many old buildings which made the town appear unique. His language is mild if compared with M. VICTORIEN SARDOU'S. The dramatist was invited to aid in the measures which were contemplated for the preservation of the house in which CORNEILLE lived. According to M. SARDOU, that house, having been deprived of its *pignon* and transformed to suit modern use, is no longer what it is represented to be, and can inspire only regret. Such structures cannot be re-made. M. SARDOU does not believe it is worth while to preserve the little that remains of the old house. What he desires to see is a plaque on the front with this inscription, "Here was the house of the two CORNEILLES, that the Municipal Council of Rouen considered to be unworthy of conservation." The incredible indifference of the Council has been the means of causing terrible injuries to antique remains. Of course the people of Rouen would say that, from its position, the town cannot afford to remain as an antiquity; modern interests must be served, and before they are satisfied it is to be feared many other ancient buildings must be demolished. They are proud of CORNEILLE in Rouen, but the price that is necessary for acquiring his house cannot be raised.

THE first theatre in London to adopt electrical power to assist in the construction of elaborate scenes in the manner advocated by Mr. EDWIN O. SACHS, is the Theatre Royal, Drury Lane. Mr. SACHS, who holds the commission, has been entrusted with the arrangement for moving some large sections of the stage floor—each measuring 40 by 7 feet—to any level above or below the footlights. Every movement is to be easily controllable from an ordinary switchboard. This improvement will be completed for the Christmas pantomime. The contractors are the proprietors of the Thames Ironworks, who are rapidly carrying out the plan under most difficult circumstances, for the whole of the heavy constructional work had to be erected whilst such an elaborate play as "The Great Ruby" was in rehearsal. The rehearsing was gone through on a temporary stage flooring. Shifts of men worked turn by turn day and night. The principle of the suspended electrical lift has been adopted, but in such a manner that the appliances will be a great improvement on what has been so far done on the Continent. The material is steel throughout except for the stage floor proper. It is satisfactory to find that the so-called National Theatre should have led the way in such an improvement, and credit is due to Mr. ARTHUR COLLINS and his co-directors for having met the conservatism and prejudice so common to the stage with innovations which are in keeping with this age of invention.

TEN years ago the exports of iron and steel from the United States amounted to 17,763,034 dollars, while the imports were 48,992,757 dollars. This year's returns show the values to be more than reversed. The imports have fallen to 12,615,913 dollars while the exports are 70,367,527. It is needless to say that Great Britain now receives iron and steel from the States in large quantities. American manufacturers are not only captivating the great railway companies and the corporations of our cities, but they are winning the favours of the smaller town councils. Hastings, for example, last week decided to accept the tender of a Philadelphian firm for the supply of 9,850 yards of 16-inch water-pipes, 2,670 yards of 10-inch and 500 yards of 6-inch cast-iron socket pipes, weighing in all about 2,050 tons, with an additional 35 tons of irregulars and short lengths. The tender amounted to 10,359*l.*, and apparently the lowest that was obtained from a firm in this country was 11,610*l.* Some of the best Glasgow firms, it was said at the meeting of the Council, were beaten by about 13*s.* or 14*s.* per ton. It is not in cast-iron alone America is victorious. The American official report on manufactures in iron and steel boasts that "the people of all parts of the world seem to have developed a liking for our manufactures of iron and steel; our sewing machines hum in Africa, the East Indies, Colombia, Cuba, Central America and the islands of Oceanica. Our telegraph instruments click in Japan, China, Australia, Russia and in all parts of Europe. Our wire nails go to all European countries, to Canada, British Honduras, British Australasia, British Africa and Liberia. Our electrical machinery is attracting the attention of the world." The British working man, who will read the statement of American success, will of course rejoice, for he is the main cause of the inability to compete successfully against distant rivals. But it might be well if he considered what will be his fate if the liking for foreign manufactures is further developed, for it cannot be expected that he is to be employed in order to make defeats harder to endure.

THE catalogue of the exhibition of the Northern Art-workers' Guild, which is now open in the City Art Gallery, Manchester, is worth more than its price as an example of typography in antique style. The letters bear some resemblance to the handiwork of scribes. The chapters on the various crafts by the officers of the Guild are also suggestive, and the illustrations are in keeping with the type. There are over 200 objects exhibited, which deserve attention from the people of Manchester.

ON Monday, October 10, Professor ROGER SMITH will deliver the public opening lecture of the Architectural School of University College, London, at 7.30 P.M. The subject selected is "Student's Difficulties." The committee of management of the college have reduced the fees in the classes of architecture and construction so as to bring them within the reach of students obtaining County Council scholarships, or others of equal value. For five guineas a student can now attend a course of forty lectures in either art or construction, and also the evening drawing class in the same subject.

THE Architectural Division of the Department of Western Australia has been reorganised by Mr. A. D. BELL as superintendent of buildings. Mr. J. H. GRAINGER is now chief architect, and Mr. WRIGHT chief assistant architect. The working of the division is being placed on somewhat better defined bases than hitherto. New works under erection by contract are controlled by the chief and assistant architects as executive officers, and continuous inspection is exercised by travelling officers. The practice of having resident supervisors of commonplace qualifications on separate works is being altered, so far as the conditions admit, in favour of a system of travelling supervisors of higher qualifications, a smaller number of whom will thus more effectively cover as much ground and as many works. A resident district officer in each of the more settled country districts—of which Albany, York, Bunbury and Geraldton are the centres—maintains the general oversight of all the works within his boundaries. The metropolitan district is served from and by the head office in Perth. On the goldfields, and in the more distant parts of the colony, which cannot be so frequently visited, an officer in charge is established, with supervisors under him. The Coolgardie goldfields, the Dundas goldfields with Esperance and the South Coast, the Murchison goldfields and the North-West Coast, form four districts under such officers, who are responsible for all the general works and services required, the designs and specifications for larger and more important works being supplied from the head office, inspecting officers from which periodically visit and report upon the working of the districts. The chief architect and his assistants, and through them the superintendent, are thus kept in close touch with the progress and manner of execution of each work, enabling a sound opinion to be formed as to the knowledge, capacity and energy with which affairs falling to their charge are administered.

ILLUSTRATIONS.

CATHEDRAL SERIES.—SOUTHWELL: DETAILS OF CARVING IN CHAPTER-HOUSE.

THE QUEEN'S SITTING-ROOM, THE HAGUE.

KELSEY, BECKENHAM.

THIS house stands on the west side of the high-road to West Wickham. The facing bricks are red, and the roofs are of slate. The work was carried out, under the superintendence of the architect, by MESSRS. SYME & DUNCAN, builders.

VENTILATION AND WARMING.*

(Continued from last week.)

Allowances of Cubic Space.

I HAVE adopted as a basis of my inquiry the allowances of cubic space recommended or confirmed by the cubic space committee of 1867. In reply to the question, "Do the committee consider it essential to health that any addition should be made to the minimum space of 300 cubic feet, which is now required for each bed in wards occupied by night only, by healthy adults or children?" the following answer was returned:—"The committee have had before them no evidence to show that the minimum space now required is too little;" and in answer to a further question they say, "The question of cubic space is subordinate to the more important question of ventilation, by which the committee mean the continuous renewal of the air within a given confined and inhabited space of whatever shape, size or surroundings, so that it shall be kept pure, or nearly pure, and shall vary within a few degrees only of moderate temperature. It is plain that the complete and scientific solution of the problem of ventilation thus understood would govern and include the scientific answer to the questions of space proposed by the Poor Law Board for consideration by the committee. The requisite space when settled once for all will need no further pains; deviations from the prescribed amount can scarcely escape notice. It is not so with ventilation, yet if this be neglected all regulation of cubic space becomes an idle care. The committee, therefore, would suggest watchful and constant attention to this subject of ventilation, to its easiest, cheapest and most effectual methods, and to the means of adapting them to the various forms and dimensions of existing rooms. Whatever methods are adopted should be rigidly enforced by some resident official or frequent inspector; they should be made secure against the intermeddling of pauper inmates and servants of the house, and they should avoid the ingress of strong currents of cold air or at least the incidence of such currents upon the bodies of the inmates."

Thirty years have elapsed since these replies were given, yet, if the same questions were put again to-day, it is probable that similar answers would be returned. There can be no question that, if the minimum allowance of cubic space were increased, the problems of ventilating and warming the several rooms would be made somewhat easier, but the remaining difficulties in the way of furnishing a scientific solution of the problem of ventilation, and giving a scientific answer to the question of cubic space, which the former is rightly said to govern, would remain the same in kind, though less in degree. The problem is a quantitative one, and requires a quantitative answer, yet the quantitative information about the appliances for ventilation and warming to be found in the Poor Law schools extends to little beyond the data which would be contained in an architect's specification, with occasional observations of temperature by those in charge. In actual practice we are not in a much better position for giving a precise quantitative answer to questions as to the efficacy, under varying conditions, of the various appliances than we were thirty years ago. Methods of ventilation have indeed commanded a great deal of attention, and great progress has been made in devising new and improved systems, but the criticism of the older systems is still for the most part qualitative, and I should doubt if any ventilating engineer would decline to undertake the responsibility of providing means of keeping the air of the several rooms of the Poor Law schools pure, or nearly pure, while avoiding cold draught, on the ground that the allowance of cubic space is too small. It may fairly be assumed that with the continuous improvement of the means of ventilation a point would be reached beyond which the renewal of air could not be carried without going to expense that might as well, or better, be devoted to providing fresh accommodation; but that critical point is, in my opinion, not yet reached in any of the buildings that I have inspected. The immediately recognisable obstacle in the way of satisfactory ventilation and warming in the schools at the present time is not the smallness of the cubic space allowance, except in the cases of certain infirmary wards in which the minimum allowance is less than 850 cubic feet per bed, and where, but for the too great number of patients, the existing arrangements would be tolerably satisfactory. In the dormitories, for example, the increase in the space allowance from 300 to 400 or 450 cubic feet per bed would not make the existing arrangements satisfactory. There would still be the dilemma of too little air, or too low a temperature in cold weather. Moreover, the information at present at my disposal is not enough to enable me to say when the critical point would be reached at which further modifications of the arrangements for ventilation and warming would be unremunerative, nor could the information be obtained experimentally for the rooms of the schools with their present arrangements for warming.

Consequently, the suggestion of "watchful and constant attention to this subject of ventilation" is as appropriate now as it was in 1867, and to secure results that would be of direct use in deciding between the alternatives of more efficient ventilation and more cubic space, it is necessary that the watchfulness and attention should be given not merely by architects in planning buildings and by hot water or ventilating engineers in introducing modifications of existing arrangements, but also by others, "resident officials or frequent inspectors" as suggested by the committee of 1867, who see the arrangements from time to time in actual work, and, if necessary, can watch their action for considerable continuous periods. Within the watching should be comprised such systematic measurements of temperature, air-flow, air-composition or other particulars as would furnish evidence for sound opinion not merely upon the simple questions whether a room is well or ill-ventilated, warm or cold, but upon the much more searching questions, if the rooms are ill-warmed or ill-ventilated, to what extent they are defective and to what specific causes must the defects be ascribed.

While the definite answer to the question of cubic space must still be left for future consideration, there are signs that the question may be gradually approached in a slightly different manner. With the mechanical system of ventilation, the amount of air supplied and its temperature are much more definitely determinable than when the draught of chimneys or the effect of wind is relied upon as the means for renewing the air. When once the ducts have been formed, the maximum amount of satisfactory ventilation is practically incapable of variation without great structural alteration. Any difficulty that arises cannot be shelved by opening the windows for a little while when complaint is made of the closeness of the room. Practically all that can be said, if the air is found to be offensively close, is that there are too many inmates in the ward, and all that can be done is to find accommodation for some of them elsewhere; in other words, the allowance of cubic space must be governed by the amount of ventilation actually provided in any special case.

Hitherto the statement of the problem has been, "Given a ward intended for so many beds, how can the necessary amount of fresh air be supplied?" It is now becoming changed into the much easier form, "Given a ward provided with certain appliances for ventilation, how many beds can be properly accommodated therein?" The answer may be different for wards of the same dimensions, according to the extent and effectiveness of the appliances provided. It should be determined by the actual performance of the apparatus in action, and not by the efficiency assigned in anticipation. I see no sufficient reason for limiting this form of stating the problem to those wards which are partially or wholly ventilated by mechanical means. It can also be employed when the ventilation is by open fires or open windows. To give a satisfactory answer in the latter cases would doubtless involve more observations, and perhaps greater judgment in interpreting them, and the margin for contingencies should be somewhat greater than with mechanical ventilation, because the air supply is more variable, and regard must be had to minimum as well as average efficiency under various conditions; but, treated from this point of view, a reasonably scientific answer to the question of cubic space is at least possible.

In making recommendations as to the ventilation and warming of the schools, I have had in view this method of fixing the allowance of cubic space, particularly in the case of infirmary wards. When I have given definite numbers, however, I have been conscious that many of the data are provisional only and may require correction from time to time, but the method appears to me to be sound in principle and feasible in practice, and to mark out the line along which progress is most likely to be assured.

SECTION II.—DORMITORIES.

Quantity of Air.—Examination of the System of Cross Ventilation.

This part of the subject must, for reasons given above, be treated from the point of view of the system of cross ventilation between windows (or their equivalents) on opposite sides of the rooms. The problem to be solved is, therefore, very different in different special cases. The number of rows of beds does not give complete information, because the number of breathing individuals to be provided for is very different if the beds are arranged longitudinally or end on from what it is if they are arranged side by side, with heads and feet in parallel lines. We may, perhaps, better consider the requirements if we suppose that a room 56 feet 6 inches long, 18 feet wide and 12 feet high is intended to accommodate thirty beds. This gives an allowance of 400 cubic feet per bed, with a wall-space per bed of rather less than 4 feet. A room 9 feet wider would accommodate another row of beds side by side, one 18 feet wider would take a fourth row. I have considered the following

* From the report by Professor W. Napier Shaw, M.A., F.R.S., on the ventilation and warming in certain of the Metropolitan Poor Law schools.

problem :—"At what rate must the wind be blowing upon the windows upon one side in order that each bed may have its allowance of air for ventilation (3,000 cubic feet per hour), the number of windows on each side being five, each window being 3 feet wide, and the opening of each being 2 inches?" My solution of the problem, when there are two rows of beds, is that the wind must impinge at 12·6 miles per hour upon the windows.

The average rate of wind, as recorded by the anemograph at the Kew Observatory, is about 7 miles per hour. The instrument there is 70 feet above the ground. The windows of dormitories are not so fully exposed. Moreover, the calculation assumed the wind to be impinging directly upon the windows, and if the wind be oblique the effect in forcing air through the openings depends partly upon the component of the velocity perpendicular to the window, and partly also upon the eddies caused by the projections at the sides of the windows. So that the 12·6 miles per hour resulting from the calculation must be regarded as much greater than the average velocity available for purposes of ventilation. The hypothetical allowance of window opening (2 inches) is too small. We have assumed five windows (each 3 feet wide) to a row of fifteen beds, or 1 foot width of window per bed. And the calculation goes to show that for each pair of opposite beds a 12-inch by 2-inch opening on each side would only be sufficient if the wind velocity were about 12 miles per hour and directly upon the opening. The wind is so variable for different localities and at different times that it is difficult to place much confidence in its average velocity for the purposes of ventilation, but assigning six miles per hour as a number to work by, it appears that a pair of opposite beds requires a 12-inch by 4-inch opening on each side. Further, if the opening be covered by perforated zinc or a grating, its effective area is probably halved, and we must assign 12 inches by 8 inches of covered opening as the necessary allowance on each side for a pair of beds.

If there are three rows of beds the allowance of window opening must be taken at half as much again. For four rows of beds we require 12 inches by 8 inches free opening in opposite windows per string of beds as taken between windows.

Taking an extreme example, suggested by the Edmonton boys' dormitories, we have there in effect about 100 feet of wall space on each side, with eleven windows on each side, for approximately 200 boys. We must, therefore, allow for a string of six beds to each foot of window; the corresponding amount of clear window opening to provide for the ventilation when the wind is blowing directly upon the windows at six miles per hour is 12 inches, or for covered openings 24 inches. This assumes the windows to be 3 feet wide. The Edmonton windows are practically 4 feet in width, so that the windows should be open 9 inches clear, or 18 inches if covered.

I make no pretensions to minute accuracy in these calculations. They are only intended to give a rough idea of the requirements of the cross ventilation system as applied to dormitories. It will be seen that the amount of window opening required depends simply upon the number of lines of beds, supposing they are placed with their lengths between the opposite windows. Thus, at Leytonstone the dormitories are much smaller than in most schools, but there are four rows of beds between opposite windows. To each string of four beds there should correspond two-thirds of a square foot of window opening on each side. There are three strings of beds, and there is an aggregate of 7 feet of window on each side, so that for the six mile per hour breeze the windows should be open 3½ inches to efficiently provide for ventilation, or 7 inches if the opening be covered.

From these computed amounts of window opening some allowance may be made on account of air-bricks, open chimneys, or other means of ventilation. A fair-sized open chimney, taking account of the fact that the wind blowing across the top will add to the head for ventilation, may perhaps be regarded as equivalent to half a square foot of window, and a 9-inch by 6-inch air-brick, with a grating on the inner side, as about 12 inches by 1·5 inches of window opening. Thus, from the full allowance in the Edmonton case, where there are ten chimneys and on one side eleven air-bricks, with some ceiling ventilators in the other side, we may deduct altogether 3·5 square feet of window opening from each side. This reduces the necessary opening by about an inch, so that 8 inches on each side is the amount of clear window opening required to supplement the fixed air gratings and chimneys, or 16 inches if the opening be covered with perforated zinc. It is clear that a 2-inch window block to each window cannot be expected to secure the amount of ventilation which is necessary in such a case, and if we regard a 6-inch opening (12 inches if covered) as being the maximum allowable in consideration of proper protection against rough weather, it is further clear that the system of cross-ventilation is not properly available for more than a certain number of rows of beds if there is a foot of window to each bed. Three rows, indeed, reach the limit.

The allowance of 3,000 cubic feet of air per hour per bed is liberal. I have no information upon which to decide whether it is excessive; if some other allowance be adopted all the areas can be reduced in proportion.

Open Windows necessary in all Dormitories for Efficient Ventilation.

We may conclude that for efficient ventilation upon the system of cross-currents between opposite sides of the room under such conditions of wind as commonly occur, it is necessary to supplement the special ventilation openings to be found in the schools inspected by opening the windows on each side to an extent comparable with 4 inches for two rows of beds, 8 inches for four rows and so on, allowing 1 foot of width of window for each string of beds across the room, appropriate deductions being made for chimneys, air-bricks, Tobins or other openings.

Ventilation in Calm Weather.

The next question for consideration arises from the obvious fact that there are frequent occasions when the wind does not impinge upon the face of a dormitory at six miles per hour; in other words, the system of cross ventilation is liable to fail in calm weather. We have then to depend upon the heat arising from the difference of temperature between the inside and outside. For the head thus arising to produce its maximum effect, there must be as great a difference as possible of vertical height between the openings used as inlets and those used as outlets. The arrangements in vogue for floor and ceiling ventilation are commendable (if the ducts be clean) from this point of view, though they are inadequate as regards size. Moreover, the practice of supplying the upper openings with hopper valves, which throw upwards the air coming in by them, reduces their efficiency for calm nights, because the cold air may form a sort of syphon trap restricting, if not preventing, the flow when the opening is required to act as an outlet.

A further reflection upon this situation of affairs is that the head due to 10 feet of warm air is not sufficient to insure a very active circulation, and it is probably idle to attempt to ventilate in calm weather by openings without motive power more than one line of beds for each row of windows.

Cross Ventilation in Relation to Temperature.

We have further to consider the system of cross ventilation from the point of view of the temperature of the dormitories. The supply of air is cold. When the system is efficient for the purposes of ventilation, the proportion of window area to wall space is so large that there is no possibility of making any great storage of the day's heat in the walls to be drawn upon for warming the air during the night. The inmates themselves furnish a certain amount of heat, and in the mixing of the fresh air with the air surrounding the beds the temperature of the mixture is raised in inverse proportion as the amount of carbonic acid is diluted. Here, again, a rough calculation will help us. Assuming each inmate to give out 284 lbs. Fahr. units of heat per hour, and that this heat is uniformly distributed over the 3,000 cubic feet of air supplied for ventilation, I have computed that the air of the dormitory will be maintained at 5 degs. Fahr. above that of the air supplied, making no allowance for any gain of heat by conduction from warm walls or loss through cold windows.

I have no knowledge of the exact amount of loss to be allowed on that account, and at a guess I put it at one-half of the total amount for a dormitory of two rows of beds supplied with a proper number of windows for the purposes of ventilation. It would in any case be less for wider dormitories. The assumption I have made reduces the temperature to 2·5 deg. Fahr. above that of the external air in the case of narrow dormitories, leaving it perhaps at nearly 5 deg. Fahr. for such a wide dormitory as that at Edmonton. I am at present leaving out of account artificial warming altogether. There are of course many days in the year for which this temperature of 2·5 deg. Fahr. above that of the external air can be accepted as satisfactory. Having regard to the fact that the inmates of the Poor Law schools are accustomed to be out of doors a good deal we may perhaps assign 40 deg. Fahr. as the lowest limit which the temperature of a dormitory ought to be allowed to reach. There are many occasions upon which the thermometer in the external air falls much below 37·5 deg. Fahr., and on such occasions we should expect efficient cross ventilation to be attended with a fall of temperature below what can be regarded as healthy. The method of warming adopted in nearly all the dormitories inspected is by open fires, and in many instances, I understand, it is not considered safe to have the fires burning all night. They are allowed to go out at bed-time. The officials, therefore, in attempting to work the system of cross ventilation without specially adapted provision for warming, are on the horns of a dilemma in cold weather. They must either reduce the supply of air in order that the temperature may be maintained or allow the temperature to run down below—and in a cold spell of weather very far below—the limit which ought to be maintained.

Conclusions drawn from the Examination of the Systems of Cross Ventilation.

I may sum up the more or less theoretical conclusions about the system of cross ventilation as follows :—

1. Unless care be taken to have windows open on both sides of the dormitories the air supply will be insufficient to maintain the freshness of the dormitories within the limits of respirable impurity.

2. The amount of window opening required for the ventilation of the dormitories with large numbers of rows of beds is greater than the officials would naturally provide, and is, indeed, so great that the wind would blow through the room without any mitigation, and such dormitories in ordinary use would not be effectively ventilated.

3. The ventilation would depend very largely upon the wind, and would fail when the wind was very light.

4. In those cases in which the ventilation was effective the temperature of the dormitory would follow closely that of the outside air, and would not exceed that of the outside air by more than about two and a half degrees.

I may also add the practical conclusions—

5. The exposure of the window openings to driving rain makes it unlikely that they would be kept open in bad weather.

6. Though it is better to open all windows a little than to have one pair widely open and the others shut, the latter is the arrangement which can be carried out with least trouble.

Suggested Modifications to make the System of Cross Ventilation more Generally Applicable.

The most characteristic feature of efficient cross ventilation is its coldness. I have put down 37·5 deg. Fahr. as the lowest tolerable limit of external temperature, 40 deg. Fahr. being the probable internal temperature corresponding thereto when there is no artificial warming. I have no wish to assign a high limit to the minimum temperature, as I share the opinion that it is better to make up for cold air by extra bed-clothes than by artificial warming. If getting up had not also to be considered, and if the children were able to run to a fire occasionally after getting up, a temperature occasionally lower than 40 deg. Fahr. might do no harm ; but the number of children to be dealt with implies uniformity of treatment, and for them to turn out with the temperature of everything in the room—floor, bedstead, &c.—below 40 deg. Fahr., and to work from that starting-point for the day, must probably be deleterious to health. It becomes therefore important to consider whether artificial heat can be suitably applied to the dormitories. Two methods of heating are available, viz. by hot water or steam pipes and by open fires. I propose to consider first the heating by hot-water or steam pipes.

If we assume, as in our previous calculation, that one window supplies air for six beds (18,000 cubic feet per hour), and if we suppose that the greatest cold to be expected is 10 deg. of frost, corresponding to 22 deg. Fahr., it would require, according to Hood's Table, 25 feet of 4-inch pipe or 50 feet of 2-inch pipe to raise the temperature of this air to 45 deg. Fahr., the pipes being maintained at 200 deg. Fahr.; with steam pipes fully heated less length of pipe would be required. To raise the temperature to 40 deg. Fahr. about 38 feet of 2-inch pipe would be required.

The best distribution of the hot-water pipes with regard to the windows would probably be to have coils or radiators under each window, the windows being opened at the top to supply the air. From each radiator there would rise a vertical ascending current of hot air, which would mix with the air coming in at the top of the window, and the heat would thus be distributed through the room and the coldest draughts would be avoided. This position for the hot-water radiators is not the most economical of fuel. For whereas the rising stream of hot air on the one side of the room would mix with the incoming air and the heat be distributed throughout the room, on the other side where the air was going out the hot air rising from the pipes would pass directly to the outside and be lost. Still, unless we can foresee on which side the wind will blow and move the hot-water pipes so as to accommodate their position to the varying direction of the wind, we cannot differentiate the two sides, and the sacrifice of heat is inevitable. It is, moreover, not altogether wasted, for the radiators in promoting an active circulation of air in their neighbourhood do good service by promoting the distribution of fresh air and warmth. Further, the heat is distributed from the radiators not only by heating the air but also by radiation, and the radiators on the leeward side would contribute part of their heat to the raising of the general temperature of the room. We might, therefore, if radiators are placed under each of the windows in order to be prepared for winds from either quarter, allow only 25 feet of 2-inch pipe under each window, instead of 38 feet, in consideration of the radiation from the pipes on the leeward side.

The coal required for the specified amount of heating for 100 beds I compute at 13 lbs. per hour.

I have shown the extreme amount of heating required. When the thermometer outside is not so low as 22 deg. Fahr. it would be advantageous to reduce the temperature by reducing the circulation of the hot water or by cutting off some portion of each radiator, if there are steam pipes. On account of draughts, it would not be desirable to reduce the heating by cutting off the whole amount of the heat under one or more windows, while retaining that under the others at full power.

(*To be continued.*)

GLASGOW ARCHITECTURAL ASSOCIATION.

THE opening address of the winter session was delivered on the 20th inst. by Mr. Geo. S. Hill, A.R.I.B.A., president, his subject being "Architectural Tradition and Precedent." The distinction implied between the two terms was gone into closely and clearly, noting that the acquaintance of history of any particular branch of work was invaluable for many reasons, but at all times the element important to us, which is entirely absent from the past, was the present and all that it implies. Every young designer was advised to obtain a clear and articulate idea of the position held by these great factors, as by their aid the superficial attractions of quaintness and eccentricity can be evaded when his hand can be laid upon what he knows infallibly to be good. It requires but a lively if not over-refined fancy to impart to present conditions a clothing never before represented. This is all that much of the modern work has to depend upon ; in it ofttimes lies something analogous to the abnormal, the freak in nature, which is never pleasing ; the rationale of such architecture is in the designers themselves, and they themselves are the only court of appeal by which it might be judged, taking refuge from outside criticism behind the assertion, "but you do not understand." Mr. Hill pointed out that the great epoch-making features and characteristic forms were not the outcome of any feverish desire for something new, but came by the pressure of their own manifest advantages, and concluded his very able address with the truism that "To advance wisely we must refresh ourselves liberally from the past." A hearty vote of thanks was awarded to the President for his most interesting address.

INNERPEFFRAY CHURCH, CRIEFF.

THE ancient church or chapel of Innerpeffray, situated in an elevated position near the river Earn and fully three miles east of Crieff, has recently been restored. This old collegiate church had during a long course of years been allowed to fall into a state of general disrepair. The roof was not only getting into a dilapidated condition, but the walls and general interior of the building, in which so many of the ancient and noble dead of the district repose, had also been much neglected. The right of burial in the church is retained by three of the landed families in the district, namely, the Earl of Ancaster, the present head of the House of Drummond, Drummond Castle ; Viscount Strathallan, the representative of the Drummonds of Strathallan, and the present proprietor of the estate of Innerpeffray; the Hon. Captain Hay Drummond, a brother of the late Earl of Kinnoull. Some time ago these three custodiers resolved to have the old church put into a proper state of repair, and this has now been very satisfactorily accomplished. It is said that the date of the first building of the chapel is not known, but it must have been at a very early period, as there is record of certain deeds having been signed in it in the year 1283 In all probability there was some official connection between the church of Innerpeffray and the abbey of Inchaffray, founded in 1198, and which is situated a few miles further east. At any rate, there is authentic record of Innerpeffray Chapel in 1342, and it was made into a collegiate church in 1508 by the first Lord Drummond, who is described as the first provost of Innerpeffray. Authentic information in this respect is supplied by the Rev. John Fairbairn, minister of the adjoining parish of Madderty (1620-57), who was a relative by marriage of the Drummonds, and who in an account of the House of Drummond, says :—"John, Lord Drummond, having re-edified the chapel of Innerpeffray from the ground, and erected it into a college for some few prebendaries to pray for requims for him and his house, ordained it to be their burying-place for all time coming, and being nearly eighty years of age, he framed one of the most material and perfyte testaments that ever I saw, and syne closed his eyes and time togidder, and was most honourably interred in Innerpeffray Chapel in year 1519. On June 4, 1507, the king confirmed in mortmain the charter of John, Lord Drummond, by which, for the souls of the King and Queen, for his own soul and that of Elizabeth Lindsay, his wife, and the umquhile Margaret Drummond, his daughter, &c., be granted as a pure free alms-gift to four chaplains to celebrate the Divine offices for ever at the four altars in the church, dedicated in honour of the

Blessed Virgin, of Innerpeffray, an annual income of forty merks from his land of Innerpeffray and Dunfallys, with houses, residences and gardens, to be marked off and built for each, with the right to each of them of obtaining necessary fuel in the common mure of Innerpeffray, with four-sums for grasses and for one horse." The chapel now stands as "re-edified" by John, Lord Drummond. According, however, to archæologists, the western portion of the edifice was not rebuilt by Lord Drummond, as that part shows evident marks of greater antiquity. The chapel is a long, low, narrow building, measuring about 80 feet in length and 22 feet wide, and is still entire, with the exception of the sacristy near the north-east end, which had communicated with the chapel by an arched doorway, still remaining, although now built up. One peculiarity in the church is the round chancel archway, placed about 8 feet from the west end, which appears to have formed a vestibule, having evidently been filled in by some sort of a wooden screen, judging from the holes cut in the stone arch and pillars. In the wall of the arch there is an oblique opening, known as a "squint." It is rarely, if ever, seen in ecclesiastical buildings, and was, it is said, used by those who were late in attendance to hear Mass, without attracting the attention of the priest. A narrow circular stone stair, in the north-west angle, leads from the vestibule to a room immediately above, which has a small window and fireplace, and a bevelled opening in the wall over the arch looking into the church, and is said to have been used by David Drummond, third Lord Madertie, during public worship. (This Lord Madertie was the founder of the ancient library that is restored in the house closely adjoining the church, he having by his will, dated 1691, bequeathed the half of 6,000 merks for the maintenance of the library and schoolhouse which he had erected at Innerpeffray.) It is also stated that the small room referred to was used by Lord Madertie for holding his books, and where, after the death of his second wife, Lady Beatrix Graham (sister of the great Marquis of Montrose, whose Bible, with autograph inscribed, is still in the library), he spent a large portion of his time. The ceiling of this western portion of the chapel bears traces of having been all painted in bright colours, and has a representation of the sun, with clouds around, and until lately had the figure of an angel appearing out of the clouds blowing a trumpet held in the hand, but that portion has been destroyed. There now only remains a small part of the ceiling, and steps have been taken to preserve it. The church originally had three doorways, secured by wooden drawbars on the inside. The jambs and lintels have been elaborately moulded, and the windows are double-splayed and filled in with strong iron interlacing bars. The south doorway is arched and moulded in the inside with moulded corbels. The door in the west end is supposed to have been one of the entrances to the original chapel, and was allowed to remain. Two small doors in the north side of the building are built up, one of which had apparently served as an entrance to the chancel. On the south side one of the original doors has been made into a window, and one of the windows now forms the door on that side. What is called the "stoup" is placed on the right-hand side of the south doorway, and is of plain design with projecting bracket. A stone altar is still intact, and stands against the east wall. A number of consecrated crosses are to be seen on the walls of the interior; and one evidence that the west end of the chapel is of much earlier date than the eastern portion is shown by the finding on the west wall of two crosses of dedication and consecration—one on either side of the door. In ancient chapels the usual number of such crosses was seven, and six have now been discovered in this church. Traces of painting are still visible on some portions of the plaster-work. Externally, the gables have crow-steps, and in the east one there is a niche with a bracket, in which evidently there was a statue of some saint—probably the Virgin Mary, to whom the chapel was dedicated. Two shields, bearing the three bars wavy, gules—the coat-of-arms of the Drummond family—are also to be seen on the outside walls. It may further be mentioned that at each of the four corners of the old graveyard beside the church there stood what was called a "roundle," or small tower, and one of these remained up till about the beginning of the present century. The "roundle" was stated as consisting of a ground-floor and a room, with fireplace, on the next floor.

As already mentioned, the interior of the sacred edifice has been long the burial-place of the Drummond families, and is divided into three portions. Viscount Strathallan's family, however, now have a vault in the ancient chapel of Tullibardine, and no longer inter their dead at Innerpeffray. On April 4, 1688, Lieutenant-General Drummond, first Lord Strathallan, was buried in the Strathallan portion. On that occasion a funeral sermon was preached by Dr. Munro, principal of Edinburgh University. A copy of the sermon (which occupies some fifty-six pages of small octavo) is in Innerpeffray Library. In the Drummond Castle portion of the chapel the last interments were those of Lord and Lady Perth (the great-grandfather and the great-grandmother of the present Earl of Ancaster), to whom the extensive estates of Drummond Castle were restored about the year 1784, after the forfeiture by Government in 1746. Although there is no record known, it is very probable that all the Lords Madertie are also buried in the chapel. David, the founder of the library, and his two wives—Alison Crichton and Beatrix Graham, the latter, as already stated, being sister to James, first Marquis of Montrose—are likewise buried here.

It will thus be seen that this ancient ecclesiastical edifice is one of much historical and antiquarian note, and it, along with the old library adjoining and its unique collection of books, as well as the old castle of Innerpeffray, also near by, are of great interest, and are resorted to by many of the visitors from all parts of the kingdom who annually sojourn in Strathearn.

The roof of the chapel has been thoroughly overhauled and repaired with stone slates in keeping with the old roof. A great improvement has also been made by the removal of the soil all round the church, and exposing a fine dressed double base-course, which was perfectly hid before. Handsome home oak doors have been put on, studded with iron bolts, and all the windows have been opened up. The floor of the chapel has been levelled, and for the most part gravelled and turf laid over the graves. Altogether the repairs and improvements carried out in and around the chapel are such that will preserve intact this ancient landmark—now over five centuries old—for many years to come, and Lord Ancaster and other proprietors merit warmest thanks and commendation for their generous conduct in the work of renovation. The various improvements were carried out under the personal supervision of Mr. G. T. Ewing, architect, Crieff.

THE SANITARY INSTITUTE.

THE seventeenth annual congress of the Sanitary Institute was opened in the Birmingham and Midland Institute on Tuesday, under the presidency of Sir Joseph Fayrer. In his address the President said:—

We live in an age of progress and discovery. Intellectual activity has never been greater, scientific research never more profound or far-reaching, whilst the practical applications of the discoveries of science are not less remarkable. Among many subjects of interest which were laid before our gracious Queen on the completion of the sixtieth year of her glorious reign, few, perhaps, if any, afford better ground for congratulation than the improvement in the vital statistics of her people, as shown by reduced death-rate, enhanced expectation of life, decline in some of the most potential death-causes, and the almost total disappearance of others.

In effecting this improvement the Institute which I have the honour to represent, and which holds its seventeenth annual congress this year, has taken an important part. It was the outcome of the impulse given to sanitary science by the Public Health Act in 1875, which itself was a result of the growing conviction that public health was a subject which demanded more consideration than it had hitherto received.

At a public meeting held in London in July 1876, presided over by His Grace the Duke of Northumberland, it was resolved that the sanitary condition of the country is still very unsatisfactory, that further legislation is necessary with a view to its improvement, and that for the purpose of collecting and imparting information upon all matters connected with the subject of "public health" a society be formed to be styled "The Sanitary Institute," and a committee was appointed to give effect to the terms of the resolution. Since then the progress of the Institute thus founded has been uninterrupted, and its influence for good has steadily increased. In the same year, 1876, the Parkes Museum was founded at University College as a memorial to Dr. E. A. Parkes, first professor of hygiene at Netley, and in its galleries were exhibited various hygienic appliances for the purpose of affording information by the objective method of teaching. Its Council originated and managed the International and Sanitary Exhibition at South Kensington in 1881, which was presided over by the Duke of Edinburgh. It was in 1882 incorporated as a society, its treasures were transferred to premises occupied by the Sanitary Institute, and the two institutions having a common object worked harmoniously together and practically became one. In August 1888 they were formally amalgamated and re-incorporated under the title of the Sanitary Institute of Great Britain. In 1887, just before the amalgamation took place, the Sanitary Institute, in conjunction with the Society of Medical Officers of Health, invited the International Congress of Hygiene and Demography to meet in London, which it did in 1891 with great success.

The object which the Institute has kept steadily before it from the outset has been the advancement of sanitary science by the promulgation of sound scientific and practical teaching of those principles on which health depends, by which life is prolonged, and the physical and thereby the moral welfare of the people promoted.

One of its earliest steps, taken in 1877, was to establish examinations for local surveyors and inspectors of nuisances, in order that the officers who had to carry out the provisions of the Public Health Act should be competent for their duties. The Council also arranged to hold an annual congress in some provincial town, in order that papers should be read and discussions take place, whilst at the same time exhibitions of sanitary appliances were arranged as object lessons, and judges appointed to examine the exhibits and award prizes. Since amalgamation with the Parkes Museum the same work has been continued, with the addition of periodical meetings, at which papers are read and discussed, the publication of transactions and advanced examinations, while to aid the important teaching work it was carrying on, it collected and published the works of Simon, which deal exclusively with the problems of sanitary science, and of Farr and others, has gradually accumulated an excellent library, and instituted lectures and practical sanitary demonstrations for the benefit of medical men, which subsequently were considerably extended and more elaborately organised. Under the patronage of the Duchess of Albany and the presidency of the Dukes of Northumberland and Westminster, and latterly of the Duke of Cambridge—who had already been connected with the Institute for fourteen years, and had not only displayed great interest in its work, but had rendered it valuable assistance—and under the guidance of such men as Sir D. Galton, Lord Fortescue, S. F. Powell, Mr. Rogers Field, Dr. Corfield and others who had been its early supporters and founders, it steadily developed its purpose of diffusing practical sanitary knowledge throughout the country and attained its present influential position.

An idea may be gained of the scope of the operations of the Institute by reference to the epitome of the work done in 1897, which was as follows :—

London Lectures and Examinations.

	Total Attendance.
4 Sessional meetings for discussion of sanitary subjects	285
36 Lectures to sanitary officers	2,251
2 Special demonstrations, inspection of meat	140
34 Practical demonstrations for sanitary officers	925
2 Examinations in practical sanitary science	34
2 Examinations sanitary inspectors	213
138 Classes brought to the museum	1,674
Other persons visiting the museum (estimated)	17,500

Provincial Examinations.

8 Examinations sanitary inspectors and practical sanitary science	316

Congress and Exhibition at Leeds.

6 Sectional meetings	706
8 Conferences	850
3 Addresses and lectures	956
Exhibition open for twenty-three days, at which a number of lectures and demonstrations were given	75,790

All this is effected entirely by private enterprise, unaided by any subsidy either from Government or other public authority, by which it is from time to time consulted and to which its services are most willingly rendered. As an illustration of the progress made it may be stated that when the first Congress took place in 1877 there were 150 members and the income was 240*l.* In 1896 the members were 2,100 and the income 6,000*l.* In 1877 five candidates were examined for certificates, in 1896 521 were examined, of which 300 obtained certificates.

The time at my disposal does not permit of tracing in detail the history of the growth of sanitary science from times of ignorance and superstition to its present well-established foundation on a scientific basis, but I may at once say that it is indeed only comparatively recently that preventive as distinguished from curative medicine has assumed the position of a science at all; it is now from a hygienic point of view the more important of the two, though the difficulties attending its application are still considerable and largely such as arise from ignorance and incredulity.

Half a century ago the great mass of the population lived and died under conditions which violated all the now well-known principles on which health depends; prejudice, ignorance and vested interests stood in the way of progress, and but little effort made to correct the one or remove the others; Government looked on with indifference; the people knew little and thought less of the efficacy of pure air, pure water, cleanly and uncrowded dwellings, temperance and other conditions which are now well known to be essential to health. They had no idea that infective disease is but too frequently the scourge of uncleanliness, overcrowding and disregard of simple laws of health.

Under the influence of such reformers as Chadwick, Parkes, Richardson, Simon, Southwood Smith, Sutherland, Bristow, Buchanan, Netton Radcliff, De Chaumont, Corfield, Thorne, Notter, Seton, L. Parkes, Ballard, Power, A. Hill, Armstrong, Russell, Littlejohn, Cameron, Smith, Ransom and others, to say nothing of sanitary engineers such as Rawlinson, Galton, Rogers Field, Hawkesley, Mansergh, &c., measures which were regarded as mere theories or fads of no practical value are now accepted as of cardinal importance. Statesmen have learnt to realise that sanitary science comes well within the sphere of practical politics, and that it is an important part of the duty of executive governments, whether general or local, to protect the people from disease which may be prevented or controlled.

Numerous Acts of Parliament have been passed, such as the Public Health Act of 1875, Rivers Pollution Prevention Act 1876, Public Health (Water) Act 1871, Acts for Housing the Working Classes 1885 and 1890, Infectious Diseases Notification Act 1889, Infectious Diseases Prevention Act 1890, Isolation Hospitals Act 1893, Public Health Act for London 1891 and many others. Officers of health, sanitary engineers and sanitary inspectors have produced a better state of things; the poor are no longer left to be a law unto themselves on such matters. Public health is cared for in a sense which was utterly unknown in the past; houses are better built, sewerage, drainage and ventilation are provided for, the land is better cultivated, the subsoil better drained; the absolute importance of pure drinking water is recognised, food is more varied and more nutritious in its character, clothing is better adapted to climate; and were all the existing official provisions enforced, little would remain to be desired on the part of the executive government; but as some of these Acts are permissive, not compulsory, and as others are utterly neglected, much of the benefit they might confer is lost.

Though education has done much as far as the better classes are concerned, and upwards of 200 millions have been spent on sanitary work, with great benefit to the public health, popular teaching and example, and the general diffusion of education are still necessary in order to convince the proletariat of what so intimately concerns their vital interests. The death-rate is susceptible of further diminution, expectancy of life may be enhanced, and the general conditions of living and exemption from certain forms of disease are by no means as perfect as they might be; tainted water is still drunk, as was illustrated by the condition of Maidstone and Lyme Regis last year, where an extraordinary visitation of typhoid fever was traced to impure water, showing either that legislation was imperfect or that its provisions had not been duly observed. Chimneys still vomit forth their smoke and chemical fumes, rivers are still polluted, cesspools and imperfect drains, badly constructed, ill-ventilated houses, and so on, still defy alike sanitary law and common sense; and it will perhaps not be until the more complete organisation of the public health administration under a minister of public health be effected, that the full benefits of sanitary legislation will be realised and the people attain to that standard of health and duration of life for which they have a right to hope.

Even our great cities, with all their improvements, leave much to be desired. Notwithstanding Acts of Parliament, all the efforts of sanitary authorities, all the advice that may have issued from this and other similar sources, serious defects remain. Even your own great city, according to the journals, notwithstanding the splendid municipal arrangements for which it is remarkable, has still a higher death-rate than some other great cities. Since 1882 up to 1897 it has stood at from 21·6 to 20·2, and the same authority points out sanitary defects which one may venture to think might be ameliorated.

In the first week in July in thirty-three of the largest English towns the rate of mortality, which had been 15·1 and 14·9 per thousand in the two preceding weeks, declined to 14·7. It was 14·3 in London, whilst it averaged 14·9 in the thirty-two provincial towns. The lowest death-rates were 9·4 in Cardiff, 9·7 in Huddersfield, 10·3 in Brighton. The highest rates were 17·9 in Plymouth, 20·3 in Newcastle, 21·4 in Sunderland. When the last quinquennium is compared with the preceding decennium it is found that Blackburn and Huddersfield have reduced their death-rate 4, Halifax and Cardiff 3·8, Oldham 3·7, Preston 3·4, Manchester 3·3 per thousand, while Birmingham has been practically at a stand-still. If I am not mistaken, your own eminent health officer thinks that if the death-rate is to be reduced, it is essential that the improvements should be continued which had such a good effect some years ago. I merely venture to suggest it as a hint that may be worthy of the consideration of the municipal authorities.

The Modern Part of Whitgift's Hospital of the Holy Trinity, in North End, Croydon, is to be demolished in order to improve the thoroughfare at that point. In a letter to an inquiring member of the Corporation Mr. Alderman Rymer (chairman of the Whitgift Governors) states that the modern part is in a very dilapidated and unsatisfactory condition, while the original building is "as sound as a rock." The latter will in no wise be affected by the proposed demolition, nor will any injustice be done to the almspeople.

THE AMERICAN INSTITUTE OF ARCHITECTS.

THE following draft of a revised constitution for the American Institute has been unanimously adopted and recommended as a substitute for the present constitution by the committee appointed for that purpose. Amendments to the by-laws will be brought before the convention to be held in Washington November 1, 2, 3, 1898 :—

CONSTITUTION.—*Article I.—Name.*

The corporate name of this organisation shall be "The American Institute of Architects."

Article II.—Objects.

Sec. 1. The objects of this Institute are :—To organise and unite in fellowship the architects of the United States of America, and to combine their efforts so as to promote the artistic, scientific and practical efficiency of the profession.

Article III.—Membership.

Sec. 1. The membership of the Institute shall consist of fellows, associates, corresponding and honorary members.

Sec. 2. The condition of membership shall be honourable service in the field of one of the above classes of membership, as defined in the by-laws.

Sec. 3. The title of fellow shall be granted for professional merit only.

Article IV.—Officers.

The officers of the Institute shall be a president, first and second vice-presidents, and a secretary, who shall also be treasurer ; all of whom shall be fellows. There shall be a board of directors consisting of the four above-named officers, *ex officio*, and such additional fellows as shall be prescribed by the by-laws.

Article V.—Organisation.

This Institute is an association maintaining local organisations of its members known as chapters, incorporated under the laws of the several States wherein they are established.

Article VI.—Chapters.

The president and secretary of each chapter shall be fellows or associates of the Institute.

Each chapter shall hold an annual meeting and present an annual report to the Institute.

Article VII.—Government.

Sec. 1. The government of the Institute shall be by delegates from the chapters in convention assembled, its officers and board of directors.

Sec. 2. The board of directors may, by a formal vote, delegate its powers, in whole or in part, to an executive committee chosen from its membership, stating the powers granted and a limit of time for their exercise.

Sec. 3. The board of directors shall annually elect a judiciary committee from its own membership and establish rules for its guidance. The committee shall hear and adjudge all complaints of members against members, and its findings shall be conclusive upon all questions of fact involved in the evidence submitted. Appeal in writing may be made to the board of directors upon questions of professional or ethical policy. If satisfied of the existence of newly discovered evidence material to the issue, the board may, in its discretion, recommit the case to the committee for a rehearing upon the facts ; but, save as to the existence of newly discovered evidence, the board shall hear no evidence except such as may be reported to it by the committee.

Article VIII.—Meetings.

The Institute shall hold an annual convention and such other meetings as are provided for in the by-laws.

Article IX.—Definition.

The term "State" throughout this constitution and the by-laws shall also apply to the district of Columbia and Territories.

Article X.—Amendments.

This constitution may be added to, altered or amended on the written proposition of ten or more fellows by a three-fourths vote of the delegates voting at an annual convention, provided three months previous notice of the proposed change shall have been sent by the secretary to each member of the Institute and to the secretaries of the several chapters.

PROPOSED BY-LAWS.

The following is an outline description of the proposed by-laws, and is intended in its present form both to explain the constitution and to supply the basis of amendment of the existing by-laws at the annual convention of the Institute. At that time the committee on revision will formally present them, and meanwhile will be glad of any suggestions from members of the Institute relative thereto.

Outline of the By-laws.—Membership.

All members of the Institute, as at present constituted, shall hold their present titles and membership under the new constitution. A class of associate members has been added by the constitution to the Institute organisation. It is proposed to elect fellows only from the ranks of associates, unless in special cases the board of directors otherwise determines. Associates may be elected without belonging to a chapter of the Institute, but cannot become fellows until they have joined a chapter and been members in it for two years, except that the board of directors may suspend this rule in special cases.

Applications for fellowship and associate membership shall be made according to forms printed as an appendix to the by-laws, and every chapter shall have an opportunity for an expression of opinion to the board of directors regarding the eligibility of local candidates for fellowship before the names are passed upon by the board of directors. The important question as to whether fellows shall be elected by letter-ballot, by vote at the annual convention, or by vote of board of directors, is further to be considered. Many considerations tend to make the letter-ballot desirable. The same question of election applies to associates, but in any case no election is to take place until the candidate is passed upon by the board of directors.

Associates are not eligible to serve as officers or directors, but may act as chapter delegates and perform any committee service subordinate to the official government of the Institute. Any architect of the United States is eligible to associate membership if able to submit the required proofs of his professional capacity and honourable personal standing. Those trained as architects who have become professors in architectural schools or colleges shall be eligible as fellows or associates. Fellows who have honourably retired from the profession after distinguished service or have held their fellowship for thirty consecutive years, may be made honorary fellows, retaining their privileges in the Institute without further payment of dues.

Any person who has rendered the profession valuable service and has conspicuously upheld its aims, but is not otherwise eligible for membership, may be made an honorary member. Any person fitted to critically estimate the merits of architecture or its allied arts and sciences, but is not otherwise eligible for membership, may be made a corresponding member. Honorary and corresponding members shall be nominated by the board of directors and elected by ballot of delegates at an annual convention. They shall not vote, hold office, or serve on the board of directors, and shall be exempt from dues.

Initiation Fee and Dues.

The initiation fee shall be 10 dols. for fellows and associates. The annual dues for the fellows and associates shall be 10 dols., payable within the month of January. A signed receipt of the dues so paid shall be accepted by the treasurer of any Institute chapter as 5 dols. paid on account of the chapter dues for same year. The board of directors may, for adequate cause, remit the annual dues of a member in whole or in part, reporting the gross amount of all dues so remitted at the next annual convention, but not the names of the members whose dues are remitted. The names of all members who are in arrears for the annual dues of two or more years shall be declared at the annual convention, and these members shall thereupon become liable to censure or expulsion by vote of the delegates.

Chapters.

The Institute shall encourage the formation and maintenance of chapters. The objects shall be in harmony with those of the Institute. They shall be bodies incorporated under the laws of the State wherein they are located. Five or more fellows or associates may organise to form a chapter. They shall present a copy of the proposed constitution to the board of directors, and if this is approved by the board they shall then submit attested copies of actual articles of incorporation, upon which the secretary of the Institute shall issue a certificate of chapter rights. Chapter certificates may be withdrawn upon failure of the chapter to maintain the constitution submitted in its true, intended spirit.

Desired territorial limits of each chapter shall be clearly set forth in the request for a certificate. The actual limits shall be fixed by the board of directors, acting for the general good. No certificate for a chapter embracing a whole State shall be issued in a State where there are now two or more chapters, nor shall any present State chapter be continued as such after a request is made, and favourably considered, for the establishment of a new chapter in the same State. In States where there is only one chapter any architect in the State is primarily eligible to membership in that chapter.

State Federations.

In each State where two or more chapters exist a State board shall be formed by representatives of the several chapters, as follows :—

The president and secretary of each chapter shall be

members of this board *ex officio*, and each chapter may furnish additional members to this board to the number of the delegates the chapter was privileged to send to the preceding annual convention of the Institute. The chairman of this State board shall be the president of the senior chapter of the State, and the secretary of such chapter its secretary. The State board shall meet when occasion requires, and determine its own procedure. Each such board shall be officially known as the (name of the State) federation of architects.

Chapter Membership.

Chapter membership may include others than fellows or associates of the Institute, and their membership in the chapter shall not entitle them to be regarded as members of the Institute. Chapter membership shall be divided into three classes :—Regular membership, including all practising architects who may be elected to this grade; junior membership, including draughtsmen and such architects as may not have been elected to regular membership; associate membership, including all whose affiliations render them desirable associates in the work of the chapter.

Each chapter shall have a president, secretary and treasurer, with such other officers and such committees as may be deemed desirable. The president and secretary shall be members of the Institute, either fellows or associates. The officers of the chapter shall be elected by regular members only. Delegates to Institute conventions shall be elected by Institute members only, and shall themselves be members of the Institute.

Each chapter may, with the express consent of the board of directors, adopt or retain a proper name or title other than its designation as a chapter of the Institute. Each chapter may make by-laws for its government without consulting the Institute, provided they are not inconsistent with its approved constitution and the conditions herein contained.

Delegates.

The affairs of the Institute shall be controlled by the votes of delegates sent from the chapters. The delegates shall meet in annual convention, the time and place being determined by the last preceding convention, or, in case of its failure to do so, by the board of directors.

Each chapter is entitled to two delegates, plus one for every ten fellows and associates who are members of that chapter. Thus a chapter containing nine fellows and associates is entitled to send two delegates, if containing ten fellows and associates it may send three delegates, if twenty fellows and associates four delegates, &c. The delegates of each chapter shall be duly accredited by the secretary of their chapter and the convention shall decide all questions relative to the right to sit in the convention.

All fellows and associates not delegates are privileged to sit in the convention at all times and to take part in debates and to offer resolutions or motions which, if seconded by a delegate, shall be regarded as offered by a delegate and given equal consideration, but unless so seconded shall not be entertained. Non-delegates may only vote on a proposition that "it is the sense of the meeting." The election of Institute officers shall be by the ballots of delegates at the annual conventions, a plurality vote electing.

Officers and Committees.

The officers of the Institute shall be as described in the constitution, and shall fulfil the duties ordinarily attaching to their offices. The board of directors shall consist of the four officers of the Institute required by the constitution, together with nine fellows in addition. Three of these nine directors shall be elected each successive year to serve for three years. They shall be elected by vote of delegates at the annual convention. The standing committees shall be as follows :—

House committee (which shall also serve as committee on publication and library), committee on education, committee on foreign correspondence, committee on contracts and lien laws.

THE SOUTH KENSINGTON MUSEUM.

THROUGH the generosity of Colonel R. F. Waldo-Sibthorp the South Kensington Museum has recently become possessed of a large collection of silversmiths' work, chiefly German, ranging in date from the sixteenth century to the present time. These specimens are very varied in form, and include tankards, flagons, beakers and salvers, decorated in repoussé and by engraving with flowers, scrollwork and figure-subjects ; there is also a considerable collection of spoons. Among the pieces of historical interest is a standing cup and cover surmounted by a bust of Gustavus Adolphus, king of Sweden, and with an incription in his honour. There are a number of specimens of the work of English silversmiths, the most important being two Communion cups of Queen Elizabeth's reign, one of which retains its paten-cover. The series of English spoons covers a considerable period of time ; they are interesting on account of the hall-marks, the decoration of the handles and the shapes of the bowls. The handles of some terminate in figures of Apostles, others are seal-topped, whilst others are of the plain "sleppe endyd" form. A set of tea-spoons in the form of shells with dolphin handles formerly belonged to Lord Nelson. Colonel Waldo-Sibthorp has included in his gift a small collection of snuff-boxes of the last century, two of which are specially deserving of notice. The first is of tinted gold set with diamonds and other jewels ; the second is of enamel, and has inside the lid a portrait of Peter the Great painted by Crodowiezky.

DURHAM AND NORTHUMBERLAND ARCHÆOLOGICAL SOCIETY.

THE fifth meeting for the year 1898 was held yesterday at Newburn, Heddon and Ryton. The members assembled at Central Station, Newcastle, at 10.30 A.M., and drove to Newburn, where the English troops, under Lord Conway, were defeated by the Scots, under General Leslie, in 1640, and examined the church, which is cruciform, with a square tower. The north aisle is of transitional date, and the south aisle Early English, and it contains some ancient monuments of the Delaval family, and stained-glass windows. They then proceeded to Heddon-on-the-Wall, where a portion of the Roman Wall still remains. The church possesses an interesting Norman chancel, and the chancel arch is enriched with a zigzag ornament of that period. From Heddon they drove by way of Wylam to Ryton, where the church was visited. The thirteenth-century nave still exhibits many original features, and the chancel retains its beautiful lancet windows on the south side. There is a stone effigy of an ecclesiastic, probably an archdeacon, of early and excellent work. All the churches visited were described by Mr. C. C. Hodges.

AN ARCHITECTURAL EXPERIMENT.

A FEW years ago, writes a correspondent ("R. A. C.") of the *Architectural Record*, a curious problem presented itself to the architectural firm of which I am a member. It was this :—An Unitarian minister but lately returned from Japan, where he had been living for the purpose of studying the civilisation of that wonderful country, required a house in the city of Fall River, Mass., a city that outwardly gives no evidence whatever of the rather unusual amount of artistic appreciation existing there. The Rev. Mr. Knapp was the possessor of a splendid store of Japanese bronzes, lacquers, porcelains, embroideries, kakemono and all the other manifestations of the extreme civilisation of "Dai Nippon." Hence arose the question, How shall these be housed ?

At first the decision was in favour of the simplest form of construction with slight "Colonial" details, but immediately the ungrammatical nature of this combination of Puritanical architecture and Oriental furnishings asserted itself, and it seemed intolerable. Suddenly the impulse arose to see what could be done with the architecture of Japan. For a time this seemed fantastic in theory and impracticable. The domestic architecture of Japan is exquisitely adapted to local conditions. Widespread poverty, seismic considerations, a gentle climate, habits of out-of-door living, lack of what we of the West consider domestic habits, have resulted in a form of habitation that seems out of touch with Western conditions. The Japanese house is practically nothing but one floor with a wide roof supported on many posts, sliding "shoji" or screens of rice-paper serving to divide it into an indefinite number of rooms of no fixed size, though always some multiple of 3 feet on one side, of 6 feet on the other ; this being the unchangeable size of the thick mats of finest straw that cover the floors. There are no fireplaces, few stairways, few windows—in our sense of the term. Moreover, a Japanese house is bare of all decoration except for the kakemono hanging in the tokonoma, with its bronze or porcelain jar in front holding a spray of blossoms, and the two or three bits of cloisonné, ivory or bronze, in the adjoining chig-i-dana. The vast stores of precious objects owned by the Japanese collectors are always kept in a godown, one or two being brought out every day for the delight of the owner. In the present case this course could not be followed. We cannot get rid of our western and most barbaric desire to surround ourselves with quantities of gorgeous objects, and for this reason, even if climatic conditions were overcome, it was impossible to create absolutely Japanese rooms, if they were at once to lose their whole effect of gentle delicacy and dignified reserve by being crowded with works of art.

It seemed, however, that there should be some middle course which would result in an interior that might possess the element of unity and yet be practical and without affectation ; this working basis was at last found.

The experiment was made on the following lines :—In plan and construction the house was to be absolutely western, arranged for convenience and habitability ; all the details, both exterior and interior, were to be studied faithfully from Japanese examples, paint, wood stain and varnish being unknown in the East, as well as particularly vulgar and hideous, were excluded. Plaster also was largely omitted in the finish of the rooms, and natural woods of twenty different kinds, selected for their colour, surface and veining were used instead. The exterior showed beam construction with the intervening spaces filled in with cement in the Japanese fashion. Finally, at one corner of the house was arranged a section absolutely Japanese in design, construction and finishing, and around this lay the little garden designed on the most approved lines, with its miniature mountains, valleys and plains, its lake and cataract, its forest of dwarf trees.

To read of a scheme of this kind gives one an idea of unmitigated affectation ; the whole thing seems like a toy house, a thing in which one could not live comfortably or with self-respect unless clothed with kimono, obi and tabii. One would say "this is a silly pose."

In actual fact it was none of these things. People came to wonder, and went away convinced, while to those most interested the experiment has justified itself absolutely. The house was rational and liveable. Nor was this due to its western elements. The "tea house" was built more or less as an amusement ; no one ever expected it could be used except in summer, and then only as a tea house or garden shelter. Instead it was by far the most charming part of the whole structure ; the coolest in summer, the warmest in winter. In a little while the westernism of the main house became distasteful, and the tea house with its sliding rice-paper shoji, its matted floor, its lack of all confusion, its very bareness became irresistible, and instead of serving as a summer house it became the principal living room. Then the owner realised that he (his architects) had been too cautious, and declared that if he were to build again it would be more closely still to the Japanese principles.

All this seems to show that there is something in Japanese domestic architecture which is good apart from its perfect adaptation to Oriental conditions, something that could be advantageously adopted in western building. This thing is certainly simplicity. If we compare the view of the interior of the tea house with that of the parlour, the effect improves the farther one gets from western suggestions? Contemporary domestic architecture is a riot of complication and over-detail, without reserve, quiet or dignity. Its outward forms are borrowed from stone construction, its bad workmanship is daubed over with coats of paint ; wood, in its natural state a material of exquisite beauty, is tortured and hacked into grotesque forms, stained with muddy dyes and smeared with paint and varnish. Windows are filled with single sheets of plate glass until all sense of protection is gone. Walls are covered with gaudy paper-hangings and then loaded with crowded pictures. Our living rooms are turned into junk shops, while the house itself from the exterior looks like nothing ever seen before in the history of art.

Compare any typical "parlour" of the present day with a corresponding Japanese room—that in the "tea house," for instance, which is simply a copy, and for which the architects are to receive neither praise nor condemnation. The posts and frames are of cypress, innocent of stain or varnish, and with a surface like satin. The lattice of the shoji is white pine, the coverings rice-paper. The ceiling is of strips of cedar filled in with long thin boards from Japan of a marvellous wood with dark veins ; the pierced carvings in the screen between the two rooms are also from Japan, and are of cryptomeria wood. In the chig-i-dana apple, cedar and cypress are used. The floor is covered with straw matting, and the only decoration is in the shape of a kakemono, a bronze jar, two pieces of cloisonné and a bit of lacquer. It would be impossible to imagine anything more quiet and delicate than the effect of this room either in winter when the shoji are drawn and it is full of a soft, diffused light, or in summer when they are run back and two sides are open to the fresh air, on one side lying the fantastic little garden, on the other the distant river with the meadows beyond.

That this form of construction and style of decoration is absolutely fitted for certain of our purposes is evident. Nothing could be imagined that would adapt itself so delicately to seaside architecture, and in cost quite as well as in other ways. A house on Japanese lines could be built for summer use of the most beautiful woods, and adequately furnished for half what is expended now for a Queen Anne or Colonial horror doomed to most desirable decay. One of the greatest surprises in connection with the house in question was its cost. It is finished in the most beautiful woods—cedar, sycamore, cypress, apple-tree, white mahogany, curly maple, black cypress, birch, as well as many brought from Japan ; inside it is one piece of fine cabinet-work from top to bottom, and yet it cost less than a "Colonial" house of the same size would have done.

For serious purposes, for permanent habitations in the country for instance, the style would hardly be admissible in its entirety, but a study of its nature, better still, an attempt to work in it, cannot fail to show the absurdity of some of our modern customs. We build constantly in wood, but we show no appreciation whatever of this material ; we can't let it alone, but are impelled to try to make it look like something it is not by the use of paint, stains and varnish. The Japanese understand it perfectly and their houses are marvels of beauty, just because they make of each post, each beam, a thing to admire by reason of the natural beauty of its grain, colour and texture. Here in America we have a great variety of exceedingly beautiful woods, if we can be content to use them in their natural state. American oak is not a fine wood and there is no very good mahogany in the market, but we use these *ad nauseam*, quite ignorant of the fact that white pine, sycamore, gum wood, birch, maple, cedar, Canadian elm, and, above all, black cypress, are incomparably more beautiful. One of the ceilings of Mr. Knapp's house was of cypress and white mahogany, and the colour effect was singularly beautiful. The hall was finished wholly in wide plain boards of black cypress wonderfully veined and perfect in colour—the delight of all the Japanese, who declared it equal to anything their own country could offer.

Another lesson to be learned is that windows are in most cases to admit light, not to afford a view of what is without. In our vaingloriousness over plate-glass we fill every opening with it, whether there is anything to be seen from the window or not. The Japanese are wiser ; they furnish sliding paper screens that admit the softest, most delicate light imaginable, and when they wish to enjoy the view without, move them to one side. Between a great shapeless window filled with a sheet of glass, and then half hidden by voluminous draperies, and a Japanese window shoji with its delicate network of dark lines against the pearly rice-paper, there is just the difference between barbarism and civilisation.

There are many things of this nature that one may learn from Japanese architecture, but if nothing was acquired but a sense of the sanctity of wood and the beauty of fine workmanship, the study would be worth while.

It is possible to write of this experiment now, for in a measure it is a thing of the past ; the owner has found it impossible to live in the West after a taste of Eastern civilisation, and is now a citizen of Tokio. The house is dismantled of all its treasures, the rooms are empty, the little garden is running wild, and the bare shell alone remains, a forlorn relic of a delightful attempt to graft an alien civilisation on a tree grown rank with too vigorous life and already showing signs of decay.

GENERAL.

The Exhibition at the Birmingham Art Gallery of pictures by artists of the modern French school, many of which were at the recent exhibition at the Guildhall, has been visited during the first week by 29,420 persons.

Sir Walter Parratt, organist of St. George's, Windsor, speaking at the Church Congress on Wednesday, said that organs were becoming too large. Everything that was desirable could be obtained from an organ of fifty sounding stops. These unwieldy organs were hard to manage, outrageously expensive and difficult to keep in order. He condemned organ chambers as organ tombs, which destroyed the effect of the more delicate stops. There ought to be speaking space for the instrument. The organ should be kept in one piece. He wished that a full half of the sums usually spent on organs were spent in promoting the efficiency of our choirs.

The Mercers' Company have sent one hundred guineas to the fund for the restoration of Peterborough Cathedral.

A Statue of Jean François Millet was unveiled at Gréville on Sunday last. The painter was born near the town in 1814. The statue is the work of M. Marcel Jacques.

Mr. Alexander Koch is now publishing an art journal in Darmstadt, which is called *Deutsche Kunst und Dekoration.* The new number contains a great many illustrations of German work in various styles.

Messrs. S. B. Bolas & Co. have received an order from the Baker Street and Waterloo Electric Railway to photograph every building above the line of route. It is calculated that 1,500 separate negatives will be necessary, and each will include two houses. This series is practically a form of insurance against claims for damage that might be made by owners of property above the line of railway, after the railway commences running, and if such cases should occur, the negatives in question will be of the greatest possible value as evidence. Six operators are engaged on the work from morning to night whenever the weather and other conditions are suitable.

The Cost of the building for the Glasgow International Exhibition of 1901 is estimated at 57,000*l.*, and the Grand Hall at 16,000*l.* The material employed for the structure will be steel and fibrous plaster.

THE
Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than 2 P.M. on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

ABERAVON.—Dec. 1.—Plans are invited, with estimated cost, for the extension of the covered market. A premium of twenty guineas will be awarded to the architect whose plans shall be selected. Mr. Jas. Roderick, borough surveyor, Aberavon.

LIVERPOOL.—Oct. 3 (time extended).—Designs for new buildings for Royal Institution (50 guineas, 20 guineas). Mr. Harold Waterhouse, hon. sec., 3 Cook Street, Liverpool.

SCOTLAND.—Oct. 15.—Designs are invited for an hospital for infectious diseases. Mr. John Adams, clerk to Joint Committee, Burgh Buildings, Ardrossan.

REIGATE.—Oct. 6.—Designs for Municipal Buildings (limit 15,000*l.*, premiums 50*l.*, 30*l.* and 20*l.*). Particulars from C. J. Green, town clerk, Station Road, Redhill.

CONTRACTS OPEN.

ABERGAVENNY.—For erection of master's house at Longtown, near Abergavenny. Mr. E. A. Johnson, architect, Abergavenny.

ASHTON-UNDER-LYNE. — Oct. 3. — For the installation of wires, fittings, &c., for the electric lighting of the public market. Mr. John Neal, borough comptroller, Town Hall, Ashton-under-Lyne.

BEXLEY HEATH.—Oct. 4.—For erection of caretaker's house at the Upland schools. Mr. Walter J. Weaving, 199 Broadway, Bexley Heath.

BIRMINGHAM.—Oct. 4.—For erection of four cottages at Solihull Station, near Birmingham, and of one at Milcote Crossing, near Stratford-on-Avon, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

BIRMINGHAM.—For erection of a bakery at Balsall Heath. Mr. Thomas G. Price, architect, 63 Temple Row, Birmingham.

BISHOP AUCKLAND.—Oct. 13.—For erection of the No. 1 isolation hospital buildings at Tindale Crescent. Mr. Wm. Perkins, architect, Victoria Street, Bishop Auckland.

BLACKWOOD. — For erection of three cottages at High Street. Messrs. Thomas Price & Sons, Circle, Tredegar.

BRIDLINGTON QUAY. — Oct. 6.—For taking-down and rebuilding the shop and premises, 9 Prospect Street, and for erection of a verandah in front of 9, 10 and 11. Mr. J. Earnshaw, architect, Carlton House, Bridlington Quay.

BURY.—Oct. 11.—For erection of a post office. Messrs. Gritten & Son, Abbey Buildings, Princes Street, London, S.W.

CASTLEFORD.—Oct. 5.—For erection of young men's room and alterations to classroom. Mr. R. M. McDowall, architect, Carlton Street, Castleford.

CHERTSEY.—Oct. 4.—For altering bathroom and fixing a bath at the infirmary, Ottershaw. Mr. C. Welsh, architect, London Street, Chertsey.

CHESTERFIELD.—For alterations and additions (stone) to the Grammar School. Mr. W. H. Wagstaff, architect, Chesterfield.

CORNWALL.—Oct. 4.—For erection of a lighthouse, dwellings, &c., at Pendeen, about one mile from Boscaswell, Cornwall. Mr. C. G. Verity, 31 Golden Square, London, W.

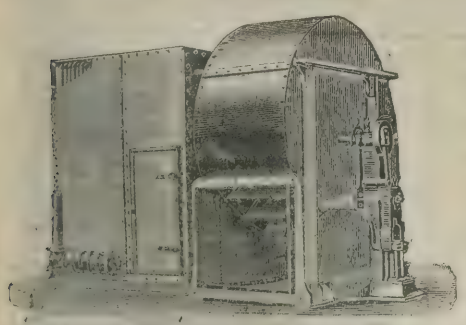
CORNWALL.—Oct. 6.—For erection of a lighthouse, dwellings, &c., at Pendeen, about one mile from Boscaswell. Mr. C. G. Verity, 31 Golden Square, London, W.

CROYDON.—Oct. 7.—For erection of a wing, &c., at the Croydon General Hospital. Mr. Charles Henman, architect, 64 Cannon Street, E.C.

DERBYSHIRE.—Oct. 5.—For erection of two houses at Baslow. Mr. E. Morewood Longsdon, Town Hall, Bakewell.

DEVONPORT.—Oct. 8.—For erection of boundary wall to enclose land on the west side of the Column. Mr. John F. Burns, surveyor, Municipal Offices, 30 Ker Street, Devonport.

DUNDEE.—For erection of mission hall, Monifieth. Messrs. James Foggie & Son, architects, Dundee.



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DURHAM.—Oct. 5.—For erection of twenty-two houses at Shildon, for the North-Eastern Railway Company. Mr. William Bell, architect, York.

ECCLES.—Oct. 12.—For construction of a urinal in Barton Lane. Mr. G. W. Bailey, town clerk.

EGREMONT.—Oct. 8.—For erection of out-offices and boundary wall at South Street. Mr. A. L. Buchanan, Beckermet.

ELGIN.—Oct. 7.—For erection of an infectious diseases hospital. Messrs. A. & W. Reid & Wittet, architects, Elgin.

FALKIRK.—Oct. 3.—For erection of dwelling-houses in West Bridge Street. Messrs. A. & W. Black, architects, Falkirk.

FARSLEY.—Oct. 3.—For erection of a Liberal club at Farsley. Mr. Walter D. Gill, architect, 2 Summerville Terrace, Stanningley.

GREENWICH.—Oct. 13.—For erection of a workhouse for about 800 inmates on a site near Grove Park. Mr. Thos. Dinwiddy, architect, 12 Crooms Hill, Greenwich.

GUILDFORD.—Oct. 6.—For extension of the infants' room at the school buildings at Stoughton. Mr. Edward L. Lunn, architect, 36 High Street, Guildford.

HALIFAX.—Oct. 5.—For erection of a tramway-car shed at the junction of Free School Lane and Skircoat Road. Mr. Edward R. S. Escott, borough engineer, Town Hall, Halifax.

HARROGATE.—For erection of business premises, Parliament Street. Messrs. Bland & Bown, architects, Harrogate.

HERTFORD.—Oct. 12.—For erection of bridge at Totteridge. Mr. Urban A. Smith, county surveyor, 41 Parliament Street, S.W.

HINDSFORD.—Oct. 7.—For erection of a church at Hindsford, near Atherton. Messrs. Austin & Paley, architects, Castle Hill, Lancaster.

HULL.—For alterations to 13 Charlotte Street, and for erection of a hall. Mr. T. Brownlow Thompson, architect, 15 Parliament Street, Hull.

IRELAND.—Oct. 3.—For alterations and repairs of reading-room in Eblana Avenue and Sussex Street. Mr. W. Kaye-Parry, architect, 35 Dame Street, Dublin.

IRELAND.—Oct. 11.—For erection of labourers' cottages and fencing the plots attached to them as follows:—1 cottage in Glassalton townland, 1 cottage in Clontail townland and 1 cottage in Newrath Big townland, Ardee. Mr. Louis Turley, architect, Laurence Street, Drogheda.

KEIGHLEY.—For erection of a house in Mannville Road, Lund Park. Messrs. John Judson & Moore, architects.

KEW.—Oct. 3.—For removal of existing bridge and construction of new masonry bridge over the river Thames, together with alterations of approaches and construction and subsequent removal of temporary bridge over the river. Sir John Wolfe Barry, K.C.B., and Mr. C. A. Brereton, engineers, 21 Delahay Street, Westminster.

LEIGH.—Oct. 12.—For erection of new kitchens at the sanatorium, Astlee. Messrs. Banks, Fairclough & Stephen, architects, Leigh.

LONDON.—Oct. 4.—For erection of means of access to certain chimney stacks at the infirmary in Cale Street, Chelsea. Messrs. Lansdell & Harrison, architects, 38 Bow Lane, Cheapside, E.C.

LLANELLY.—For erection of a residence at Llanerch, Llanelly, and additions and alterations to shop and premises, Stepney Street. Mr. W. Griffiths, Falcon Chambers, Llanelly.

LYME REGIS.—Oct. 15.—For erection of five cottage almshouses. Mr. Walter J. Fletcher, Wimborne.

MANCHESTER.—Oct. 6.—For erection of two blocks of conveniences in the Helmet Street recreation ground, and for construction of a new entrance gateway to Philips Park, Bradford. City Surveyor, Town Hall, Manchester.

MIDDLETON.—Oct. 5.—For alterations and extension of Middleton police court. Mr. Henry Littler, architect, County Offices, Preston.

MORLEY.—Oct. 6.—For erection of a house and shop in Fountain Street. Messrs. T. A. Buttery & S. B. Birds, architects, Queen Street, Morley.

NEWPORT.—Oct. 4.—For erection of an inspector's office and shunter's cabin at Alexandra Dock Junction, Newport, Mon., for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

NORTH FINCHLEY.—Oct. 17.—For erection of a parish-room and institute at the junction of the Great North Road and Castle Road. Mr. Ernest A. E. Woodrow, 67-69 Chancery Lane, W.C.

OAKWORTH.—For taking-down part of winter garden. Messrs. Crewe & Co., Sykes Place, York Street, Leeds.

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OLD HILL.—Oct. 10.—For erection of the Wright's Lane Board school at Old Hill for 348 boys and girls mixed and 340 infants. Messrs. Meredith & Pritchard, architects, Bank Buildings, Kidderminster.

PAISLEY.—Oct. 3.—For erection of a police sub-station in King Street. Mr. Moncur, burgh surveyor, Municipal Buildings, Paisley.

PORTSMOUTH.—Oct. 10.—For erection of a public elementary school in Stamshaw Road to accommodate 600 boys, and for converting the existing Stamshaw Board school into a school for girls and infants only. Mr. G. E. Smith, Glendore, Victoria Road North, Southsea.

RAMSGATE.—Oct. 5.—For erection of refuse destructor, with buildings, sheds, chimney shaft, &c. Mr. T. G. Taylor, surveyor, Broad Street, Ramsgate.

ROMFORD.—Oct. 14.—For erection of public baths. Messrs. Harrington & Ley, architects, 108 Fenchurch Street, E.C.

RUTHIN.—Oct. 17.—For alterations and additions to house at Brynhyfryd, including new school buildings in connection therewith. Mr. James Hughes, architect, Denbigh.

SALTBURN.—Oct. 8.—For erection of stone bridge. Mr. Walker Stead, county surveyor, Northallerton.

SOPHIA (BULGARIA).—Nov. 21.—For erection of eight public offices, viz., a Ministry of Public Works, Ways and Communications, a Ministry of Commerce and Agriculture, a Ministry of the Interior, a Ministry of Public Instruction, a Ministry for Foreign Affairs and Public Worship, a Ministry of Justice, and an Audit Office. Particulars can be obtained at the Commercial Department of the Foreign Office between the hours of 11 and 5.

SOUTHBOROUGH.—For erection of the proposed Victoria Hall and buildings in London Road, Southborough. Mr. William Harmer, surveyor, 137 London Road, Southborough.

SOUTH WALES.—Oct. 10.—For repairs and improvement of the Jersey Arms Inn, Cwmavon, Port Talbot. Mr. E. E. Bevan, Vale of Neath Brewery, Neath.

SWANAGE.—Oct. 12.—For erection of a police station. Mr. Walter J. Fletcher, architect, Wimborne.

SWANSEA.—Oct. 4.—For construction of a goods shed, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

TEWKESBURY.—For erection of boiler-house at the waterworks. Mr. E. T. Brydges, town clerk, Municipal Offices, Cheltenham.

TOTNES.—Oct. 7.—For post and rail fencing at Lower Longcombe, Berry Pomeroy. Mr. S. S. Rendle, highway surveyor, Stoke Gabriel.

TRURO.—Oct. 4.—For construction of an engine-shed and other works at Truro, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

WALES.—Oct. 18.—For erection of an assembly hall and other additions and alterations to the school at Llandaff. Mr. G. E. Halliday, architect, Cardiff.

WALES.—Oct. 15.—For erection of buildings, chimney shaft, &c., for the electric-lighting station. Mr. John Gill, borough surveyor, Bangor.

WALLINGFORD.—Oct. 20.—For additions to the Berkshire Lunatic Asylum at Cholsey, Wallingford. Mr. George T. Hine, architect, 35 Parliament Street.

WESTBURY-ON-SEVERN.—Oct. 3.—For erecting new kitchen, stores, laundry, committee-room, tramp wards, receiving wards, porter's lodge, &c., at the workhouse, Westbury-on-Severn. Mr. W. Fitzgerald Jones, architect, 21 George Street, Gloucester.

WEST HAM.—Oct. 4.—For repairing interior of the Abbey Mills pumping station, West Ham, including the non-working parts of the machinery and all the ironwork, &c., also inside and outside of the Isle of Dogs pumping station. Engineer's Department, County Hall, Spring Gardens, S.W.

WESTON-SUPER-MARE.—Oct. 26.—For erection of a school (for 400 children) in Locking Road. Mr. S. J. Wilde, architect, Weston-super-Mare.

THE (NEW) N.A.P. WINDOW COMPANY, LIMITED.

A REFERENCE will be found on p. 32 of our advertisements this week to the prospectus of this company, which will be issued next week. At the present time sagacious investors are on the look-out for reliable home industrial concerns in which they can safely trust their surplus capital, and the company in question, which has a well-developed and rapidly increasing business, will be conducted by a strong and experienced directorate, and has every prospect of a prosperous future.

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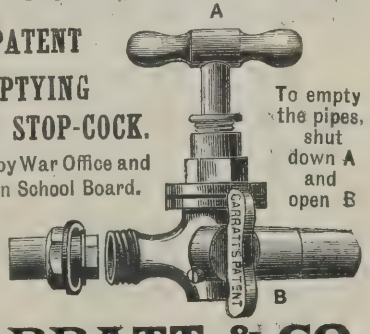
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For erection of the Ivy Bush Hotel, Cwmaman. Messrs. MORGAN & ELFORD, architects, Aberdare.

Williams & Williams, Cwmaman	£1,277 10 0

ABERDEEN.

For constructing a sewer, including drainage and water, in the burgh of Ellon. Mr. J. D. WATSON, engineer, Aberdeen.

G. FRASER, Ellon (*accepted*)	£197 0 7

ATHERSTONE.

For erection of a factory. Mr. J. WIGG, architect, Berridge Street, Leicester.

King & Ridley	£2,400 0 0
Moss	2,362 0 0
Orton	2,257 0 0
HARDINGTON & ELLIOT, Leicester (*accepted*)	2,198 0 0

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For laying about 646 yards of 4-inch pipe in connection with the Bantry Waterworks.

M. DRISCOLL, Reenrour East, Bantry (*accepted*)	£148 0 0

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For construction of 1,221 yards lineal of sanitary pipe sewers in Old Taunton Road and extension of Wembdon main sewer.

Old Taunton Road sewers.

Meredith	£449 15 5
C. BRYER, jun., Friarn Street, Bridgwater (*accepted*)	310 0 0
Thomas & Webb	257 3 10

Wembdon main sewer.

Meredith	1,600 18 5
Thomas & Webb	993 9 4
C. BRYER, jun. (*accepted*)	941 0 0

For construction of 587 yards lineal of sanitary pipe sewer in Washington Terrace and Washington Gardens.

Meredith	£646 13 5
T. Stockham	524 0 0
Thomas & Webb	483 7 1
C. BRYER, jun., Friarn Street (*accepted*)	427 0 0
W. Hellerd	400 0 0

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BRIDLINGTON QUAY.

For erection of a dwelling-house and shop. Mr. J. EARNSHAW, architect, Wellington Road, Bridlington Quay.

W. Barnes	£429 0 0
E. CORNER, Bridlington Quay (*accepted*)	425 10 0

COLNE.

For erection of Board schools on the Park site. Mr. H. HOLGATE, architect, Market Street, Colne.

Accepted tenders.

J. & P. Lancaster, mason, &c.
J. Watson, joiner.
W. Stanworth, Burnley, slater.
C. Tattersall, Brierfield, plumber and glazier.
Berry & Co., plasterer.
Roberts & Co., Nelson, ironfounder.
R. Croasdale, iron railing.
A. Wear, Brierfield, asphalter.
Varley & Sons, heating.
J. Waddington & Co., Bury, ventilating.
J. & J. Hay, painter.

DARTMOUTH.

For converting house and premises in Foss Street into shops. Mr. E. H. BACK, architect, Dartmouth.

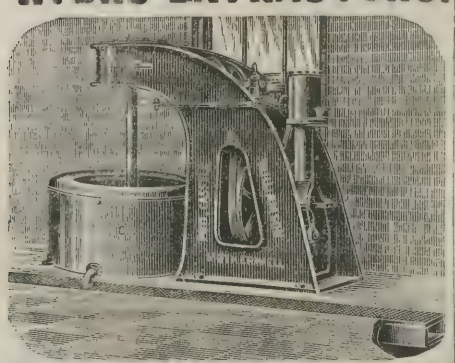
Veale & Anderson	£210 0 0
J. Buck	187 19 6
G. ROW & WATTS, Dartmouth (*accepted*)	164 0 0

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For completing cart-shed, &c. Mr. SAM W. PARKER, surveyor, Thornhill.

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J. Broadbent	306 0 0
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GARFORTH BROS., Mirfield (*accepted*)	244 5 3

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DURHAM.

For draining, making footpaths and other works in connection with the laying-out of an additional burial ground, Stanley. Mr. WM. FORSTER, architect, Stanley.

W. JOHNSON, White-le-Head (*accepted*)	£322 0 0

ENFIELD.

For erection of a junior mixed department and an infants' department at Bush Hill Board school. Mr. G. E. T. LAURENCE, architect. Quantities by Messrs. CAMPBELL & SONS, Finsbury Square.

Jennings & Grenfell	£10,843 0 0
A. Porter	8,260 0 0
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FAIRHEAD & SON, Enfield *	6,579 0 0

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ESSEX.

For erection of a ward at the isolation hospital in the parish of Theydon Garnon, near Epping, and various works to the existing buildings, with heating and hot-water supply. Mr. E. EGAN, architect, Holmdale, Loughton.

Buildings.

T. W. Forster	£2,000 0 0
E. West	1,820 0 0
W. J. Cuthbert	1,759 10 0
W. Lawrence	1,747 0 0
W. Radley	1,690 10 0
J. DAVEY & SON, South Ockenden (*accepted*)	1,679 0 0
T. Keen	1,660 3 9

Drainage.

W. Radley	290 0 0
E. West	168 0 0
W. Lawrence	163 10 0
T. W. Forster	156 10 0
W. J. Cuthbert	148 5 0
T. Keen	145 0 9
J. DAVEY & SON (*accepted*)	116 0 0

GODALMING.

For erection of cemetery chapels and lodge, Eashing Lane, for the Joint Burial Board. Messrs. WELMAN & STREET, architects, Godalming and Guildford.

F. Milton	£3,322 0 0
Mitchell Bros.	3,079 0 0
J. Lee	3,029 0 0
Kingerlee & Son	2,997 0 0
Harris & Son	2,925 0 0
G. Horn	2,819 0 0
BUNNING & SON, Loughborough Park (*accepted*)	2,599 0 0

HARTLEPOOL.

For construction of a timber lighthouse similar to the one now standing on the old pier, for the Port and Harbour Commissioners; also for a sixth order dioptric fixed light, with ruby shades and lantern complete. Mr. ALBERT NAGEL, engineer.

J. H. Pounder & Co.	£113 18 3
R. LANDER & CO., Hartlepool (*accepted*)	87 10 1
H. S. Sudron	84 6 4
R. W. Robinson	81 17 6
C. T. Watson	81 7 8
R. J. Marshall	75 9 10

HINCKLEY.

For erection of a building on Mount Road. Mr. J. WIGG, architect, Berridge Street, Leicester.

J. Wright	£2,185 17 9
Smith, Swift & Smith	2,117 2 0
Orton	2,103 0 0
Greaves	2,071 0 0
A. JEFFCOTE, Hinckley (*accepted*)	2,001 14 0
W. Moss	1,998 15 0

ILFORD.

For erection of an underground latrine in the Broadway. Mr. HERBERT SHAW, surveyor, 7 Cranbrook Road, Ilford.

Cross & Co.	£947 18 5
F. Willmott	717 4 0
A. E. Symes	675 0 0
MERRYDREW & WORT, Stevenage (*accepted*)	596 0 0
Surveyor's estimate	630 0 0

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IRELAND.

For erection of labourer's cottage at Killacloran.
R. SAVILLE, Rathdrum, co. Wicklow (*accepted*) . £130 0 0

For execution of works of improvement at the storage reservoir at Tannaghmore.
D. JARDINE, Carrycruff, Belfast (*accepted*) . £826 6 4

KEDINGTON.

For providing and fixing a pair of new ornamental wrought-iron carriage entrance gates, iron posts and fence at the entrance to the workhouse.

Gates.

E. WORRALL & Co., 24 Byrom Street, Liverpool (*accepted*) £40 0 0

Fixing.

E. WORRALL & Co. (*accepted*) 15 10 0

New panel lock.

E. WORRALL & Co. (*accepted*) 1 0 0

KEIGHLEY.

For erection of additions to house in Victoria Road. Mr. JOHN HAGGAS, architect, North Street, Keighley.

Accepted tenders.

T. Herd, Keighley, mason.
J. Hartley, Oakworth, joiner.
W. Thornton, Bingley, slater.
J. King, Keighley, plasterer.
W. Bottomley, Keighley, plumber.

LITTLEBOROUGH.

For construction of 400 lineal yards of 9-inch pipe sewer on Gatehouse Road, with manholes, &c., complete. Mr. GEORGE H. WILD, surveyor.

J. POOLE, Railway Street (*accepted*).

LEWES.

For erection of two temporary buildings at East Sussex County Lunatic Asylum. Mr. HY. CARD, county surveyor, Lewes. Quantities by Mr. F. H. HUMPHREY, Hastings.

Keay & Co.	£5,788 0 0
Longley & Co.	5,565 0 0
Humphreys, Limited	5,489 0 0
Clark & Co.	5,447 0 0
Milson & Co.	5,265 1 7
W. Harbrow	5,200 0 0
T. White	4,930 0 0
Hawkins & Co.	4,659 0 0

LONDON.

For rebuilding No. 15 Devonshire Square, E.C., for Messrs. Chapman, Fitch & Co. Mr. HOWARD CHATFEILD CLARKE, architect, 63 Bishopsgate Street Within, E.C.

Hall, Beddall & Co.	£4,821 0 0
Brown, Son & Blomfield	4,788 0 0
C. P. Roberts	4,763 0 0
E. Lawrence & Sons	4,711 0 0
Patrick & Son	4,648 0 0
J. Smith & Sons	4,497 0 0
Ashby & Horner	4,479 0 0
WOODWARD & CO. (*accepted*)	4,400 0 0

For alterations and additions at the Vine Tavern public-house, Broad Street, Ratcliff, E., for Messrs. Holt & Co. Mr. FRED. A. ASHTON, architect, 177 Romford Road, Stratford, E.

J. & H. Cocks	£1,089 0 0
A. E. Symes	1,040 0 0

MAYFAIR.

For rebuilding 69, 70 and 71 South Audley Street. Mr. HOWARD CHATFEILD CLARKE, architect, 63 Bishopsgate Street Within, E.C.

J. Thompson & Co.	£14,782 0 0
Holland & Hannen	13,893 0 0
Brown, Son & Blomfield	13,341 0 0
Hall, Bedall & Co.	13,313 0 0
Ashby & Horner	13,295 0 0
Clarke & Bracey	13,000 0 0
E. Lawrance & Sons	12,977 0 0
H. LOVATT (*accepted*)*	12,500 0 0

* Exclusive of foundations, already executed.

MEXBOROUGH.

For sewering, levelling, kerbing, flagging, channelling, making, &c., necessary for the construction of Simpson Place. Mr. G. FENWICK CARTER, surveyor.

W. Hobson	£515 8 6
J. Rothery	389 10 0
G. EYRE, Sheffield (*accepted*)	349 15 6

NELSON.

For construction of two filter-beds at the sewage works. Mr. B. BALL, borough engineer.

W. CHEW, Barkerhouse Road (*accepted*).

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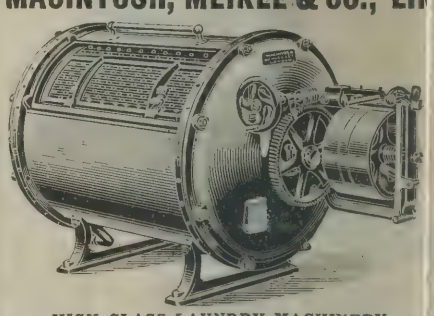
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TO ARCHITECTS,

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For Important Announcement

See page 32.

STOKESLEY.

For rebuilding Tanton Bridge, near Stokesley, and improving the approaches to same. Mr. WALKER STEAD, surveyor, Northallerton.

P. O. Hetherington	£1,045 0 0
R. P. Brotton	688 10 0
W. Blackburn	666 3 1
A. ATKINSON & Co., Stockton (*accepted*)	654 17 7

STRATTON.

For construction of new road round Ivyleaf Hill. Messrs. S. W. JENKIN & SON, surveyors, Liskeard.

M. Dinnie	£1,611 19 0
W. LUXTON, Ottery St. Mary (*accepted*)	1,590 0 0

SOUTHAMPTON.

For erection of pair of houses in Landguard Road. Messrs. JURD & SANDERS, architects, 23 Portland Street, Southampton.

E. F. Barrow	£1,408 0 0
Hood & Rabbetts	1,360 0 0
A. WARDEN (*accepted*)*	1,295 0 0

* Subject to variations.

SWANSEA.

For additions to the Swansea Cricket and Football Club pavilion. Messrs. MARGRAVE & PEACOCK, architects, Metal Exchange, Swansea.

D. Jenkins & Sons	£349 19 11
H. Billings	258 0 0
W. Lane	255 0 0
J. & F. Weaver	250 0 0
J. & D. Jones	245 0 0
J. Tucker	243 10 0
J. Davies	230 15 0
T. Richards	229 0 0
MARLES & SONS, Western Street (*accepted*)	206 17 6

WARWICK.

For erection of a shed at the sewage outfall works.

CASHMORE & Co. (*accepted*)	£87 15 0

WALES.

For erection of the Osborne Hotel, Penrhiwceiber. Messrs. MORGAN & ELFORD, architects, Aberdare.

W. Williams, Pontypridd	£2,680 0 0

For alterations at the Rhymney Lower Mixed school and Bedwellty Village school.

Rhymney Lower Mixed school.

T. E. Jones	£476 14 6
A. Evans & Co.	465 0 0
D. Vaughan	458 0 0
W. WILLIAMS & SON, New Tredegar, *via* Cardiff (*accepted*)	420 0 0

Bedwellty Village school.

D. Vaughan	45 0 0
W. WILLIAMS & SON (*accepted*)	35 10 0

For erection of new classrooms and cloak-room, the extension of the present mixed schoolroom and other works, at Cwmyrdderch schools, Cwm, near Ebbw Vale. Messrs. ROSSER & ROBERTS, architects, Abercarn.

S. Davies	£1,061 0 0
A. P. Williams	1,060 0 0
A. Lawson & Co.	949 0 0
C. F. Morgan	925 0 0
WILLIAMS & ROGERS, Cwm (*accepted*)	895 0 0
D. Maughan	847 6 10
Architects' estimate	865 0 0

THE new Llangollen county schools, which have been erected by Mr. W. H. Thomas, builder, Oswestry, from the designs of Mr. H. Teather, architect, of Cardiff and Shrewsbury, were formally opened last week. They provide sufficient accommodation for 120 students—70 boys and 50 girls—and have been arranged in the most convenient manner, the greatest attention being paid even to the smallest details. On the ground floor are the assembly hall, which is separated from the adjoining classrooms by patent sliding partitions, science lecture-room, laboratory, workshop, cookery, laundry, headmaster's room, together with cloak and lavatory accommodation. The total cost of the land has been 1,270*l.*, of the building 4,040*l.*, and the extra furniture needed has cost 200*l.*, or in all 5,510*l.*

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BUILDING AND BUILDERS.

THE contract for the new premises of the London and Midland Bank, situate in North Street, Leeds, has been let to Messrs. Craven & Umpleby. The work is being carried out from the plans and under the supervision of Mr. William Bakewell.

THE reconstruction of the sea wall and promenade at Herne Bay, which were so extensively damaged in the destructive gales of last November, is to be proceeded with at once, the estimated cost being placed by Mr. Baldwin Latham at 40,000*l.*

ANOTHER section of the Birmingham Waterworks, viz. from Cleobury Mortimer to Hagley, has been let to Messrs. Morrison & Mason, Limited, of Glasgow, at 412,445*l.* 19*s.* 5*d.* Messrs. Morrison & Mason are already the contractors for three sections of the aqueduct, and the new contract places the continuous length from Dolau to Hagley—a total of 51¼ miles—in their hands. The aqueduct over contract No. 12 is all in pipes or syphon, and includes the bridges over the Severn and Stour.

A REMARKABLE accident occurred at some buildings being erected off Brompton Road, London, on the 21st inst. A labourer named Joseph Walker was at work on a scaffold, 60 feet high, when in stepping backward he slipped and fell. His comrades thought it meant instant death, but Walker dropped on a platform beneath, and, not losing his presence of mind, clutched the edge of the stage, and succeeded in raising himself and escaping without injury.

ON September 28 the sixth quinquennial festival of the Royal Albert Asylum, Lancaster, was held, and advantage was taken of the occasion for the laying, by Sir John Hibbert, in the absence of Lord Derby, of the foundation-stone of the new wing. This will be erected at the south-east angle of the Brooke wing, and is intended to provide accommodation for young imbeciles who develop epilepsy. Costing about 15,000*l.*, every effort has been made to give the most scientific provision for the unfortunates who will be housed here to the number of about 100. While this extension will thus give facilities for the greater comfort and better treatment of the epileptic and feeble, it will at the same time relieve the main building to some extent of the pressure put upon it by the influx of ordinary patients.

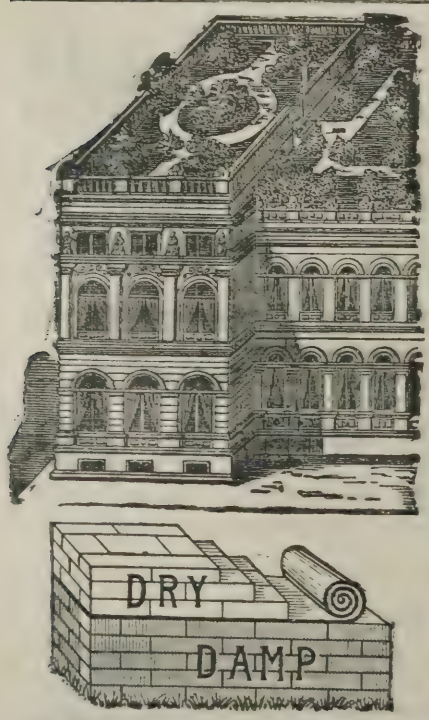
THE negotiations which have been in progress for some time past with a view to the incorporation of North-East London Institute at Hackney Downs as the nucleus of the Hackney Polytechnic, which is to be on that site, will probably shortly be brought to a successful issue. The buildings will be in connection with the share of what is known as the Sir John Cass Charity, which was allotted to Hackney after much controversy, and it is anticipated that within a few weeks the Charity Commissioners will formally ratify this scheme, giving effect to the proposal. Under the provisions of this scheme the institute will be continued as the centre for practical and theoretical instruction in natural and experimental science and artistic crafts, whilst trade and handicraft classes will be conducted as usual at South Hackney under the auspices of the Technical Education Board of the London County Council.

THE successful architect for the new constabulary offices, police and coroner's court, to be erected on the site of the old barracks in Arpley Street, is Mr. R. Burns Dick, 55 Northumberland Street, Newcastle-on-Tyne. A short time ago eighteen competitive designs were sent in from various parts of the country, and Mr. Dick is, according to arrangement, entitled to the sum of 100*l.*, but the committee have decided to recommend him as the architect, and he will, therefore, superintend the carrying out of his own plans. Mr. Bennett, president of the Manchester Society of Architects, was appointed assessor. The second premiated design is that of Messrs. Tapper & Crouch, architects, 12 Gray's Inn Square, London, who receive 50*l.*; whilst the third design is that of Mr. J. Lane Fox, Bond Street, Dewsbury, who is awarded 25*l.* The plans will be open for public inspection to-day and to-morrow.

A NEW Baptist church is to be erected at the south-east corner of Dewar Street and Woodhead Street, Dumfermline, from plans prepared by Mr. Andrew Scobie, architect, of that place. The Gothic style of architecture has been adopted and the design is of a chaste and elegant character. The church will be seated for over 400 persons. The building is planned in such a way that side and end galleries can be conveniently erected when these are required. The main entrance will be from Woodhead Street, and the pulpit and baptistery are to be situated at the west end of the building. There will be a vestry and two retiring-rooms at the back. The retiring-rooms are to be divided by a sliding partition, so that they can be converted into one large room for the use of the Bible class or Sunday school. The church is to be heated by hot-water pipes on the low-pressure system. The cost of the building is not expected to exceed between 1,600*l.* and 1,700*l.*

LAST week the members of the Cardiff Corporation paid a visit of inspection to Cathays Park for the purpose of finally

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determining the exact sites of the projected new Town Hall and Law Courts. Mr. Harpur, the borough engineer, accompanied the members, explaining the sites as staked out by lines of flags, while the architect (Mr. Lanchester) also waited upon the members with the necessary sketches. As the result of the inspection the buildings will occupy the sites as shown on the plans, with the modification that they will both be placed nearer the avenue of trees. This will have the effect of removing the Law Courts a little further away from the noise of the traffic on the North Road, and on the other side will leave a space between the side of the municipal buildings and Park Place of about 100 yards, allowing room for a good 50 feet roadway and the erection of another building, probably a museum. The architects were also directed to proceed with the preparation of the working drawings—an indispensable preliminary to the erection of the buildings—the Council thus finally approving of the additions and modifications previously suggested by Mr. Lanchester, increasing the original estimated cost from approximately 198,000*l.* to 233,000*l.* The increase will be chiefly absorbed in the cost of giving the buildings a higher elevation, the remainder being for a few additional offices. Both the Town Hall and Law Courts will be facing Queen Street, their frontages being roughly in a line with the canal lock, separated from one another by the existing avenue of trees, and having in front an open space, bounded on the Queen Street end by a broad roadway of 60 feet or more in width, crossing from North Road to Park Place.

THE foundation-stone of the Nurses' Home, which is in course of erection at Gartloch for the Glasgow District Lunacy Board, has been laid. The building will accommodate about sixty, and is to be of three storeys and built of red stone in the François Premier style of architecture, similar to the main asylum buildings. It is quite detached from the asylum, and situated at a rather lower level in a pleasant part of the grounds. On each floor will be sitting-rooms, bedrooms and bathrooms, while in addition on the ground floor will be matron's rooms, visitors' rooms and kitchen. A sick room for invalided nurses will be found on the first floor. To insure quiet for the night nurses, their quarters, reached by a separate staircase, have been placed in the top flat. The bedrooms will be of two sizes, and every nurse and servant will have a separate room, in addition to sharing with others a parlour. On each floor will be a small kitchen, but the nurses will continue to take their meals in the messrooms in the asylum and hospital. The entrance to the home is placed so as to be equally convenient for asylum and hospital, and opening from it on one side is a parcel and inquiry room. The parlours, which have large bow windows, are placed at the corners, and the lavatories and bathrooms are in the wings. The ground behind, forming part of the old pleasaunce, will be laid out for nurses' recreation, and the situation of the home among old trees is a very fine one. The architects are Messrs. Thomson & Sandilands, and the contractors:—Masons, Messrs. Paterson & Baldie; joiners, Messrs. Hutchison & Grant; slaters, Messrs. A. M. Ross & Sons; plasterer, Mr. Mackenzie; plumber, Mr. J. L. Arnot; painters, Messrs. M'Culloch. The total cost, including furnishings, it is estimated will be about 20,000*l.*

TRADE NOTES.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester, have just supplied their patent Manchester stoves to the West End Hospital, London, W.

MESSRS. SCUPHAM & SONS, LIMITED, of Leeds, are bringing out some very pretty patterns of carved door furniture and finger-plates to match. These are very effective, and sure to be in great demand for better class villa property. They are made in oak, ebony and cocus and ambowood.

THE dials of the great clock of St. Paul's Cathedral are having new skeleton iron centres put in. When the clock was erected some five years ago the centres were filled with white glass for illumination at night, but the lights were never set behind, and it is now thought better to revert to the old design. The work is being carried out by the makers of the clock, Messrs. John Smith & Sons, Midland Clock Works, Derby.

THE *New Penny Magazine* is the title of Messrs. Cassell & Co.'s new weekly periodical, of which the first number is to appear on October 19. It will provide a greater amount of reading matter and illustrations than has been hitherto given for a penny in any magazine. Each issue is to contain sixty-four large pages, fully illustrated.

A BAZAAR in aid of the building fund of the South Place Ethical Society will be held at the South Place Institute, South Place, Finsbury, E.C., on Wednesday, November 16 next, and the two following days.

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DRAWING-ROOM, KELSEY, BECKENHAM.

ELECTRIC NOTES.

THE Brighton Town Council are about to spend 56,300*l.* on the development of their electric-light undertaking. The sanction of the Local Government Board had been asked for the borrowing of the loan, and at the Pavilion Mr. W. A. Duckat, one of the Local Government Board inspectors, conducted an inquiry into the application, when the town clerk, Mr. F. J. Tillstone, said that this was a larger sum than the Corporation had borrowed of late. This arose from the fact that the Local Government Board had asked that the loans should be applied for before the expenditure was actually incurred. Under the circumstances, the Corporation were now asking for an amount which would probably cover the expenditure for two years, namely, the current year and 1899. Thus it was about double the amount they would otherwise have asked for. Of the 56,300*l.*, the sum of 21,000*l.* was required for four dynamos, whilst the bulk of the remainder was needed for distributing mains, house service supplies and meters. The total debt on the electricity undertaking was 206,076*l.* In addition there was an amount of 11,246*l.* of a loan which had been sanctioned but not yet taken up. So that the total liabilities amounted to 217,502*l.* Mr. Wright, the electrical engineer, presented the last year's balance-sheet, and explained that they expected to add 450 customers a year for at least the next two years. They were now providing sufficient capital to meet that extension of the business. Documents giving particulars of the expenditure were handed in, and the inspector intimated that he would go into the details with Mr. Wright at the generating station.

AT a meeting of the electric-light committee of the Inverness Town Council last week a report was submitted by a southern expert on the question of introducing the electric light into Inverness under municipal auspices. It was favourable to a scheme whereby the water of the Caledonian Canal could be utilised, it being calculated that a fall of 30 feet can be obtained within a short distance of the town. He recommends the provision of 500 horse-power to begin with, which he thinks could maintain 5,000 lamps of 16 candle-power each. There is little doubt, the reporter adds, that the Caledonian Canal Commissioners would sanction the use of a much larger water-power if at any future time it was desired to extend the light, and that without producing an undue velocity of water in the canal, the latter point being one which has given rise to considerable discussion among local experts. It is estimated that for an annual payment of 600*l.* water to produce 500 horse-power could be obtained from the canal. The committee considered the latter estimate rather high, but agreed to defer consideration of the whole scheme until a future meeting.

THE mayor of Hythe, Alderman H. T. Cobay, presided at the meeting of the Council in committee to consider the desirability of applying for a provisional order for electric lighting. The Mayor having been informed that the cost of an electric-lighting provisional order would be 500*l.*, after some discussion, said the best thing to do that evening, he thought, was to recommend the Council to take steps to obtain a provisional order.

VARIETIES.

THE new burgh police offices erected in Sturrock Street, Kilmarnock, were formally opened on Thursday, the 22nd, in presence of the members of the Town Council and others. The building, which is in the French Renaissance style, includes Court hall and the various offices, with sixteen police cells.

THE Free Methodist College in Victoria Park, Manchester, was reopened on the 23rd inst., after additions and alterations. The addition made to the college increases the accommodation from that sufficient for sixteen students to that for twenty-four, and its immediate cost amounts to 3,000*l.*

A PUBLIC hall, which has been erected for the use of the inhabitants of Lochgoilhead, N.B., and neighbourhood, was formally opened on the 23rd inst. The hall is situated at the north end of the village, and has accesses from the shore road



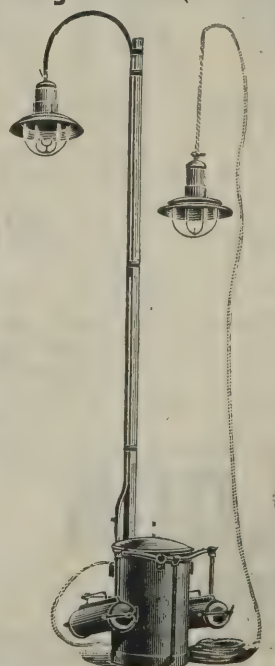
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and the Inveronich road. It is a picturesque building, with spacious verandah and wide overhanging eaves, built of brick and rough cast, with panelled walls, after the fashion of an old English frame house. It contains a large hall, capable of seating 200 persons, a library and caretaker's room, and an office for the collector of rates. The architects were Messrs. James Salmon & Son, Glasgow. The total cost is 900*l.*

THE curious way in which the parishes of the City run one into another is often the subject of remark. How many, however, are aware, says the *City Press*, that one building alone—11 Queen Victoria Street—is in no fewer than six parishes. There are several instances of a building being in four parishes and at least one house is half in the City and half beyond its borders.

ONE of the most beautiful works which has come under our notice is that on "Hungarian Industrial Art," by Joseph Szterenyi. The volume in question, which is composed of various serials which have appeared from time to time, contains most elaborate and highly artistically coloured plates, sketches and designs concerning the different industries in wood, iron and metal and the textile and clay industries, to which appropriate descriptions are appended. The object of this production is the encouragement of the inventive and artistic style and design of Hungarian industries, and with a view to encourage this the Hungarian Minister of Commerce has at intervals offered prizes for competition. This volume, ably edited by Mr. Joseph Szterenyi, contains all the specimens which have gained awards in these competitions, and will prove most useful and instructive, not only to manufacturers, but to every amateur who is interested in the progress of art in its various branches and phases.

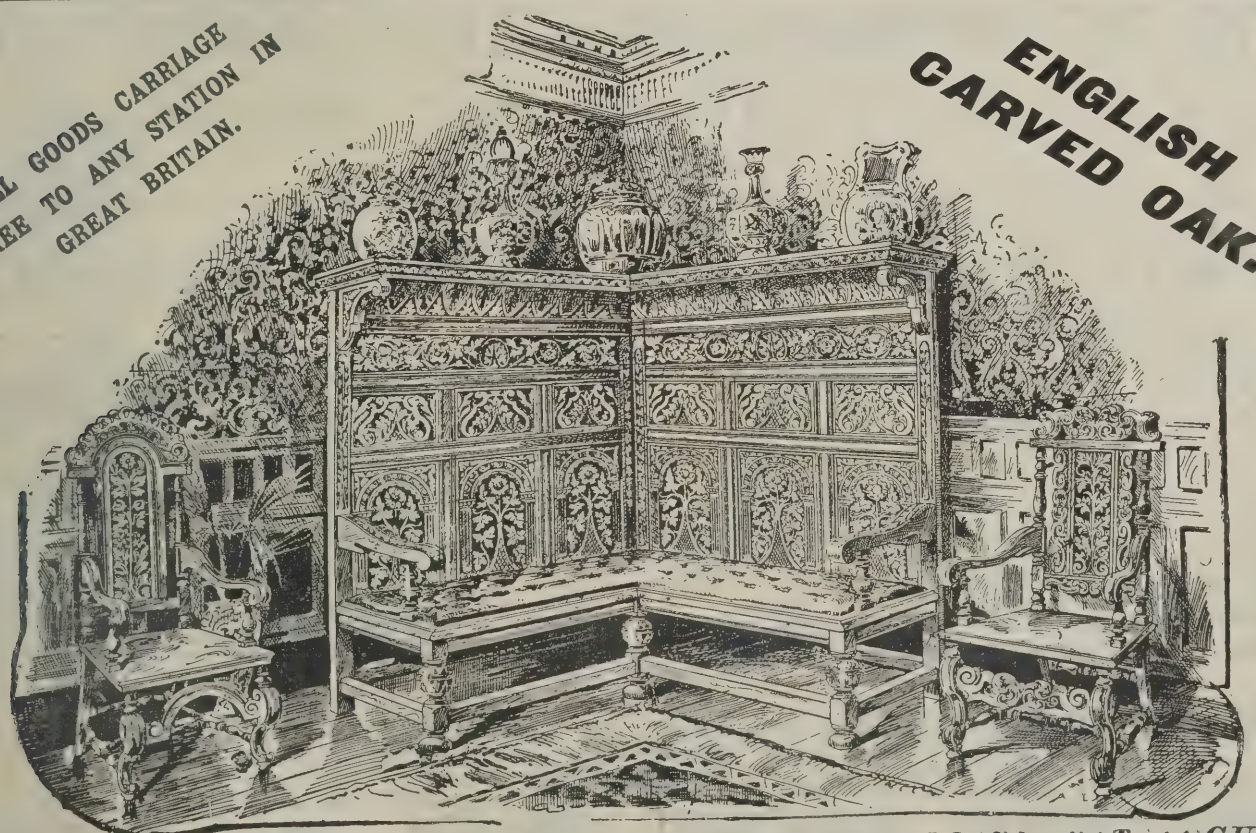
THE ancient parish church at Ockbrook, near Borrowash, was reopened on Sunday after having been closed for a period of some twenty weeks. It was through the generosity of Mr E. Elsey, of Hopwell Hall, that the renovation has taken place. The fabric itself has not been touched, but in the interior there has been a complete renovation, including reseating, reflooring with concrete over the vaults, a new pulpit exquisitely designed, and the whole of the chancel has been refurnished, new candelabra have been provided, and there is a general renewal, the organ having been also enlarged by four additional stops. One noticeable fact in connection with this restoration is that the relatives of the Rev. Lewis Lewis (vicar of the parish) have been for years closely connected with church restorations. The father of the present vicar was vicar of Cwmyoy, and when he died his brother was given the living. That brother restored Llanthony Abbey, but some time afterwards, and another brother, the rector of an adjoining parish, succeeded him, but before he left Waterstone, Herefordshire, he restored his own church.

ST. PATRICK'S CHURCH, Shieldmuir, Wishaw, was opened on Sunday last. The new building is a handsome and commodious structure, its seating capacity being about 1,000. Designed in the Early Decorated style, the building consists of chancel, nave, side chapels, aisles, baptistery, sacristies, confessionals, &c. The nave, which is 97 feet long and 28 feet wide, is divided into seven bays, and is effectively lighted. The chancel, apsidal in form, is divided from the nave by a chancel arch, and from numerous windows a brilliant light is thrown upon the altar. A feature of the church is the façade, in which are placed two handsome doors, which are deeply arched and recessed. In the centre of the gable is placed a niche containing a statue of St. Patrick. Between the buttresses are two arched recesses, 39 feet in height, and in these are placed two four-light windows. The gable terminates with a stone cross. The internal length of the church is 125 feet long, 58 feet in width, and the internal height 58 feet. Red sandstone is used in the construction of the building, and the estimated cost is 6,250*l.*

THE ancient parish church of All Saints, Ryther, near Cawood, which has recently been restored, was reopened on the 22nd inst. by the Archbishop of York. The church is very ancient, and its styles of architecture still to be seen are Saxon, Norman, Early English and Decorated, and the chancel arch, which formed part of the church existing at the time of the Domesday survey is especially interesting. In the church are five of perhaps as interesting monuments as are to be found in any church in the county, two of them furnishing examples of the armour, and two patterns of the ladies' dresses, of about the period 1300 to 1520. The church, though simple in style, has in former years had beauty and merit of its own. It was, however, about 120 years ago sadly defaced by being covered with an unsightly one-span roof and a ceiling, and until its restoration was commenced in February last, the church was most grievously out of repair, while the monuments it contained were, owing to the damp, rapidly decaying. The parishioners have for some time been making efforts to restore their church, and in January a committee was appointed to carry out the work, which, it is estimated, will cost about 1,400*l.* The principal work of restoration already effected are the new roofs, and the church has received attention generally.

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ALTHOUGH the partial restoration of Linlithgow Church has been completed, repairs on particular parts of the building are still in progress. The most recent of them has been the restoration of the mullions and tracery of the west window, the architectural features of which are very striking. The mullions have for many years been in a dilapidated condition, and have been somewhat unseemly because of the amount of cement employed to fill up the broken or decayed portions. In consequence of their condition complaints as to draughts were frequent. The decayed mullions have now been replaced by others which are exactly similar in size and design, and which have been so prepared as to admit of double glass being fitted into them. The result will be an amount of comfort to which those sitting in the west end of the church have not hitherto been accustomed. The window, the stonework of which has thus been restored, has been filled with stained-glass representing the transfiguration of our Lord. This is the third stained window which has been placed in the church since the general restoration, and we learn that another is promised. The window is erected to the memory of the late John Miller Richard of Clarendon, and it consists of six large figures. Of these the central is the Saviour, having on the right Moses and on the left Elias. In the lower division are figures of Peter, James and John. The general effect produced by the window is very striking. The colours are rich and beautiful, and the prominent position the window occupies makes it a marked feature of the church.

AN important addition to the Birmingham Homœopathic Hospital buildings in Easy Row has just been opened. It is the first instalment of a series of extensions and improvements, for which a building fund of 4,300*l.* has been raised. It is proposed to extend the hospital itself, replacing the remainder of the old frontage in Easy Row with an elevation similar to that of the new part. The old part, which was originally a factory, will be taken down and rebuilt, with a view to completing the hospital as a thoroughly efficient institution on modern lines. The portion now opened is an extension of the small block at the rear. This building was originally intended for an isolation hospital, but as the municipal authorities now deal with infectious cases it has been utilised for a nurses' home. The extension, the building and furnishing of which have cost 700*l.*, provides five additional bedrooms and a nurses' parlour. This will enable the hospital to maintain altogether eighteen nurses, thereby increasing the number available for out-nursing. The future extensions will include the provision of two wards to enable the hospital to deal with accidents and other casualties. This will bring the accommodation for patients to fifty beds. In the out-patient department, for which improved accommodation has already been provided, some 1,200 to 1,500 patients are treated per month.

THE Oxford Place Chapel, Leeds, which has been subjected to structural alterations which amount, practically, to a complete rebuilding of the exterior, was reopened on the 22nd inst. The low situation, as compared with the artificially raised ground upon which the Town Hall is built, presented a serious difficulty to the joint architects, Mr. George F. Danby and Mr. William H. Thorp. If funds had permitted of the erection of an entirely new structure the chapel building would have been raised to a considerable height, with the floor elevated on a basement stage; but designs with this object in view had to be abandoned on account of the extra cost. The architects, however, have minimised the disadvantage of the lowness of the site. The old boundary wall and entrance gates have been swept away, the ground floor raised 15 inches and a flight of steps constructed across the whole of the chapel front, giving access to the main and also to the two side entrances. The building has been carried up to an additional height of about 24 feet from the main entrance level by means of a central pedimented gable, and cupolas at either side crowning corner pavilions. The leading features of the front consist of a rusticated ground-floor stage with piers, banded alternately with brick and stone ashlar work, marking the angles of the corner pavilions and the central gable; a bold projecting central porch, with a segmental arched canopy carried on rusticated piers and coupled Ionic columns; and two square-headed side entrances with circular fanlights and carved spandrels. The upper first-floor stage is embellished by coupled and single columns, with richly-carved composite capitals of a Renaissance character carrying bold, well-moulded entablature, with a projecting cornice displaying modillions. A three-light window in the central gable is surmounted above the cornice level by a moulded, rusticated arch, the tympanum of which is filled in with a moulded circular light and carved side panels. The cupolas crowning the angle pavilions and flanking the central gable, spring from angle pedestals with carved scroll terminals, and have semicircular arched faces with angle columns capped by moulded cornices and with stone dome-shaped roofs. In the interior a bright, cheerful effect has been aimed at. The walls and ceilings have been treated in light shades of colour. The ceiling is divided by moulded ribs into panels, having stencilled orna-

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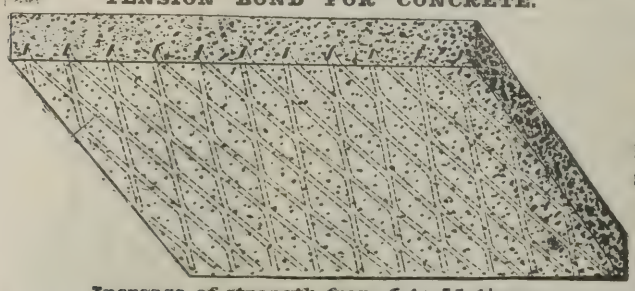
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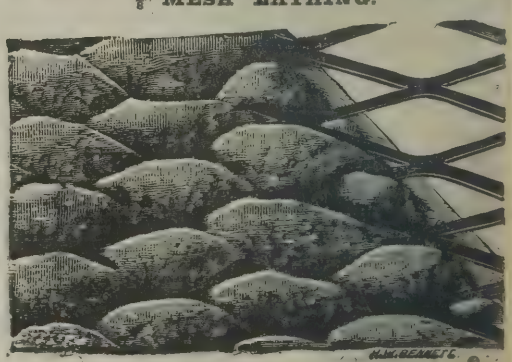
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mental borders. The walls are of a pale terra-cotta colour, and have a frieze of running scroll and cartouches in greys, greens and browns, on a saffron-yellow ground. Round the windows on the first floor is a painted architrave border, and over them is a treatment of festoons. The gallery front has an ornament of scrolls and festoons of a subdued green ground, the mouldings enriched in colour and gold. The windows on the ground floor are treated with an architrave border, and are surmounted by cartouches. There are stained-glass windows, glazed with cathedral glass, having the lunettes filled in with ornament, and with an ornamental border of Renaissance design. The glass has a light silvery effect, and the ornament is in golden yellow, shaded with silver-grey. Electricity is employed for the lighting of the interior.

METROPOLITAN TABERNACLE.

THE rebuilding committee in their report state that Messrs. Searle & Hayes, architects, of Ludgate Hill, were called in by the trustees to assist in connection with the fire claims, and had successfully negotiated with the insurance offices for the payment of the full amount of the policies—in all, 22,000*l.* After due deliberation the committee decided to entrust the preparation of plans and the supervision of the work to this firm. Messrs. Higgs & Hill, Limited, were then commissioned to prepare the basement for public worship in accordance with the unanimous vote of the church, and the committee are glad to report that the work is being carried out in the most efficient manner. It is hoped that the basement will be ready for occupation in November.

In deliberating upon the several schemes for rebuilding the tabernacle, the committee have given prominence to the following important considerations :—

1. That the building must worthily perpetuate the memory of the founder.

2. That it must meet the requirements of modern times and be suitable for society anniversaries as well as the regular services of the Sabbath.

3. That any scheme adopted must give effect to the pastor's suggestion that he and his hearers be brought into closer proximity with each other.

Briefly summarised, the scheme adopted comprises the following :—The portico and walls left by the fire are retained, and will be repaired. The construction will, as far as possible, be fireproof, much of the material that was previously wood being replaced by iron. The auditorium will be of the same width as before, but the length will be reduced to the extent of one bay, which is equal to about 13 feet 6 inches. This reduced length, while it enables the pastor to get nearer to the audience, and, as the committee believe, improves the proportions of the building, also gives opportunity to add to the number and size of the vestries, and to provide commodious baptizing-rooms. The committee have not found it either necessary or advisable to omit the upper gallery. The total seating capacity will be reduced by about 1,000. The heating will be by means of radiators. There will be electric light throughout, with reserve gas supply in the roof and at the entrances, in case of accident. The seats will be more commodious than in the old building, and the aisles will be wider. The exits will be improved, and the committee are negotiating for the hire of a narrow strip of land at the north side of the tabernacle in order to widen the outside passage.

The working drawings for the whole of the structure have now been prepared, and the architects will at once proceed to take out the quantities. Several weeks will, however, elapse before the committee are prepared to invite tenders.

FRENCH CONVALESCENT HOME, KEMP TOWN.

THE French Convalescent Home in De Courcel Road, which was opened for public inspection last Friday and Saturday, is connected with the French Hospital, Shaftesbury Avenue, London, and will be conducted by the Sisters of the Sacred Heart.

The building, seen from the outside, has a very pleasant appearance. It is built of red brick, which gives it a very warm and cosy appearance, while the large and numerous windows that break the surface of its walls give promise of excellent light and ventilation within. The rear of the building, which faces the sea, is separated from the highway by a garden, which is still in course of arrangement. The interior of the building is an excellent study for the philanthropist, for it combines the two extremes of the greatest comfort and the greatest simplicity. Electric lighting is to be found in every room, bathrooms are on every floor, the beds have castors with rubber tyres, hot and cold water taps are to be found in every bedroom, and the whole building is warmed by hot-water pipes.

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In the basement are the kitchen, two large sitting-rooms for the use of the men and women respectively, a dining-room, the Sisters' refectory, a pantry, wine-cellar, and a man-servant's room. The kitchen, which is a model of neatness, is fitted with a large gas cooking range, which will cook the dinners of the whole of the thirty-two inmates and of the staff of Sisters and servants. The two sitting-rooms are simply furnished, but have a pleasant outlook on the garden at the seaward side, the south wall of each room being almost entirely cut away to make room for the large French windows. On the next floor is the entrance hall, the lady superior's parlour, the doctor's sitting-room, a small chapel and bedrooms for the old people. The chapel is a small room on the eastern side of the building. A prettily flower-decorated altar, bearing a small crucifix, has been erected in front of a recess, lit by a red-stained window. At the end of the corridor on this floor is the isolation-room for any case of infectious disease. The old men's and old women's bedrooms each contain a large wardrobe, while an easily-moved locker stands by the side of each bed. The women's room also looks out over the sea, and the windows open on a stone balcony.

On the third floor are the lady superior's and doctor's bedrooms, rooms for the convalescent men and women, and the sisters' suite of rooms. The bedrooms are almost identical with those on the lower floor. The top floor contains only the servants' bedrooms, a lumber-room and another bathroom. Altogether there are beds for thirty-two inmates, ten of which are for old women and six for old men.

ABBEY MANSIONS.

ON the 19th inst., under the dangerous structure clauses of the London Building Act of 1894 and the Amendment Act of 1898, a summons was heard before Mr. Marsham, at the Westminster Police Court, which was addressed to the owners of the building known as Abbey Mansions (North Block), requiring them to take down the cracked and defective portions of the stonework of the angle turret at the corner of Victoria Street and Orchard Street Mr. F. F. Daldy, instructed by Mr. Seager Berry, appeared for the London County Council, and Mr. Pollard defended.

Mr. Daldy said the building was now in a very dangerous state, and something must be done, though the County Council had been placed in a great difficulty by the previous decision of the Court—under appeal—that the building was vested in and in the occupation of the Crown. The County Council had been in communication with the Government, and Sir John Taylor, consulting engineer to the Commissioners of Works, would tell the Court the present position of affairs.

Mr. Marsham: Supposing it is Crown property, or vested in the Crown, do you say that a magistrate has no power?

Mr. Daldy: No, sir; it is exempt.

Mr. Marsham thought it a pity that what was necessary for the public safety could not be done at once, and the question of liability decided afterwards.

Mr. Daldy said that there had been a promise to strengthen the defective part of the building with steel bands, but only one band had been put up.

Mr. Pollock Marshall said that five steel bands would be in position in a few days. Mr. Pawley, the owner, while not admitting any obligation, was doing everything he could.

Mr. D. Drury, district surveyor, called by the prosecution to testify as to the present condition of the building, said that the cracks in the brickwork were widening. He considered that the stonework of the turret was moving and the cracks all developing. The indications showed the possibility of a very serious accident. On September 14 there was a piece of stone nearly falling from the front of the building.

Mr. Daldy: In your judgment is it necessary for the safety of the public that this building should be shored up at once?

Witness: I certainly think so. The cracks have extended considerably since the 19th. I think the second floor of the building is in a very critical condition.

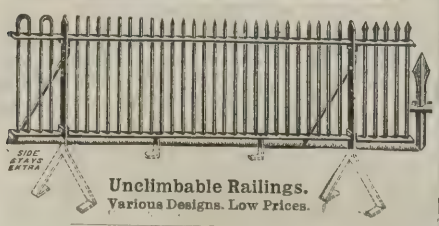
Mr. Daldy: Assuming that five steel bands are put up, and taking into account what you have seen, would you be satisfied with the bands?—After my inspection this morning I am of opinion that the steel bands would not suffice.

Cross-examined, Mr. Drury said that during the last few days he had detected a number of fresh cracks in the stonework.

Sir John Taylor, architect to Her Majesty's Office of Works, said he had nothing whatever to do with the construction of the building, his advice being given only on sketch plans as to accommodation which would be sufficient for certain public

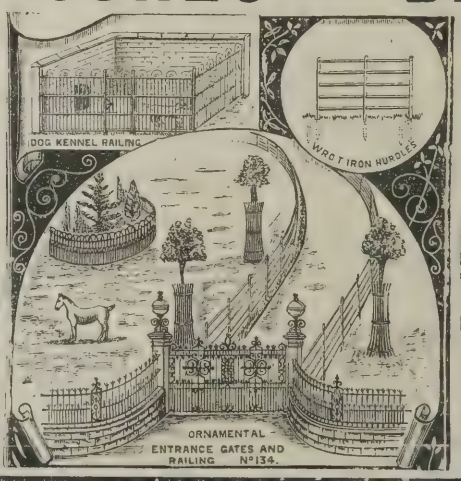
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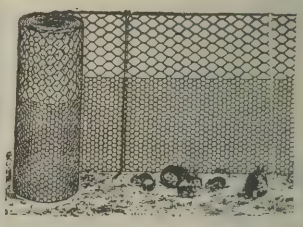


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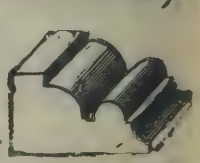


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departments. On August 3 last witness made an official inspection of the building, and seeing defects and fractures in the walls, he refused to give a certificate for the Government to take it over. He thought it unsafe for habitation, as unquestionably there was a settlement. Mr. Pollard denied this. He said that there was no trace of subsidence, and the alarming reports in the Press which had been circulated to that effect were entirely devoid of truth. Sir John Taylor said the Government had repudiated the agreement to take over the building. Mr. Pollard said that there was an action pending for specific performance. His contention was that precisely the same circumstances existed as when the Court before decided that there was no power to make an order. Mr. Marsham suggested that the differences between the district surveyor and the defendant's architect should be referred to the immediate arbitration of a well-known professional man.

Counsel complained of the sensational course of the County Council in getting the police to stop all traffic in Victoria Street.

The Magistrate decided to inspect the building with experts, who might agree as to what was immediately required for the public safety.

On Friday last the superintending architect of the County Council, on the further report of Mr. Drury, surveyor, caused a fresh notice to be served on the defendant to take down the alleged defective stonework between the first and second floor windows. Mr. Pollard complained of this action as a breach of faith, and of the fair understanding which was arrived at. At the previous proceedings the district surveyor had tried to get in other matters besides the turret, but his worship confined the reference to the arbitrator (Mr. Clifton) to the matter specified in the summons. If the owner permitted the reference to be enlarged he might be fired at in every direction by the County Council. Sooner than have these constant attacks and changes of front on the part of the Council, Mr. Pawley would ask for the decision of the Court on the legal question, his worship having decided in the previous proceedings that a physical occupation was necessary and that the agreement produced showed that the place was vested in the Crown. Mr. Seager Berry, for the Council, reminded the Court that Mr. Drury had already spoken of the cracks which he noticed after his report on which the summons issued. The County Council were perfectly ready to abide by the reference agreed upon by the Court, but the district surveyor, as a public official, would not take the responsibility for what he considered to be a defective building. It might be excess of caution, but he had served a fresh notice for what he thought was a fresh defect. This was not the subject of a summons at present. Mr. Marsham inquired what were the signs of alteration since the 19th inst. Mr. Drury replied that the cracks had widened. He was of opinion that they had opened since Saturday. Mr. Pollard said it was all very well to make this assertion. In fairness he demanded that the architect for the owner should be sworn and give his version of things. Mr. J. H. Goodland, architect, then tendered himself as a witness, and swore that there was no danger to the public whatever in respect of the building. The only changes which were noticeable were due to the vibration caused by inserting the strengthening steel bands, three of which were now in position. Mr. Berry said he would not cross-examine, as the arbitrator would report. Mr. Marsham adjourned the summons for three weeks, deciding that the arbitrator must report in accordance with the terms of the written agreement signed for the parties in Court.

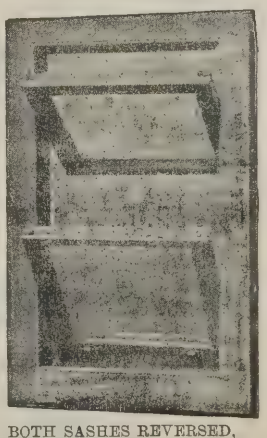
The solicitor to Mr. Pawley, the owner and architect, and Mr. Rickard, the builder, has stated in the *Times* that his clients are doing, and will do, everything necessary to make the part of the buildings in which cracks have appeared absolutely secure.

FIRE EXTINCTION.

ON Saturday last an immense crowd witnessed a trial of the American combination chemical fire-engine and hose-reel, which for the past few days has been on view at the Police Fire Brigade headquarters, Brighton. Members of brigades from a wide radius had been invited. The test was a very severe one, especially as the apparatus is not so much designed to cope with great and well-established conflagrations, as by rapidity of getting to work, to check and extinguish them at the start. A wooden house some 18 feet in height had been erected on the Level, Brighton, with glass windows and open door, with heaps of shavings piled round the sides, and the frame thickly smeared with tar. So combustible, indeed, were the materials, that when Alderman Lowther, representing the chairman of the watch committee, had given the signal to light up, he and hundreds of people who had crowded near had to run almost for their lives, so sudden and fierce was the outbreak. Fanned by a north-easterly breeze, the flames spread almost instantly over the whole structure, and a sheet of flame rose that would have done credit to the best of the Jubilee beacons. A tele-

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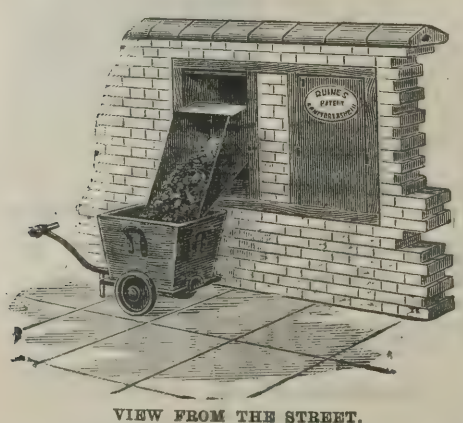
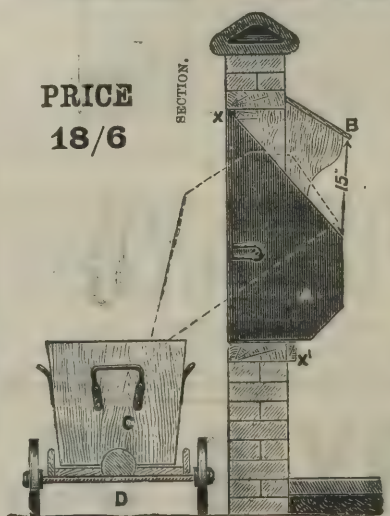
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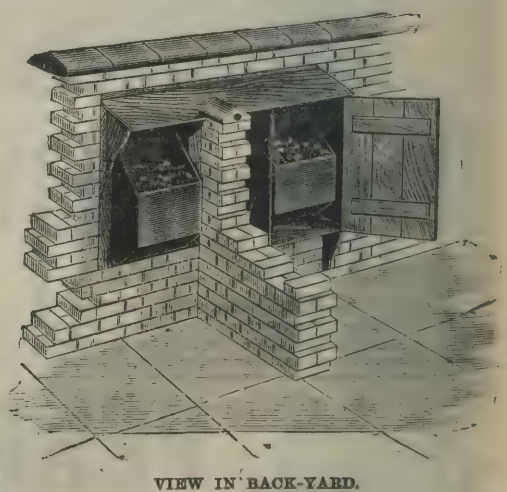
phonic message was sent to headquarters, and the engine was quickly horsed and on its way, arriving on the Level within three minutes. At the south end the ordinary hose was paid out and attached to the hydrant, while the engine rushed on to the fire, and Chief Engineer Wheatley, protected by the Vajen-Bader patent smoke helmet, got to work with the chemical jet. The stream of liquid seemed to have instant effect on the blazing mass, and on a portion of the structure the fire was perceptibly deadened. There was, then, however, practically nothing to save, the charred woodwork collapsed like a pack of cards, and the house was as nearly burnt out as possible. The smart way in which the apparatus was used was generally recognised, and it was felt that the test of its capabilities had hardly been a fair one. The structure was altogether of too flimsy a character, and by the time the engine arrived, all the steamers and manuals in the county would hardly have made much difference. So fierce was the heat that Chief Engineer Wheatley, though wearing thick gloves, was somewhat severely scorched about the hands. Fortunately the helmet protected his face and head. To avoid misconception, it may be mentioned that this chemical engine is no novelty. It has been in use for some thirty years, and is now found in the chief cities of America, while Liverpool has recently adopted the system. The engines are in many types, including self-propellers of immense power. From the Level the firemen proceeded to an arch at Duke's Mound, where some interesting experiments were carried out with the Vajen-Bader smoke helmet. Shavings, oil waste, sawdust, tobacco paper, &c., were burnt until the air grew so thick that no one could possibly breathe in the arch without some such apparatus. With this helmet, however, several persons went in, and stopped for minutes, feeling quite comfortable in the reeking and poisonous atmosphere.

A YEAR'S BUILDING IN GLASGOW.

THE Glasgow Lord Dean of Guild has delivered the annual statement on the growth of the city. He said :—Before taking up our ordinary work I propose, as has been the custom, to refer briefly to the character of the work which has passed through the Dean of Guild Court during last year—that is, the year ending August 1. Last September, in performing the same duty, I referred to the year that had then passed as one of exceptional activity, but this year had again outstripped it, 649 linings having been granted at a valuation of 2,106,760*l.*, as against 676 linings valued at 1,851,005*l.* Again, as in previous years, the great bulk of the work had been in one, two and three-room tenements—chiefly two-room tenements—the figures having been 855, 3,367 and 856 respectively, as compared with 811, 2,755 and 972 last year. But there has also been a marked increase in five and six rooms and larger houses, the figures having been 202 and 228, as compared with only 56 and 71, the average of the last ten years. In commenting on warehouses and shops last year I described the year as a record one, but this year has just beaten it with 136 linings valued at 489,080*l.*, against 146 linings of valuation 486,490*l.* One very noticeable feature in comparing the work of recent years has been the gradual increase in the average value of the linings passed. Ten years ago, taking an average of five years ending 1890, the value per lining was 1,850*l.* In the year under review it was 3,240*l.*, as compared with last year 2,740*l.*, and for the last five years 2,400*l.* The increase has been steady and continuous, the tendency having been to build larger ranges of tenements and larger and larger warehouses. Last year, in order to show the progressive movement of Glasgow buildings, I went back for twenty-five years, dividing them, for the purpose of comparison, into quinquennial periods. Adopting the same plan, and commencing with the period 1873-78, the amount of the linings passed was 7,606,776*l.* This was the period of inflation so often referred to in discussing Glasgow progress, and which, as we all know, was followed by one of depression and reaction. In 1879-83 the figures fell to 2,068,673*l.*, the lowest point having been touched in 1881. In the period 1884-88 the improvement continued, the figures reaching 2,255,619*l.*, and in the next period, 1889-93, it was still more marked, the figures rising to 3,982,940*l.* But the last period 1894-98 has been one of leaps and bounds, the total having been no less than 7,990,845*l.*, of which, as before-mentioned, 2,106,760*l.* belongs to this year just passed, the average of the 25 years having been only 955,000*l.* Perhaps, however, a more distinct idea of Glasgow's extension is conveyed to the mind by the length of new streets. The year just passed has been a record one in this matter, nearly six miles of new streets having been sanctioned by this Court. For the 25 years the mileage has been 41½, or an average of only two miles, but this includes the period of depression. Before concluding, I would say a few words on the work of the Court. Last year we had some discussion as to the best means of simplifying and accelerating the increasing work of the

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Court. The conclusion arrived at has, I think, proved satisfactory, namely, that plans should be as complete as possible before coming up for final approval. This is the object of the preliminary meeting of the liners on Tuesday for the examination of the plans. There is no reason why the faults then ascertained and pointed out should not be put right on the Wednesday. It seems to me that if a petitioner does not avail himself of the opportunity so afforded, he cannot be very urgent, and so there can be no great hardship in delaying for a fortnight. At any rate it is not fair to the master of works to expect him to go into details here, nor is it fair to the Court nor the agents who are kept waiting, that time should be taken up in discussing them, and therefore I think that plans not in order should be at once put back. I am glad to acknowledge that the agents have generally co-operated in this matter, and I must express my thanks for the assistance given. I must also acknowledge the good work done by the liners, representatives of the merchants and trades' house, whose regular attendance and careful examination of the plans have helped to expedite matters. To Mr. Whyte our thanks are especially due, for on him has fallen the brunt of the increased business, and also to Professor Moody Stuart, who has had to advise us on some difficult points in connection with the provisions of the Buildings Act.

SIR TATTON SYKES AND HIS CHURCHES.

A GREAT many people have never heard of Sledmere, says the *Leeds Mercury*, which it may be necessary therefore to state is a somewhat out-of-the-way straggling village somewhere midway 'twixt Malton and Driffield. But if things go on in this secluded hamlet away up over the chalk lanes yonder as they have been going on for the past month or two popular interest in Sledmere will doubtless be aroused, and the hitherto unsuspected village develop into the battle-ground of a pretty quarrel, the parties to which are Sir Tatton Sykes on the one hand and the vicar of Sledmere on the other. Nominally, the population of Sledmere are on the side of the squire, but apparently for very much the same reasons which actuate the peasantry of Russia in their allegiance to that particular form of government to which they have grown wearily accustomed. Practically the inhabitants are inclined to give their sympathies to the vicar. For the purpose of trying to ascertain the precise causes which have led to so dire a condition of social upheaval in a spot where "only man is vile," a representative of the *Leeds Mercury* visited Sledmere on Saturday. He found it half asleep and obviously overcome by the extraordinary power of the sun. There wasn't a soul about on the dusty roads, save a tramp, who admitted that a request for twopence to buy a "crust of bread" was only another way of asking for a glass of beer. The first indication of anything remarkable was one which could not fail to impress. On the waste grassland adjoining the high road was a stagnant pool. Hard by, and in a state approaching completion, was a handsome monument in white stone, of elegant design and proportions, and richly hewn. The hewing was still in progress, two men being engaged in the pastime. Locally, this beautiful piece of work, which is apparently useless and utterly out of place, is known as "Sykes's Folly." It is, indeed, an example of incomprehensible ideas; and the plain man of to-day, gifted with but an ounce of common sense, would have little hesitation in characterising its erection as a stupendous piece of folly and a sad waste of money. It is understood that the primary reason for the work being undertaken was that the men engaged on the church near by had completed their task, and it was a pity they should not have something else to occupy their talents and attention in so desirable an Arcadian spot as Sledmere. Of course, the natural thing to give them to do, under these unhappy circumstances, was the erection of an exact copy of the Queen Eleanor's Cross at Northampton, which at Northampton is an acquisition of historical interest, but which at Sledmere is a ridiculous attempt at beautifying surroundings which are sufficiently beautiful.

But to come to the question which is agitating all Sledmere to-day. Five years ago all was peace and happiness. But, in a moment of caprice, which some term generosity, Sir Tatton Sykes, whose country seat is in the village itself, took it into his head to demolish the old church, which had stood there for centuries and become endeared, as all such churches do, to the inhabitants as the scene of their forefathers' joys and sorrows, and the natural centre about which Sledmere grew up. The present vicar, the Rev. H. de Romestin, describes the incident himself. He says:—"Sir Tatton Sykes, *motu proprio*, without obtaining the consent of his fellow-parishioners, or a faculty, destroyed, with the exception of the tower, the old church, which was in perfectly good repair, and, I am told, very comfortable and well furnished. This action was absolutely illegal, and all that has been done since has been in the nature of trespass, the ground having been consecrated. Well, what

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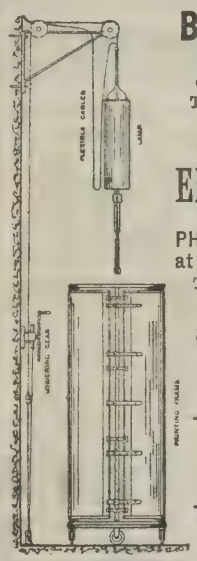
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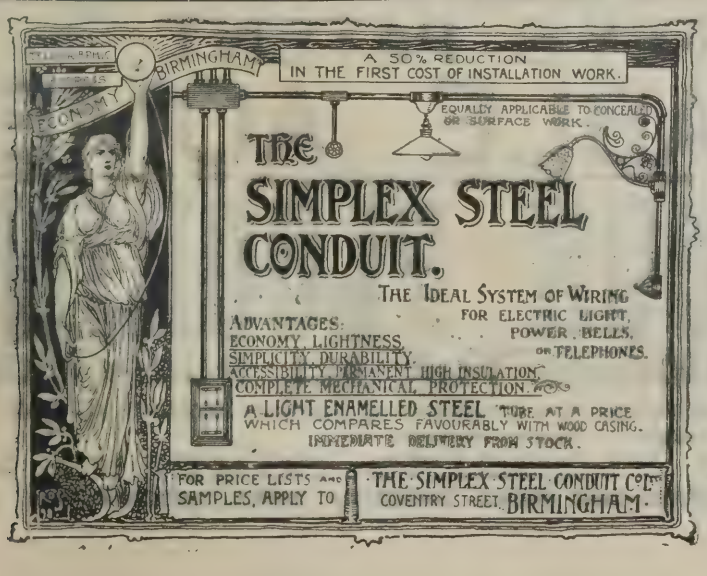
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has been done since? The new church was built, and plenty of time taken over it. For five years the parishioners were without a church, but at length the new building was consecrated. It was a very beautiful church. The work executed was of the best procurable; the carving of the oak pews, the screens, the reredos and the organ case was marvellously beautiful and complicated; all that money could do, apparently, was done. Sir Tatton took a great interest in his gift, and journeyed to Peterborough to see the magnificent chancel screen, with its five figures and cross surmounting. He was, it would seem, well pleased with it, and it was therefore erected in the church. It had not been there long, ere, early one miserably misty morning, Sir Tatton went down to the church and ordered its practical destruction. The magnificent cross and the figures were taken away, and a great part of the arch itself removed. All this, to the waste of thousands of pounds, and to the consternation of the architect. It would have been in my power to intervene, but as the work had been begun before my arrival, I kept to my resolution of not interfering."

There were six old Italian candlesticks in the old church, and everybody who knows anything at all about Church matters knows that these ought to be in the church to-day. But they are not. Sanction has never been given for their removal, but Sir Tatton Sykes has been understood to say that "the Archbishop might take proceedings against him if he liked, and that having, as he thought, established his right by making what alterations he pleased in various churches for many years past, he was not going to break the tradition." After this, it is easy to understand that sanction or sacrilege is a mere detail to Sir Tatton Sykes. He built the church, and the church is therefore his, it would appear. He declares that things shall be in it as he wishes them to be; and certainly, so far, he has successfully pursued his policy, and given full play to his caprices. The candlesticks are gone, nobody knows where. Sir Tatton has presented two standard candlesticks in brass, which stand near the altar, but he absolutely declines to allow any candles to be placed in them. One marvels why, there being an organ, he allows one note to be pressed, one blow of the bellows to be forced. There is no knowing, of course, what the future may do to modify his views as to the propriety of a church organ producing sound, and in the meantime one may well conjecture what the worthy baronet's decision will be in regard to the chains suspended from the roof of the church, and which dangle down with an air of dejected indifference as if they wondered why on earth they had ever been placed there. It is quite obvious that these chains were originally intended for the suspension of lamps, but up to the moment of writing there have been no indications of any lamps being forthcoming. There were some old lamps, of course, in the demolished church, but, as with the candlesticks, their exact whereabouts remains a matter clouded in the densest mystery. So, indeed, does the church itself after dusk, for, in consequence of the fact that scientists have as yet proved unequal to the solution of the problem as to how to produce light from a mere chain, Sledmere Church at eventide is wrapped in darkness. The parishioners have therefore regretfully to forego their evening service, and this is one of the many sore points that the existing state of things has produced. There are two side altars in the church, and these were stripped some little while since, by order, it is said, of Sir Tatton, on the ground that the slabs were such admirable specimens of fossils. There are no churchwardens at Sledmere. The vicar stands single-handed, resolved to fight every inch of the ground.

Interviewed on Saturday, the Rev. H. de Romestin stated that until quite recently Sir Tatton Sykes and he were on the most friendly terms. He had discussed with the baronet the latter's wishes in regard to the church, and assured him that he would use his influence with the Archbishop in regard to them. Sir Tatton, however, chose to discontinue his friendly relationship with the vicar, through no fault, it would seem, of Mr. de Romestin. The usual supplies of fruit and vegetables to the vicarage from Sir Tatton's gardens suddenly stopped one day, as did the water-supply itself for a time. Mr. de Romestin assured our representative that the state of things existing between himself and Sir Tatton Sykes was not in any way due to personal animosity in any shape or form. "I can only attribute it," said Mr. de Romestin, "to his extraordinary eccentricity and self-will. He is a man with whom it is useless and impossible to argue." The vicar added that he had laid the case before the Archbishop, who, however, had arranged nothing so far, as he was away from home. Mr. de Romestin was hoping to see his Grace during the coming week, and something might definitely be resolved upon. The vicar was of the opinion that only an injunction would restrain Sir Tatton Sykes's interference with the rights of the proper custodian of Sledmere Church, but whether the application would be made by the Archbishop or by himself (the vicar) was a question upon which nothing had as yet been decided. Sir Tatton, it further appeared, has had duplicate keys fitted to the church, and insists on the edifice being kept open day and night. True,

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there is nothing much left for the sacrilegious thief who might chance to wander Sledmerewards to lay his hands upon, but, on the other hand, the church is not a branch of Dr. Barnardo's philanthropic institutions. Sir Tatton Sykes, according to the impression created in his own parish, would appear to be profoundly convinced that the expenditure of his own money upon the church, and the fact that it stands in his own park, gives him the right to do just exactly what he pleases with the building, without regard to either law or any person's feelings. Whereas, as a matter of fact, it does nothing of the kind.

Questioned as to why there were no churchwardens at Sledmere, Mr. de Romestin explained that nobody cared to serve, for obvious reasons. There has been no churchwarden in the village for years, and the people have grown rather conservative as regards innovations of this sort. Or so it would appear. Our representative further gathered that in the times of the old church the service was of the extreme ritualistic order—almost Romish, in fact—whereas to-day it is the reverse. In reply to a question, Mr. de Romestin explained that that could not be accounted responsible for Sir Tatton's attitude, as Sir Tatton was, as every one in the parish knew, a good Protestant. There was, said the vicar, absolutely no reason, as far as he was able to ascertain, for Sir Tatton Sykes's conduct in regard to the church.

A visit to the church itself bears out Mr. de Romestin's statement that it is "almost entirely bare, and has an unfinished and desolate appearance, very painful to those who come to visit it." There is nothing inside to rob the church, beautiful as it is, of its cold and comfortless aspect; whilst outside an unnecessary builder's yard and sheds almost touch the church, and are naturally wholly out of harmony with the surroundings. Inside, the pews provided are wholly insufficient for the requirements of the parish, and barely fill the nave. Hence the vicar has had to resort to chairs, and these Sir Tatton objects to. Indeed, he has already had some of them removed. Outside there is a boundaryless churchyard, the boundaries having been removed some while since. "I am doing no more," wrote Mr. de Romestin quite recently, "than (very unwillingly) resisting a pretension to treat a parish church as private property. I am defending the rights of the parishioners of the Church at large and of incumbents generally. So soon as Sir Tatton Sykes recognises that other people have rights all difficulties will end." Visitors to Sledmere make remarks about the church and its history, and Mr. de Romestin writes :—"I wish that their remarks were more audible."

ELECTRIC MOTORS AND SMALL INDUSTRIAL PURPOSES.*

THE electric motor is rapidly becoming the most favoured medium for the transformation and transmission of energy for all industrial operations whether on a large or a small scale. This is due to the paramount advantages it possesses over any other method of utilising potential energy. These advantages are well known to electrical engineers, but indifferently appreciated by a large number of mechanical engineers, and almost unknown by the general manufacturer and tradesman. To the last of these three, the general manufacturer and tradesman who is using machinery driven at present by steam or water-power, the electric motor must in the days to come prove of exceptional value, and yet, strangely enough, very little effort has hitherto been made either by the motor-maker or by the managers of electricity supply undertakings to open up this very wide and lucrative field of enterprise. There is no necessity to enumerate here the many excellent and distinctive features which the electric motor possesses. The intention in this paper is rather to consider the reasons why its application up to the present time has been confined to a few special trades and manufactures. We are familiar, for instance, with electrically driven pumps, electric hoists and cranes, electrically driven machine tools, and electric power transmission in works—cases in which the generation, transformation and application occur practically under one roof. Many manufacturers and constructional engineers, wisely and readily incurring additional capital outlay with the object of securing more economical production, have adopted electric motors, which do not entail the use of endless and power-absorbing shafting and countershafting. As yet, however, it cannot be said that the electric motor is in general use, or scarcely other than just past the threshold of its future domain.

The smaller producer and tradesman, to whom motive power in some form or other is essential, and who feels more acutely than his larger confrère the effects of competition, has, in the great majority of cases, still to put up with very much more cumbersome and very much less efficient means of power production. Almost every town with any pretensions to size and importance has its own large staple industries as well as many

* Abstract of paper read before the Section of Mechanical Science at the meeting of the British Association at Bristol, by Alfred H. Gibbings, M.I.E.E.

THE WELL-KNOWN FRIEZE,
ENTITLED
"THE CORN FIELD."
1. Ploughing. | 3. Mowing.
2. Harrowing. | 4. Carting.
5. The Products of the Corn Field.
Length, Fourteen Feet Seven Inches by Fifteen Inches deep.
A SPLENDID EXAMPLE OF COLOUR-WORK IN PERMANENT INK PHOTO, BY
M. PAUL ALBERT BAUDOIN.
This magnificent Illustration was presented to the Subscribers to "The Architect" in 1886. A few Proofs were taken, which immediately became out of print.

OPINIONS OF THE PRESS.

"We are not surprised to hear that there has been a great demand for the beautiful reproductions of the well-known frieze by M. Paul Albert Baudoin, entitled 'The Corn Field.' The plates have been reproduced by subscription at half a guinea the set, and so great has been their success that a second edition is being issued."—THE LADY'S PICTORIAL.

"They are beautifully done in colours by the permanent ink photo process, and form a very artistic and pleasing set at the extremely moderate price of half a guinea."—THE STAGE.

"The well-known frieze entitled 'The Corn Field,' which is a splendid example of colour-work in permanent ink photo, by M. Paul Albert Baudoin, is to be reproduced by subscription of half a guinea a set. They are exceedingly artistic, and would grace the walls of any house."—THE GENTLEWOMAN.

AND NUMEROUS OTHERS.

In consequence of the almost daily demand for these Plates, they have been reproduced by Subscription at Half a Guinea the Set, and are now ready for issuing.

P. A. GILBERT WOOD, 175 STRAND, W.C.

minor industries and businesses, requiring the use of other power than hand-power. There are also some handicrafts which are at present unavoidably confined to hand-power, because steam, gas, oil and hydraulic power are each and all inapplicable. There can be little doubt that the electric motor would be welcomed and readily adopted in these cases if only its simplicity and adaptability were known and understood.

The chief obstacle to the more rapid adoption of electric-motive power, especially in the case of small tradesmen, throughout the country is undoubtedly the want of capital to purchase the necessary motor; but where the power to purchase exists, the buyer will probably have little or no experience or knowledge of electrical matters to guide him in his purchase; if his means are at all limited he will be tempted to venture on a cheap line, and become the dupe of those who simply make to sell. The solution of these difficulties is that the owners of electricity supply undertakings, whether a public company, municipality or other local authority, should themselves purchase good, reliable motors, and let them out on hire. Antecedently this scheme may appear a sort of parental régime, but it is suited to present circumstances at any rate, and experience proves it to work well. Unfortunately, all local authorities have not got powers to borrow money for this purpose, although it appears from the Electric Lighting and Public Health Acts that borrowing powers may be granted by the Local Government Board for works of a permanent nature. Electric motors do not yet come within that category, although gas-stoves do, a legal decision having been given in their case. All future municipal Parliamentary bills should therefore contain clauses which would confer such powers and secure freedom of action in this respect. In Bradford a rental charge of 10 per cent. upon the initial cost of each motor has been found to be amply sufficient. This is made up of 3 per cent. for interest, 3 per cent. for sinking fund and 4 per cent. for depreciation and contingent expenses. The Bradford Corporation inaugurated their scheme of hiring (in which also arc lamps are included on similar terms) in November, 1896, and it was found that the increase in electricity supplied for motive power in 1896, in which year the hire system had been in operation for two months only, was 19,053 units; in 1897 the increased sale over 1896 was 52,204 units; and in the present year the increase is likely to be 62,834—or a sale of 180,000 units, or 53 per cent. over 1897.

Hitherto the supply has been confined to small power uses—such as cranes, hoists, fans, pumping, aerated water making, electric advertisement signs and similar purposes. During the last month, however, so popular has the electric motor become that applications have been received from a large spinning and weaving firm, two foundries for blower purposes, an engineering shop requiring 50 horse-power and a saw mill requiring about 20 horse-power. I referred a moment or two ago to the want of confidence of the small power user in the electric motor; that confidence, however, is soon gained. It is gratifying to be able to state that several consumers in Bradford who originally applied on the hire system, and at the time with much trepidation and many inquiries, have since decided to purchase the motors outright.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

19345. Frederick Warren, for "Improvements in or relating to chimney cowls and the like."

19457. Alfred John Loftus, for "An improved cement for securing wall-facing tiles and for like purposes."

19465. Valdemar Kjeldsen, for "A furnace or kiln for calcining cement materials."

19523. Reinhold Brunk, for "Process for manufacturing bricks, tiles, &c., from the refuse of alkali works."

19577. Jos. Guthlein, for "Improvements in scaffolding."

19592. Hermann Appel, for "Improvement in soot-traps for chimney flues."

19633. Gustave Collantier, for "An improved coating material for decorating and building purposes."

19749. Robert Thomson, for "Improvements in columns and beams for structural purposes."

To Inventors.—Patents for Inventions, Trade-marks and Designs secured; every assistance given to inventors. Specialists in Building matters. Information free.—Messrs. Rayner & Co., Patent Agents, 37 Chancery Lane, London, W.C.

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"KELSEY" BECKENHAM

The Architect, Sept 30th 1898.

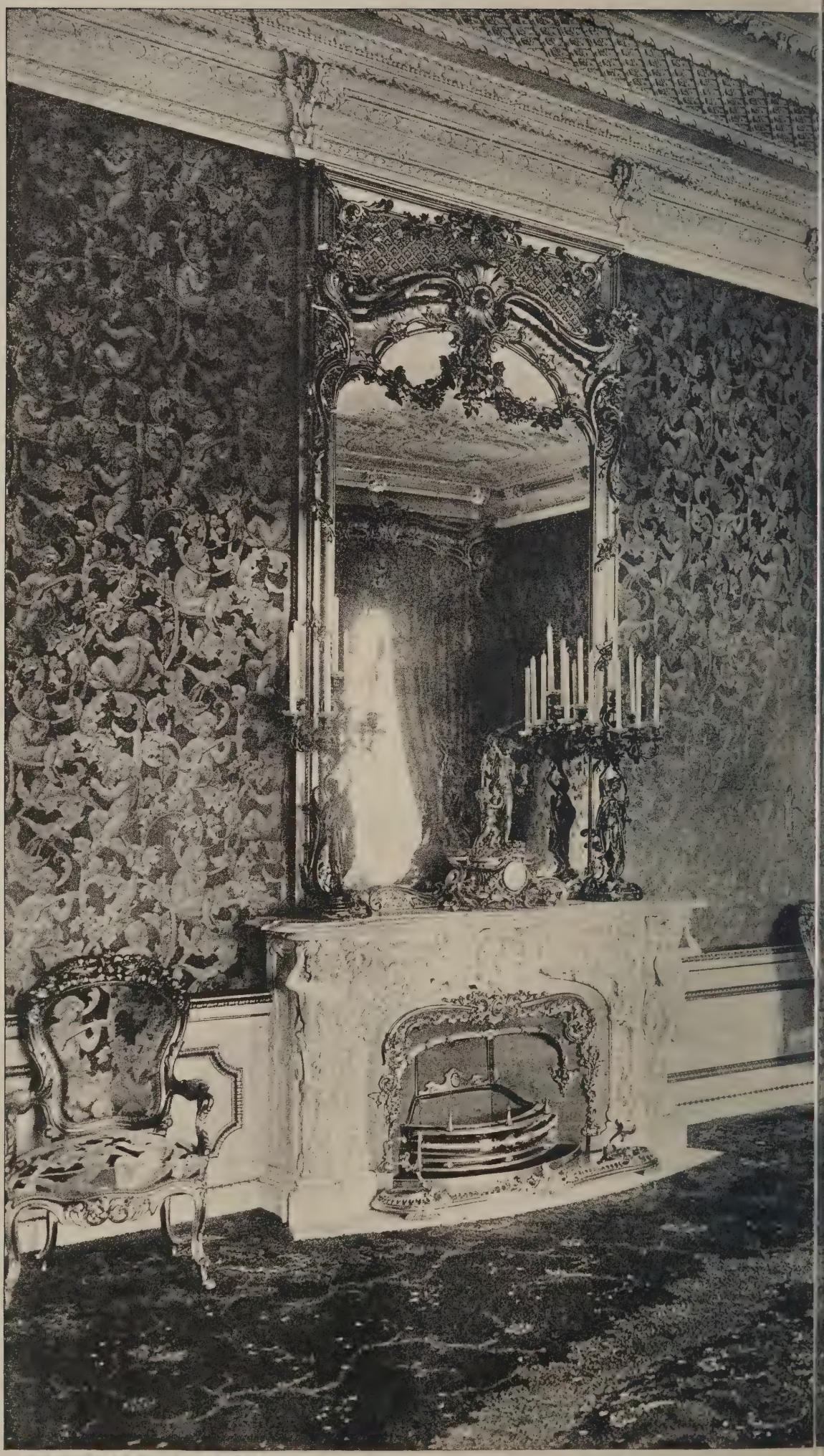




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CATHEDRAL SERIES, No. 168.—SOUTHWELL: DETAILS OF CARVING IN CHAPTER HOUSE.





g Room, The Hague.



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DRAWING ROOM: "KELSEY," BECKENHAM.

FRANCIS HOOPER, Architect.

The Architect.

THE WEEK.

On Wednesday the Duke of Westminster laid the foundation-stone and in that way inaugurated the restoration on a large scale of the parish church of Macclesfield. The old church was founded by the Queen of Edward I. in the year 1278, when Macclesfield was within the diocese of Lichfield and Coventry. There have, of course, been alterations and restorations since that time, but the consecration mark—a cross cut in stone—may still be seen near the entrance to the Legh chapel, where part of the original south porch is preserved. The church has seen troublous times. During the Reformation "it was despoiled of its costly ornaments, and the splendid gold and silver plate and other valuables with which it was enriched were given over to Henry VIII." Then, again, when Macclesfield was besieged by the Parliamentarians during the Civil War, the spire of the church was battered by the cannon of the besiegers under the command of Sir William Brereton. The oldest portions of the church are the tower and the Legh and Savage chapels, so named after two ancient Macclesfield families. The tower (the cost of the restoration of which is being borne by Mr. J. Kershaw, of Macclesfield), will retain its characteristic features and will simply be refaced with new stone. The two chapels alluded to are both eventually to be restored, the former to be furnished as a baptistery, and the latter to be formed into a morning chapel. The remainder of the church is to be practically rebuilt, the cost of the work, which is to be carried out under the direction of Sir Arthur Blomfield, A.R.A., being estimated at something like 17,000*l.*

The first stage in the competition for the proposed Californian or Phœbe Hearst University is now passed. Out of the hundred plans submitted in competition, eleven were selected this week by the judges at Antwerp, and the authors will take part in a second struggle. In addition a sum of 1,200 dols. will be paid to each of them. New York has the lion's share of the success, for its representatives are Mr. J. H. Friedlander, Messrs. Howard & Cauldwell, Messrs. Howells, Stokes & Hornbostel, Messrs. Lord, Hewlett & Hull, and Mr. Whitney Warren, architects. Messrs. Despradelles & Codman hail from Boston. Three of the five successful European competitors belong to Paris, viz. MM. Barbaud & Banhain, M. E. Besnard and MM. Heraud & Eichmuller. M. Blunschli belongs to Zurich and M. Rudolf Dick to Vienna. The judges were M. J. L. Pascal, president, Dr. Paul Wallot, Mr. R. Norman Shaw, R.A., Mr. Walter Cook and Mr. J. B. Reinstein. It is expected some additional designs will be acquired. The adjudication in the second competition will be undertaken next June.

Henceforth architects in Quebec will have to be registered, as by an Act for the purpose the former conditions ceased to be legal in September. Upwards of 100 applications it is understood have been received from persons desiring to be registered and thereby be authorised to use the title "Architect." The Council of the Province of Quebec Association of Architects have been busily engaged of late with these and other matters relating to the operation of the new law. The annual meeting will be held towards the close of this month, when the Council will be able to explain the prospects of the profession under the new conditions.

The people of Southsea must expect to see the common presenting a less open appearance before long. Although it is supposed to be public, or rather borough, property, it belongs to the War Office. The Portsmouth Corporation, as the representatives of the town, have a sort of tenancy of the common, but subject to eviction whenever the exigencies of defence become pressing. An indication of what may have to be done hereafter on a more extensive scale was given this week. On Monday the roads and works committee of the Corporation received a notice from the military authorities announcing their intention to erect a building on the common. It was understood that an engine-house was contemplated, which rarely is a kind of building that would improve the appearance of a common. Something is to be done to mask the engine-house by means of mounds, and the planting of trees will probably be allowed. But Portsmouth holds too important a position as an aid to national defence to admit of a sacrifice of security to picturesqueness. The War Office should, however, endeavour to avoid making their engine-house an unsightly object.

The groynes which were lately constructed at Worthing appear to have done their work effectually. The watering-place was plagued with accumulations of weed which were not only costly to remove but were offensive to the majority of visitors. The shore is so flat, the tides were powerless against the nuisance. It was decided to construct long timber groynes rather light in character, but just sufficiently strong to withstand the waves. After seven months' experience of Mr. Case's system it is found there is a great diminution of the quantity of seaweed. What is done can only be considered as experimental. Mr. Case accordingly advises that the groynes should be extended at least another 400 feet, making them not less than 600 feet each. A depth of 5 feet of sand will then, in course of time, accumulate, burying the existing work. The groynes if carried well seaward can be spaced further apart. The sand would in course of time form a gentle slope which would make it more easy for seaweed to be carried by receding tides. The system proposed is economical, and it is said the long groynes do not cause any inconvenience to boats on such a coast.

From his position as a teacher in the Architectural Association Mr. F. R. Farrow is acquainted with the capabilities as well as with the needs of students of architecture. His "Specifications for Building Works" (D. Fourdrinier) is not like Donaldson's and other big volumes, made up of copies of specifications for particular works, but a succinct description of the items which should never be overlooked in the preparation of such documents. It does not aim at supplying model forms, which can be applied by a copying clerk's aid to particular works; it more resembles a collection of formulæ containing the pith of the subject, although occupying no more than a limited space. The beginner should not be content with using it as a directory for occasional reference; he should read the manual repeatedly until he is familiar with the contents. Then using it as a basis he can modify it according to the circumstances of practice. Mr. Farrow has obtained the aid of some specialists. This suggests that he does not profess to be omniscient, and in several places he reminds students to avoid all assumption of that quality. For instance, he says:—"Although the student might specify a certain wood as, say, Riga wainscot, he can hardly be expected to be able to determine by inspection alone whether what he specifies is being supplied." Again, it is said of ironmongery:—"It is of little use to specify the best quality or to attempt to define the quality, as this varies, by almost imperceptible gradations, from a very high standard to a very low one." Advice of this kind is not the least valuable part of the book, for it may induce the student to avoid the poising which is too common among practitioners. For many reasons the manual is, therefore, worthy of recommendation, and every architect who takes pupils should insist that they obtain copies.

The number of visitors to Chantilly, the Duc d'Aumale's gift to France, on the Thursdays and Sundays when it was open free during the past few months was 80,000. That was a large number for a first season. It is also supposed that the whole of the collections would not be visible. Next year an increased number may be anticipated. Many of the visitors were foreigners. There was also of late an increased number of visitors on those days when payment for admission was required. The château will be closed during the winter, but the beautiful park can be used by pedestrians on Thursdays and Sundays.

UNREST IN ARCHITECTURE.

A PERPETUAL subject for discussion at Church Congresses is found in the shortcomings of the age. Every year there is a revelation of human weaknesses, but a century hence we suppose speakers and listeners will find the varieties are not exhausted. This year our deficiencies, whether as clergy or as laymen, were ascribed to restlessness. According to Canon Bonney, "We had become more impulsive, emotional, at times almost hysterical; we swung from extreme to extreme; we were losing that sense of proportion, that sobriety of judgment and fixity of purpose which once distinguished us. Personal whims took the place of great principles, and the faddist and the fanatic were far more than ever before a power in the land. In a word, the Celtic element in our character was more dominant than it was half a century ago. We despised the path of inconspicuous duty, and extolled those who played to the gallery; we were impatient of any continuous thought or process of reasoning, and our mental stomach had now become so weak that its food must be minced up into paragraphs and seasoned with stimulating head-lines. Unrest, then, was to a large extent a disease of the nerves, fostered by the conditions under which many of us were compelled to pass our lives. It was a neurotic condition, which, though it could not be entirely cured, could be alleviated and improved if we had the courage to recognise facts, and to set ourselves to make the best of them."

But if we are restless we cannot claim to have introduced the weakness. There is nothing new under the sun, not even the neurotic condition. It is a phenomenon which has appeared from time to time, and as we look back it appears more like a harbinger of a better state of things than a disease. The Rev. Professor Gwatkin said that "One saw it in the age of Isaiah, when the Assyrian was breaking up the primæval kingdoms of Asia; and again in the times of Pericles, when the old beliefs of Athens were unsettled. One saw it on a great scale in our Lord's time, when the ancient world of nations was melting down into the Roman Empire; and not less clearly 400 years later, when the empire itself was dissolving into a new world of nations. The sixteenth century was profoundly stirred by the restoration of learning, the discovery of America, and the reformation of religion; and that again was an age of unrest. There was deep unrest in every age of change."

We suppose many people who heard the papers read at Bradford accepted them as if they resembled those read a week or two before at Bristol, and were descriptive of genuine discoveries. The reverend authors would not, we are sure, make any claim for originality. Anyone who attentively studied the buildings erected in England of late years would be enabled from them alone to conclude that the age was one of unrest. Architecture, like the drama, holds the mirror up to nature. It is impossible to force a particular style or manner of treatment into popularity unless the public are prepared for its reception. If Walter Scott had not acted as a pioneer we might still be placidly building churches and houses of an unromantic type, and be content with the belief that interminable rows of unvarying dulness were the necessary developments of Greek and Roman buildings under the influence of the mysterious law of evolution. A number of causes combined to bring the eighteenth century into favour, and what was more natural than to take up the style which was then the vogue in England? Modern Gothic could express restlessness to a marvellous extent, and was undoubtedly largely employed for that purpose, but as an exponent of a neurotic condition it could not approach the productions of Holland and Flanders. Therefore we patronise imitations, more or less exaggerated, of the buildings which once sheltered English exiles, and the Spielhäusen in which Matthew Prior and his companions were accustomed to pass the Sundays. Romance revived Gothic and "Queen Anne," and we must assume it will have its influence on whatever style is awaiting the Hour and the Man.

It will, however, be difficult to discover or devise a style which will be so well adapted to meet the needs of a restless age as the one which is now in its glory with us. Classic and Italian have been so often systematised, it is no wonder they are disliked by many because they are supposed to be capable of an almost mechanical reproduction by any one who is content to follow certain rules and proportions. On the other hand, there are critics who believe that fidelity to precedents is a sure means to attain perfection. "If Vanbrugh had borrowed from Vitruvius as happily as from Daucour," said Horace Walpole, "then Inigo Jones would not be the first architect of Britain." But although they may not be respected like doctrinal truths, the existence of canons of art is some check on license. On that account if more attention were given to Italian examples the Free Classic of Britain would possess less of that independence which is supposed to have made it picturesque, and brought it into relationship with Gothic. But as the Dutchmen cared more for the exercise of liberty than for systematising it, their architecture can be transformed without the risk of an allegation of offence against any written or printed law to be found in the archives of their academies.

It must be owned that we have shown more courage than was seen in Holland when treating forms that once were Italian. The buildings in that country appear sober to the modern spirit of restlessness. That cannot be said of the newest English efforts at adaptation. In the latter we seem to see the designer's intentions varying from minute to minute. His lines appear to be made up of the revolution of a point that he cannot without difficulty guide in one direction. If by custom a line or a plane is expected to indicate the shortest distance between the beginning and the termination, we are sure to find a roundabout course is adopted. Curved lines are substituted for those which commonly were straight and *vice versâ*. The unexpected is sure to be turning up a great many times in a modern building. The novelties are not always graceful or logical, but at least they save us from monotony. The process of varying which is supposed to have succeeded with the importations from Holland is being applied with no less zeal to old-fashioned English buildings. The builders who lived a couple of centuries ago did not know of the word "picturesque," and they made no frenzied attempts to display the qualities for which the word stands. They did not break up a roof into a great many smaller roofs for the sake of producing an effect on some of the passers-by. The expense of repairs was to them an obstacle to freakishness in dealing with the upper part of a building. There was no fear among old-fashioned builders of a wall on one plane. If projecting storeys were needed they took care to make the means plain by which they were combined with the lower storeys. The tendency is now growing to suggest that the various parts have each a sort of independence. This peculiarity is attained by the avoidance of the same colours. The tiles not only will differ in redness from the bricks, but the bricks on one part vary from those elsewhere in the building, as if a resemblance to patchwork were sought after. But the more marked the diversity the greater is the satisfaction which is felt by the public.

The wise men at Bradford who discoursed upon restlessness were unable to announce any specific for the malady. Even the so-called "quiet days" were declared by the Bishop of Manchester to bring no cure. His lordship went so far as to recommend absolute solitude among the moors and uncultivated regions as worth a trial, in the hope that a retreat there might have the same effect as a periodical refuge in the desert produced on the ancient Fathers. Who can say whether on return to the conditions of ordinary life the restless spirit would not be found to assert itself with more strength?

While men are disposed by their nature, for the time eing at least, to demand continuous novelties, it would be a dangerous undertaking for architects to try the experiment of converting them into an admiration for that repose which should always be a marked quality of a building. To many it seems incomprehensible that clients and others could have enjoyed the quietness which at one time prevailed in London. Certainly the monotony of long, unlovely streets like those of Pimlico is enough to compel people to adopt variety at any cost. But extremes of all kinds are detestable. It is possible to have quaintness, novelty, picturesqueness and what not without producing fantastic combinations that suggest an overthrow of the mind's balance. The taste of the public is now, however, in a state that only enjoys discordant melodies, and as such weaknesses grow it is difficult to say what is to come next.

It is certain, however, that the Church Congress, with the best intentions, cannot show how that quietude is to be attained which should display itself in buildings as well as in minor works. All that can be done apparently is to wait in hope for the reaction which is inevitable.

THE CRADLE OF A GREAT COLLEGE.

By John A. Randolph.

TWO miles from Rethel, which is an hour's rail from Rheims, lies the village of Sorbon, most picturesquely situated. The road goes through Rethel straight from the station, and as an intentional clue to strangers in quest of the village is, near the outskirts, called Rue Robert Sorbon. The road is bare, glaring and uphill for awhile, with a fine expanse of tolerably wooded spire and hamlet-dotted country to the left. At the top of the hill a pleasant change occurs, the road becoming a trifle shadier and downhill, bearing slightly to the left, and a fertile valley on both sides of the road. From the summit of the hill Sorbon can be seen nestling among the trees on the slopes in the offing, but the road from Rethel does not go direct to Sorbon. At a few yards from the bottom of the hill there are some good trees clustered together alongside the brooklet, close to where the bare road to Sorbon—an uphill walk thence of just over a mile—branches off to the right. Reaching the summit of this last uninteresting mile of shadeless road an exquisite landscape rewards the tired pedestrian.

Only a few steps away—barely 50 yards—the village lies practically hidden from the winding road by a miniature wood of noble trees, which shelter a small valley watered by the same stream mentioned above. Between the trees peeps of timber-framed dwellings, which would, in this country, be classed as unfit for human habitation, so picturesque and tumble-down are they, can be obtained. Two or three minutes walk, and the road to the church branches to the right, emerging from the wood on to a bit of rising ground.

Here is the church, with picturesque churchyard, guarded at the western entrance by a couple of magnificent elms rising at but few feet from the fourteenth-century west front of the sacred edifice, which is in good preservation. The window and the west door are the only traces, however, of Gothic in the church, though the quaint little spire, with its four-corner spirelets, is more Gothic in appearance than inspection of detail would seem to convey the impression of, as the spire lights are round-headed and the whole is slated. The north porch is the original wooden one, simple and picturesque, and very early in date. The church has Renaissance fittings, with mahogany wainscot in the choir. The south transept contains the font at which the pious founder of the Sorbonne was baptized in October 1201. On the south side of the nave—there are no aisles—a commemorative monument to Robert de Sorbon was inaugurated with great ceremony in 1888. It represents, above the inscriptioned pedestal, the features of Robert, now a bronzed bust in plaster, but later on to be a real bronze one, under a canopy surmounted by a miniature reproduction of the Sorbonne dome. The picture over the high altar is the Transfiguration, but the light is unfavourable for proper inspection. In the diminutive steeple are three bells, with inscriptions. Their tone is pleasing, though they are of comparatively modern date. The ceiling of the church hides the original "open" roof, which is elaborately beamed, considering the small size of the edifice. The windows have very tolerable stained-glass and are all round-headed, excepting the west one which, as we have already stated, is Gothic. There is no east window, the choir having been restored in recent years in the Renaissance style, with a three-sided apse, the eastern side of which is "blind." A much-worn inscription of early in this century is to be found outside the choir on the south side, but to whom or to what it refers it is impossible to say.

Leaving the church and going west the branch road is again reached, and bearing to the right, the house and farm of the late mayor are conspicuous. A few steps further bring us to a tumble-down courtyard between two houses, which is pointed out as the site of Robert de Sorbon's birthplace.

The village of sixty-two "fires" and 340 souls is built over a vast network of vaulted passages of Roman times, where the inhabitants took refuge during the wars. We say "wars," for there were no less than three before the great Franco-German struggle—the Civil war, that of Turenne and that of the Fronde, at which the whole village was practically destroyed and the inhabitants ruined. Even the church was badly damaged then, but left standing.

New houses are now erected and inhabited, facing and west of the church, where the interesting site alluded to is located. The road leads to the village on the other side of the hill, where Gerson, another Sorbonist of renown, was born; and Arnicourt, which was the château of the lords of the domain in which the village of Sorbon was situated, is not far off.

Rethel, the post town of Sorbon, has a fine "twin church" with grand porch, standing on the top of a hill near the extremity of the town, and, to our surprise, the electric light is used in even some of the tiny shops at the end of the town Sorbonwards, and here and there about the better part of the town. This incongruous commodity is supplied from the machinery of a manufactory in the outskirts, and ceases at nine or ten o'clock at night.

WINDOWLESS BUILDINGS.

IT is stated in the *Canadian Architect* that Mr. Howard Constable, who a few years ago was a successful competitor for the position of supervising architect of the United States, is the author of a scheme for the erection of windowless tall buildings on expensive sites. It is proposed to furnish such buildings with entirely artificial light instead of a combination of natural with artificial light, as at present. Ventilation would be provided by a system whereby fresh air would be brought in from the roof in pipes and conducted in proper quantities to the various rooms thoughout the building, while the impure air would also be expelled through pipes, which might be charged with chemicals so as to destroy disease germs with which it might be impregnated. The advantages claimed for this style of building are that the space now required in such buildings for a central court for lighting purposes would be available for use and would add considerably to the revenue; that the absence of window openings in the outer walls would greatly lessen the fire hazard; that all rooms in such a building would be equally desirable; that smoke and foul air which now enter through windows would be excluded, and that if the architect were relieved from the necessity of figuring out the problem of how to successfully light so many scores of rooms, he could make his façade much more beautiful. The author of this ingenious if somewhat impractical theory of construction admits that the public is not likely to immediately fall in with his ideas, but proposes that his theory should at once be put in practice by reducing the number and size of window openings in buildings of this class to be erected in the future, and by glazing them with wire mesh glass, which would resist the action of fire.

FIREPROOF MATERIALS.

THE much-felt requirement for thoroughly independent tests with fire-resisting materials and systems is to be met by a testing station organised under the auspices of the British fire-prevention committee, where in lieu of the generally very one-sided exhibitions given by makers and inventors, the investigations will be carried out reliably in an essentially practical manner and on scientific lines.

The committee's testing station will be near Regent's Park, within easy reach of the West End, and the necessary arrangements are already being made to inaugurate the first series of tests. Systematic research work in the question of fire-resistance has as yet only been commenced in the States, and the testing station in question will be the first of its kind in Europe. The preliminary arrangements have been in the hands of Mr. Edwin O. Sachs, acting for the executive, and Mr. Frederick R. Farrow, acting for the commercial section.

The tests in each case will be undertaken by the executive, in conjunction with representatives of the Council and the general body of members, and the reports will take the form of statements of facts, supplemented by diagrams and photographs, duly attested.

The first test will be with ceilings, and the first makers to have ceilings tested will be the Asbestos and Asbestic Company and the Expanded Metal Company.

SOUTHWELL CATHEDRAL.

THERE could hardly be a more marked contrast between varieties of architectural ornament than is presented in the south-transept door and the chapter-house door of Southwell Cathedral. The entrance to the south transept is so liberally endowed with the zigzag or chevron that the moulding becomes a constructive rather than a decorative feature. It assumes the character of arching and jambs as well as of a continuous string-course. The door, instead of offering a welcome to strangers, appears as if intended to deter them from entering. The composition might have been inspired by the devouring mouth of one of the mythical sea-monsters which are so often introduced in he northern sagas. Looking at this doorway and at those of Iffley and Clymping, we can understand why the old Icelandic code obliged shipmasters when nearing the island to remove the figure-heads from their vessels, in order that the good genii and fairies should not be scared by the gaping jaws of the carven monsters. The doorways in churches of a later period, which compelled people to bend low before entering, could hardly be more symbolic of the necessity of a humble spirit than the grim portal of Southwell. The man who designed it must have had a gloomy mind, and we suppose he rarely entered a church with joy. If we remember that the transepts were erected between 1110 and 1114, there would be many things occurring at that period which would make men serious.

There was a different spirit prevailing when the chapter-



South Transept Door, Southwell Cathedral.

house was erected at the close of the thirteenth century. Men were able to rejoice in the beauty of nature. The sculptors who carved the exquisite plants were not imitating workshop patterns. They had evidently recourse to natural forms, and the spirit of the work reveals that leaves and berries were studied by them with an affectionate appreciation of the beauty of vegetation and admiration of the living force they express. In some places the subjects are arranged to correspond with accepted laws of decoration; but it is manifest the sculptors were happiest when they escaped trammels and suggested the liberty which their models enjoyed. In all cases they took care to avoid an arrangement of the forms which might suggest that leaves or stalks or the birds which appeared among them were of any constructional use. It cannot be said that any weight comes on the vegetation, for the mouldings and other parts of the masonry which do the work are only partially concealed by the ornament.



Carving on Chapter-House Door, Southwell Cathedral.

The difference between Southwell Cathedral as it now appears, and its former condition before the restoration was undertaken, will be suggested by the following correspondence between the Society for the Protection of Ancient Buildings and the Ecclesiastical Commissioners. It supplements the letters already published:—

The Society for the Protection of Ancient Buildings,
26 Queen Square, Bloomsbury: April 17, 1878.

To the Ecclesiastical Commissioners for England and Wales.

My Lords and Gentlemen,—On behalf of the Society for the Protection of Ancient Buildings, a Society whose objects are explained by the circular enclosed herewith, I beg most respectfully to address you with regard to the works proposed to be done to the Collegiate Church of Southwell Minster.

The Society recognises with satisfaction that since the building has been under the control of the Commissioners the security of the fabric has been considered and its condition as regards stability improved, but at the same time many alterations have been made which in the view of the Society have been destructive of its artistic and historical character.

The removal of the modern fittings of the choir, which were in themselves of no great value, but inasmuch as the removal also involved the destruction of the very interesting side screens, was a step which the Society greatly regrets should have been taken, and the rearrangement of the pewing of the choir appears to them to have been an entirely unnecessary alteration, as though the design of the pewing was modern and poor in quality, it was quite adequate to the requirements of cathedral service.

It is understood that the Commissioners have sanctioned a scheme for removing the present low-pitched roofs and the flat ceilings and substituting high-pitched roofs, open internally, throughout the church.

Against this proposal the Society desires to enter its energetic protest, and respectfully asks the Commissioners to reconsider their decision for the following reasons, which the Society trust that the Commissioners, as guardians of one of the most important public monuments in the kingdom, will not consider unworthy of their consideration.

The proposed alteration, if carried out, will necessarily involve the destruction of the present wooden ceilings of the nave and transepts. These ceilings were laid shortly after the fire of 1711, and are in all probability rude but still not unsatisfactory copies of those which were destroyed by the fire. They have an excellent effect, are broad and simple in design, and are much more in accordance with the architecture of the church than an open roof.

The ceilings are of oak and are apparently perfectly sound, no flaw being perceptible from the floor of the church. The outer roofs do, it is true, admit water in places after heavy rains or continued snow, but as they are covered with slate this is no more than what would occur in the roof of any other building of a similar size.

The Norman nave was in all probability covered originally

with a flat roof similar to Gloucester and St. Albans. This was replaced in the Middle Ages by a pitched roof; but we have no evidence to show that the alteration was an improvement, but, on the contrary, the subsequent removal of this roof and the substitution of a flat roof tends to show that its effect was not found satisfactory.

Although the present roof dates backs no further than the beginning of the last century, it is indisputable that the lowering of the roofs took place at least a century earlier, as Hollar's engraving of the cathedral (which was made in 1672) seems to show them in their present condition.

All trace has been lost of the design of the Mediæval roofs, so that any restoration must be entirely conjectural, and therefore unsatisfactory, when regarded from an antiquarian and architectural point of view.

A matter of even greater importance arising out of the contemplated raising of the roofs is the obliteration of the wooden lantern between the western towers, which would be swept away if any other roof is substituted for the present.

In all probability the destruction of this lantern was not present in the mind of the Commissioners when the question of the alteration of the roofs was under consideration, and the Society earnestly hopes that now that the entire effect of the proposed raising is brought to their notice that the Commissioners will hesitate before they give their sanction to a proposal which will inflict an irreparable injury upon the church, and deprive it of one of its most interesting and characteristic features.

The lantern is perhaps unique of its kind, and though exceedingly simple in design, it is so dignified in expression and adds so much to the charm of the church that its removal would be a source of the deepest regret to all who are truly interested in what is most native in one of our first and best preserved national monuments.

The Society trusts that the Commissioners will, for these reasons, refrain from carrying out an alteration which is perfectly unnecessary and uncalled for, which will in no sense add to the safety or beauty of the church, and that they will devote the funds at their disposal to the preservation in its present state of the interesting building committed to their charge.

It would be a lasting disgrace to the century if it should happen that through injudicious interference the Collegiate Church of Southwell, after having escaped the rapacity of Henry VIII. and the followers of Edward VI., and has come down to us almost unimpaired in its essential features from very nearly the earliest historical times, should in these days have its identity destroyed, and its value as a national record placed in jeopardy by a mistaken zeal for restoration.—I have the honour to remain, my lords and gentlemen, your very obedient servant,

(Signed) WILLIAM MORRIS, Hon. Secretary.

Ecclesiastical Commission, 10 Whitehall Place,
London, S.W.: July 3, 1878.

Sir,—The Ecclesiastical Commissioners for England have had before them the communication dated April 17 last, which, on behalf of "The Society for the Protection of Ancient Buildings," you addressed to this Board with reference to Southwell Minster; and I am now directed to transmit to you the accompanying copy of a report which the Commissioners have received from their architect, Mr. Ewan Christian, upon the above-named communication, and to state that the Board concur in the views expressed in that report.—I am, Sir, your obedient servant, GEORGE PRINGLE.

William Morris, Esq., 26 Queen Square,
Bloomsbury, W.C.

SOUTHWELL COLLEGIATE CHURCH—FABRIC REPAIRS.

8A Whitehall Place: June 18, 1878.

Dear Sir,—In reply to the memorial of "The Society for the Protection of Ancient Buildings," addressed to you by Mr. Morris in April last, I beg to observe:—

1st. That as regards the fabric since the work of repair has been under my hands no alterations whatever have been made "destructive" either "of artistic or historical character," but the works executed have been strictly those of careful restoration. The removal of certain windows inserted in the eleventh century in the aisles of the nave, and the substitution of other copies of the ancient Norman window in the north aisle, was carried out under the late Archdeacon Wilkins, and the process was immediately stopped when the work of repair was put under my direction.

2nd. That as regards the fittings of the choir, which the Society admits "were of no great value," and "modern and poor in quality," I cannot allow that they were either "adequate to the requirements of cathedral service," or in any respect worthy to remain in a structure like Southwell Minster. They were, in fact, the thinnest kind of common pew framing, and, excepting the outside fronts, wholly of deal.

The Society would, I presume, have also advocated the retention of the galleries in the aisles erected at the same time as this pewing, the removal of which has alone enabled the beautiful aisles to be seen.

As regards the side screens, which the Society considers to have been "very interesting," I can only say that they were not removed without most careful consideration, and after Mr. Street's opinion had been taken by the Bishop. They were copies in cement of the stone screen across the choir, very well modelled, it is true, executed by Bernasconi in the early part of this century, but put together in a most flimsy manner; and I cannot agree with the Society in regretting their loss.

3rd. As regards the roof of the nave, I differ entirely with the Society. Mr. Morris correctly states that the present roofs of the nave and transept were erected after the fire of 1711, and further says that "the Norman nave was in all probability covered originally with a flat roof, similar to Gloucester and St. Albans; this was replaced in the Middle Ages by a pitched roof, but we have no evidence to show that the alteration was an improvement, but on the contrary, the subsequent removal of this roof and the substitution of a flat roof tends to show that its effect was not found satisfactory."

If Mr. Morris would take the trouble to examine the central tower he would at once see that the original Norman roof of the nave at Southwell could never have been flat, and he would further see that the ancient roof was exactly of the pitch of that which it is proposed to restore, and that there is no evidence whatever of any intermediate roof having ever existed. Hollar's engraving is not sufficiently accurate to stand against the evidence afforded on this point by the building itself.

I disagree also with the Society as to the value of the existing flat ceilings, which dwarf the church and have no intrinsic beauty of their own to recommend them. Mr. Morris says that the restoration of the Mediæval roofs must be entirely conjectural, which in one sense is true, but the openings in the tower show clearly what was the level of the collar beams, and there can be very little doubt as to what was the form of the ancient framing, excellent examples of which still remain. My own view, and that of other persons interested in the church, so far as I can gather, is that the substitution of open roofs of massive timbers covered with lead, such as I propose, would be an enormous improvement to the interior, and would in no way lessen, but rather improve, the external outline of the church. The flattening of the roofs after the fire was much more probably owing to economical reasons than to any considerations as to satisfactory effect. They were simply made of the cheapest and rudest form consistent with strength and the exclusion of water.

It is no part of my design to remove the raised portion of the roof at the western end, which Mr. Morris calls the lantern; this is not necessary, but I cannot understand why, if the Society which Mr. Morris represents so strenuously advocates the retention of this raised roof, they should object so strongly to the removal of the flat ceiling to the eastward of it.

The roof at this end was really raised for no other reason than to clear it of the great west window, the tracery of which the low modern roof would have cut right across.

In conclusion I would say that no alteration contemplated by the Commissioners' instructions will in any respect tend to the "destruction of the identity of the Collegiate Church," for the value of which "as a national record" they probably have quite as high a regard as any member of the Society; and so long as it is entrusted to my care I shall, as I have always done, jealously guard it from injudicious change.—I am, dear sir, yours faithfully, EWAN CHRISTIAN.

The Secretary, Ecclesiastical Commission.

The Society for the Protection of Ancient Buildings,
26 Queen Square, Bloomsbury: July, 1878.

Dear Sir,—The Society for the Protection of Ancient Buildings has had under consideration your architect's observations in reply to the letter addressed to you in April last.

The Society is glad to find that the building is in charge of an architect so careful and conservative as Mr. Christian, though it disagrees with the opinions expressed in his letter. Bearing in mind the objects of the Society, this letter is neither satisfactory nor reassuring. Believing that your architect concurs in its estimation of the responsibility which attaches to the custodians of a national record such as Southwell Minster, and of their obligation to preserve it from change, the Society brings the following further remarks to the notice of your Board.

As regards the fittings of the choir the Society still remains of opinion that, poor though they were, they fulfilled the requirements of the service of the church by providing seats for clergy, singers and people. If stalls and benches of oak and tiled floors be requisites of cathedral service, the Society must acknowledge these were lacking.

As to the removal of the galleries, the Society thinks it was unnecessary. It is true that the galleries which existed in the

choir aisles hid some of the architecture, but in a church like Southwell, which was never intended to be seen from base to apex in the naked way modern restorers seem to think becoming, they concealed nothing that is not sufficiently expressed elsewhere. The galleries, screens, tombs and such like obstructions impart a fitted look to a big building—they help to give a homely and inhabited appearance to the edifice, and it is their removal and destruction that has made so many of our large churches so cheerless.

The loss of the side screens is a more serious one, and the Society again expresses its regret at their removal. Your architect admits they were well modelled, he does not allege they were in bad repair, but says they were only removed after most careful consideration, and after Mr. Street's opinion had been taken by the Bishop, and that they were put together in a most flimsy manner. The Society urges that this is no justification for their demolition. It understands Mr. Street also advised the removal of the fourteenth-century screen, and it regrets that the same influence was not used to save the side screens that prevailed against Mr. Street's opinion in the other case.

As regards the roof of the nave, the Society does not dispute that the marks on the central tower and the moulded arched openings below, of which it was aware when its letter was written, indicate the former existence of a high-pitched roof, but the timbers of this were in all probability concealed internally by boarding. It does dispute the existence of an open roof, meaning thereby a roof the timbers of which were visible from the nave of the church.

No adequate reason is given in your architect's letter for the necessity for new roofs. He disagrees with the Society as to the value of the flat ceilings, which he considers dwarf the church; says that the roofs were made of the cheapest and rudest form consistent with strength, and that his view and that of most persons interested in the church is that the substitution of open roofs would be an enormous improvement to the interior. Here is no justification for the removal of the present roofs and flat ceilings, the latter of which, in the Society's view (the Society numbering many persons also interested in the church), have an excellent effect, are broad and simple in design, and, though in later style, agree with the architecture of the church. The Society hopes your Board will give further consideration to this matter, and not needlessly remove the existing roofs for the sake of what is a very problematic improvement.

The Society's opinion that the restoration of the Mediæval roofs must be entirely conjectural is not disputed by your architect, who, by means of the indication of the level of the collar beams, the lines showing the old pitch on the central tower, and examples of ancient framing, proposes to substitute open roofs for the existing ones, thus destroying a ceiling 167 years old, which is probably unique, to add one more to the many imitations of ancient roofs which have of late years been so freely produced.

Your architect cannot understand why the Society should advocate the retention both of the flat ceiling and of the "lantern" at the western end, which he says it is no part of his design to remove. It does so because it wishes to save both the "lantern" and the flat ceilings. No doubt the roof was raised over the western bay for the reason your architect states. The builders took advantage of the peculiar conditions to do something striking and characteristic. A roof of higher pitch than the present one would cover over the "lantern" and enclose the great west window, thus doing away with the necessity that originated the "lantern," which without the flat ceiling would be both useless and meaningless.

May the Society suggest that if the present roof timbers and their covering be unsound, or if the pitch of the roof be insufficient for slates (though your architect in his reply does not say so) they might be repaired or renewed, or the exterior covered with lead, without the demolition of the flat ceilings? More urgent reasons than are given for the removal of the old roofs and ceilings are necessary to satisfy the Society that it is not possible to preserve them.

The Society thanks your Board for giving it the opportunity of explaining its views at greater length.—Believe me, yours faithfully, (Signed) WM. MORRIS, Hon. Sec.

The Secretary, Ecclesiastical Commission.

Ecclesiastical Commission, 10 Whitehall Place,
London, S.W.: April 4, 1879.

Sir,—With reference to your letter of the 29th ultimo, I am directed by the Ecclesiastical Commissioners for England to inform you that the previous communication received on July 30, 1878, from the Society for the Protection of Ancient Buildings, was laid before the Commissioners on August 1 last, but that they did not feel it necessary to consult their architect further upon the subject, and they regret that they must decline to continue the correspondence.—I am, sir, your very obedient servant, GEORGE PRINGLE.

T. Newman Marks, Esq., 9 Buckingham Street, Strand.

THE USHER HALL, EDINBURGH.

A REPORT has been prepared by the town clerk and city architect of Edinburgh regarding the proposed sites for the Usher Hall. These sites were:—(1) High Street and St. Giles Street; (2) Chambers Street and Lindsay Place; (3) George Street and Castle Street; (4) Melville Street and Stafford Street; (5) Atholl Crescent and Canning Street. Of the five sites only two—viz. those at High Street and Atholl Crescent—would be suitable for an elliptical form of hall. In the case of the High Street, the hall itself might be elliptical, while the exterior might be rectangular, so as to give more accommodation around it. The report says the High Street and St. Giles Street site has a frontage to the High Street of 250 feet, and to St. Giles Street of 212 feet. Its extent is about 6,000 square yards. Valuation, 118,268*l.*; rate per square yard, 19*l.* 14*s.* 2*d.* This site contains properties already belonging to the city, and partly occupied by city departments. Accommodation might be found for offices in parts not required by the hall. The new buildings on this site could be connected with the present City Chamber, Chambers Street, and Lindsay Place site has a frontage to Chambers Street of 156 feet, and to Lindsay Place of 192 feet, and if limited to the area north of Bristo Port Lane covers 3,858 square yards. It would be desirable if, by arrangement with the museum authorities, a street or passage could be left between the proposed building and the museum building from Chambers Street to Bristo Port Lane. There would thus be streets on all four sides of the hall building. The buildings at present on this site project beyond the general lines both of George IV. Bridge and Bristo Place. After giving off ground to straighten these lines of streets, there would still remain sufficient space for a hall to accommodate an audience of 3,500 or 4,000 persons, but with considerably less space for adjuncts than on the other sites. Regarding the George Street and Castle Street site, it is stated that there would be sufficient space for a hall, with two galleries, to afford accommodation for from 3,500 to 4,000, with the requisite adjuncts. The extent and other general conditions of Melville Street and Stafford Street site are not greatly different from the George Street site. Atholl Crescent and Canning Street site would afford space for a building either of elliptical or rectangular form on an ample scale. If the elliptical form were adopted, two of the houses in Atholl Crescent frontage might be retained with some modification of their background, and a considerable saving on the cost of the site thus effected; while the main body of the building being to some extent screened from view externally, a less costly style of treatment might suffice than where more fully exposed to view. The following abstract appended to the report shows exactly at what price the reporters estimate the sites:—

	Extent.	Valuation.*
1. High Street and St. Giles Street	6,000 sq. yards	£118,268
2. Chambers Street and Lindsay Place	3,858 sq. yards or 6,438 sq. yards	41,642
3. George Street and Castle Street	4,489 sq. yards	75,252
4. Melville Street and Stafford Street	4,478 sq. yards	78,427
5. Atholl Crescent and Canning Street	7,230 sq. yards	58,113
		59,161

* Valuation includes capitalised feu-duty or ground annual, and business compensation.

PLAYING-CARD DESIGNS.

THE Court of the Worshipful Company of Makers of Playing Cards on Monday adjudicated upon the 236 designs sent into the recent competition instituted by the company for the best designs for the backs of playing cards to be issued by them during the coming year. Three prizes were awarded, the first, the H. D. Phillips prize, being given to Mrs. J. E. Cook, Highfield, Wantage; the second to Mr. John Vinycombe, of Holywood, county Down, Ireland; and the third to Miss S. Ruth Canton, 6 Beaumont Street, W. The design of Mrs. Cook will be reproduced for presentation by the company to their guests at the Master's and Wardens' inauguration banquet in December. The Court highly commended the designs sent in by the following competitors:—Miss M. W. Thompson, Park Gate, Guisley, Leeds; Mr. R. W. Higham, Tytherton Road, Tufnell Park, N.; Mr. R. Quiller-Lane, 73 Hammersmith Road, W.; Mr. N. Van-der-Lyn, 16 Colherne Mansions, Bolton Gardens, W.; Miss Elsie Hall, Melton Lodge, Havelock Road, Croydon; Miss Hunter, 62 Cleveland Square, Bayswater; Miss Ellen C. Griffith, Whyteleafe, Surrey; Miss M. A. Ramsay, Balmam, Goodrich Road, Dulwich; Mr. F. W. Herrington, 61 Grafton Street, Fitzroy Square, W.

Mr. Holman Hunt and Mr. Alfred Gilbert, R.A., have been elected honorary members of the Royal Society of British Artists. At a general assembly of the Society held on Monday last, Mr. Wilfrid Ball, Mr. Archibald Christie, Mr. Tom Browne and Mr. Georges were elected members.

NOTES AND COMMENTS.

Although the National Gallery in Sydney only dates from 1876, the estimated value of the collection is already considerably above 100,000*l.* The water-colour drawings are considered to be the finest out of England. Study in the gallery is permitted under certain conditions. The number of students registered is 266, of whom 18 were admitted in 1897. Interchanges of pictures on loan between the National Galleries of Sydney, Melbourne, Adelaide and Brisbane were initiated in 1894. This movement was carried on continuously up to July 1897, when the resources of the Adelaide and Brisbane galleries became exhausted. At the instance of the New South Wales Minister of Public Instruction, the trustees selected and despatched in 1895-96 for exhibition at the technological schools of Newcastle, Bathurst and Goulburn, three collections, containing in all 44 pictures, which were supplemented by valuable contributions of examples of Australian art, and lent under the auspices of the Art Society of New South Wales. The pictures are interchangeable between the three centres named.

The University of Cambridge continues to be enriched by gifts for scholarships and prizes. Quite lately a bequest of 10,000*l.* has been received under the will of the late A. W. G. Allen for the establishment of a scholarship or prize in memory of the Right Rev. Joseph Allen, D.D., formerly Bishop of Ely, and grandfather of the donor. That is only one among several examples. But as Vice-Chancellor Hill, the master of Downing, pointed out on Saturday, there is at the present time a greater need for the provision of buildings for university purposes than for the encouragement and stimulation of students. The admirable and central sites which have been purchased by the University during the last three years are still entirely unoccupied, although many departments of the University are either overcrowded or most inadequately housed. The necessity of accommodation has become so urgent, the authorities of the schools of law and medicine, feeling that it is impossible to wait until the general resources of the University allow of the provision of new buildings, have opened subscription lists on their own account. A sum of 6,000*l.* has been gathered, of which a large part was subscribed by professors and other residents in the University. It would almost appear as if the influence of tradition was an obstacle to an interest in buildings. The old colleges were erected by individuals, and it may still be imagined it is the duty of individuals to supply the buildings which are needed for the realisation of modern aims.

We are amazed at the indifference of those who are responsible for the conservation of Mangotsfield Church to the charges which were made in the Shipway case. We have nothing to do with the parties concerned or with the issue of the inquiry. All we wish to point out is, the tombs and graves and sculpture, and in fact whatever was supposed to facilitate the scheme of one of the parties, were allowed to be tampered with without any restriction. It is true that the visitor who is charged with taking the principal share in the work stated that he possessed authority from the Home Secretary to make any investigation which he considered necessary. Apparently, however, no one connected with the church demanded to see so important a document. It is sometimes necessary that researches should be allowed in church registers and inscriptions copied from tombs, for in that way important evidence may be obtained, but to move tombs, to change their contents and to alter the position of figures should not be tolerated, or if such transformations are indispensable then faculties should be obtained, and the operations conducted under proper superintendence.

The church of St. Louis, at Poissy, near St. Germain, in itself is a most interesting Norman and early thirteenth-century structure, with late fourteenth or early fifteenth-century north aisle. It still possesses the interesting fragments, much worn, of the font at which St. Louis, King of France, was baptized. They are now enclosed within a small wrought-iron grille, bearing a diminutive brass plate with an inscription commemorative of the fact. The church itself is fairly lofty and very bold, with no transepts, but with chapels round the choir; but perhaps the most striking features of the great church are the two towers. At the west end a gigantic six-storeyed Norman tower is surmounted by about 20 feet of a square stone spire, whence rises an octagonal stone lantern, in turn crowned by a stone spire. The other Norman tower rises from the end of the nave, and is octagonal, the big nave roof rising on the western side to within a few feet of the top of the tower and the base of its lofty spire *en charpente*. There is also a fine, but dilapidated projecting south porch, open on three sides, close to the west end, of the fifteenth century. The choir roof is several feet lower than that of the nave, and flying buttresses with pinnacles connect the south wall of the nave with the porch just mentioned. Poissy is only three-quarters of an hour by train from the St. Lazare Station of Paris, and is on one of the lines to Mantes. It is also on the Grande Ceinture line and close to St. Germain, with which it is in constant communication by steam tram. The town itself is irregular, badly paved, and, excepting the church, utterly devoid of interest.

To all bibliophiles "Book Prices Current" (Elliot Stock) is one of the most welcome of volumes. This year they will be pleased at receiving it at the beginning of October instead of waiting until next January. The change has been rendered necessary because the auction year of which it is the record closes in September, and subscribers cannot wait a day longer than is necessary. Although fewer libraries were sold during the last season, yet between December 1897 and July 1898 the amount realised in auction rooms was 92,857*l.* So large a sum was in some measure owing to the second and final portions of the Ashburnham Library. The average per lot was 2*l.* 15*s.* against 2*l.* 13*s.* 9*d.*, last year's average. Architectural books brought fairly good prices. Fergusson's "History," in four volumes, was sold for 4*l.*; Mr. Street's "Gothic Architecture in Spain," 3*l.* 3*s.*, and his "Brick and Marble in the Middle Ages," 1*l.* 18*s.*; Viollet le Duc's "Dictionnaire Raisonné de l'Architecture," 7*l.* 12*s.* 6*d.*, and his "Mobilier Français," 6*l.* 17*s.* 6*d.*; Turner's "Domestic Architecture," 2*l.* 10*s.*; Parker's "Glossary," 2*l.*; Kent's "Designs by Inigo Jones," 2*l.* 19*s.*; Darly's "Compleat Body of Architecture," 2*l.*; Walter Geddes's "Booke of Sundry Draughtes," 14*l.*; Létarouilly's "Edifices de Rome," 8*l.* 2*s.* 6*d.*; Pricke's "Ornaments of Architecture," 6*l.* 12*s.* 6*d.*; Serlio's "First Booke of Architecture," 7*l.* The volumes of archæological societies were also well appreciated. Like the preceding volumes, the latest is admirably arranged and indexed, and does credit to Mr. J. H. Slater's care and to the publisher's good taste.

The Canadians are showing loyalty by seeking professors of architecture and engineering in this country. The latest appointment is that of Mr. E. G. Coker as assistant professor of civil engineering in McGill University, Montreal. Mr. Coker is not only a graduate in engineering of Edinburgh University, but he has had an unusually extensive training in experimental engineering in the laboratories of the Universities of Cambridge and Edinburgh; Owens College, Manchester; University College, London; King's College, London; Finsbury Technical College, and the Heriot Watt College, Edinburgh. In 1896 he was offered the senior professorship of mechanical engineering in the Worcester Polytechnic Institute, but declined the appointment in order to pursue further studies at Cambridge. In Montreal Mr. Coker has plenty of scope to exercise his abilities.

ILLUSTRATIONS.

CATHEDRAL SERIES.—SOUTHWELL: FROM SOUTH-EAST.

ST. GEORGE'S CHURCH, STOCKPORT.

THE STATE BALL-ROOM, THE HAGUE.

SUMMER HOLIDAYS AMONG FRENCH CATHEDRALS.

By the Author of "Ecclesiologia Germanica," &c.

Introduction.

THE subject of church architecture in France—closely allied as it is with that of our own country in certain districts—is one exhaustible in its extent and interest. Grand as it is, and in not a few respects worthy of imitation among ourselves, French architecture must not be indiscriminately admired or regarded, as too many do, with a blind faith; for while the cathedrals and churches of France are, generally speaking, conceived on a more gigantic scale than our own, they present fewer varieties and blendings of style, besides being less interesting historically, and I may also add, less truthful and lovable.

It was not until the thirteenth century that France was compacted out of a number of States or divisions, each distinguished by peculiarities, which were retained long after these provinces were welded together under St. Louis and Philip Auguste into a kingdom, which then, as now, had for its centre the Ile de France, *i.e.* the country immediately surrounding Paris. Even when this was accomplished these provinces retained much that was peculiar, even to their architecture, so that in this respect at the present day each affords a distinct field for the pursuit of ecclesiology, as much difference existing between the Romanesque of Provence and Normandy, between the First Pointed of Anjou and Burgundy, as between the Early English of Wells Cathedral and the Yorkshire abbeys, and the Perpendicular of Somerset and that of the Eastern Counties.

The Société des Monuments Historiques has published an architectural map of France, showing it to have been the home of no fewer than thirteen provincial styles. Most important among these are the style of the Ile de France or Domaine Royale; the style of Normandy; those of Burgundy and Auvergne; that of Provence; of Languedoc, Poitou and Saintonge, all included in Aquitania; the Angevine style, marking a small district on both sides the Loire between Aquitaine and Normandy; and, lastly, though not a very important one, that of the extreme north-east bordering on the Rhine and Belgium. Gradually blending tints in lieu of sharp lines explain the boundaries of these styles, which in some instances overlap each other, for the influence of each province was felt by its neighbours, and this most forcibly in frontier regions.

Beginning with the South of France, it may be observed hat the long continuance of Roman civilisation there, and, as a natural consequence, the large number of buildings erected in imitation of Roman remains, besides the early existence of a colony of Greeks who left numerous churches, Byzantine in plan and construction, are sufficient reasons for our finding the greater part of its cathedrals and churches Romanesque in style. But it would be tedious to point out the various niceties and distinctions existing between the Romanesque of Provence and the Auvergnat, and the Transition of Aquitaine and Anjou; briefly, therefore, the architectural peculiarities of these provinces must be pointed out, leaving the reader to glean more detailed information from Fergusson's "Ancient and Mediæval Architecture," one of those fascinating books which can only be laid aside with reluctance when once in hand, or from Petit's "Architectural Studies in France." The especial value of the latter was that it opened to the architect and ecclesiologist several new and unusually rich fields of study, such as the Touraine and the Auvergnat, with the advantage of an intelligent practical commentary on the examples adduced. The larger number of illustrations were engraved on wood from the drawings of Delamotte, and these with respect to scientific accuracy and artistic beauty leave nothing to be desired. Other plates are anastatic reproductions of the author's own sketches—too roughly and hastily executed to be useful in matters of detail, but so admirable in their representation of broad outlines and general picturesque effects as to render the subjects recognisable in a moment. A view across the nave of the cathedral at Autun, St. Basile at Etampes, St. Sernin at Toulouse, and the church at Langrune, near Caen, being a few among the subjects that engaged Petit's fertile pencil.

The Romanesque architects of the southern French divisions—Provence, for example, centring at Arles, Avignon and Fontefroide—were quite content with their style, giving themselves up to the endeavour to refine and adorn it, unlike those of Normandy and the Ile de France, districts showing, like our own, a constant striving after further development.

In a word, the Pointed styles, although they attained to a certain point in these southern regions, either stood still or became imported, never being carried to that perfection so observable in the north. This southern character of Romanesque and Transitional, with its imitation of Classical detail, its domical roofs, barrel vaults and generally speluncar character, may be said to extend considerably above that generally acknowledged architectural boundary line—the Loire—as far as Le Mans, where we see it in the church of Notre-Dame de la Couture, and in the opposite direction as far as Langres. Within the limits of Provence, which occupies the whole valley of the Rhone as far as Lyons and along the coast between the hills and the sea towards the Pyrenees, there is barely one church that can be called Gothic. Some are so purely Romanesque that, although they date but from the age of Charlemagne, they rival some of the finest buildings of imperial Rome in classical purity of detail. Others show a more Gothic tendency, as, for instance, St. Trophimus at Arles with its noble porch and its cloisters, which, as well as those at Fontefroide, are lovely specimens of Romanesque work in which their architects revelled in freedom from restraint, and where parsimony of care and pains is imperceptible. The churches of Alat, Aix, Cuxa, St. Gilles and Tarascon are remarkable chiefly for their porches, while a lovely doorway in the fortress-like church of Magnelone has quite a Saracenic air.

In Aquitania, the richest field for the study of the Romanesque of that province is the department of Charente, with Angoulême for its centre. What an architectural feast is here spread forth by such churches as Châtres, Monthiers, St. Amande de Boix, Roulet, Trois Palis, Plassac and Le Palud, gloomingly grand structures upon whose western façades their architects lavished so much skill.

Still further south we find the great five-aisled church of St. Sernin at Toulouse, Périgeux, Roulet and Souillac. Round arches and tunnel vaults, pointed arches and domical roofs are features peculiar to the churches of this province—more remarkable, perhaps, for grandeur of conception than for the success attendant upon their achievement.

Proceeding northwards, we find in Poitou, Anjou and Touraine, with their capitals, Poitiers, Angers and Tours, a much more delicate handling of both Romanesque and Pointed forms than in Aquitaine. Absence of aisles is a striking feature of many Romanesque and Transitional Angevine churches, a peculiarity depriving them of that mystery derivable from the interminable perspective of the piers and arcades of the more advanced Pointed examples. The cathedral of Angers, St. Martin and La Trinité in the same city; Blois, Loches and Fontevrault are noble types of Angevine First Pointed.

The Auvergnat Romanesque—a school with as distinct and marked a tradition of its own as that of the Rhine, Lombardy and Normandy—is extremely beautiful. The western narthex, with or without a gallery, and the apsidal east end with one pair of chapels to the north-east, another to the south-east, and an apse to each transept on its eastern face, are characteristic features of churches in the Auvergne.

They are, however, unlike Noyon or Tournai, rarely or never transverse triapsidal. Issoire, Notre-Dame du Port at Clermont-Ferrand, the cathedral of Le Puy and St. Etienne at Nevers—the last somewhat distant, but partaking of all the peculiarities of the Auvergnat style of Romanesque—are specimens most worthy of citation. Another feature in the churches of the Auvergnat is the use in their construction of different coloured materials for external ornamentation, such as tiles inlaid in stone in the face of the wall, patterns formed of white stones and black lava from the neighbouring volcanic region—a system of natural polychromy very grateful and refreshing to the eye.

It cannot be doubted that the magnificent Roman monuments preserved in Arles, Nismes and Orange gave something of a classical character to the church architecture in their own neighbourhood—a peculiarity to be found in such churches of the dioceses suffragan to Lyons as Autun, Langres, Saint-

Claude and Grenoble. In the naves of Autun and Langres cathedrals the pointed arches separating them from the aisles spring from fluted pilasters with Corinthian capitals. Ionic columns appear in the apse of the cathedral at Lyons, and Corinthian ones, fluted, support pointed arches in the apse at Beaune, between Dijon and Autun. At the angles of the octagon of Avignon and in the tower of the abbey at Tournus Corinthian pilasters occur; indeed, the Auvergnat and Burgundian churches present manifold examples of Classicism, which, by the way, must not be confused with the vandalisms committed during the eighteenth century in the apses of Bayeux, Fecamp, Lisieux, Chartres, and in other northern cathedrals.

Burgundy is a most interesting province architecturally; indeed, its Early Pointed style, as exemplified in the abbey churches of Pontigny and Vézelay, the choir of St. Etienne at Auxerre, and the churches of Semur and Notre-Dame at Dijon, is quite *sui generis*. In the last-named city the original cathedral of St. Benigne was one of the oldest in Burgundy, and doubtless afforded an excellent example of the Romanesque of that province; but its total destruction at the Revolution, and the insufficiency of plates illustrating it, published by Dom Plancher, preclude our gaining any satisfactory idea of it. Open western porches of great height, with or without storeys above them, as at Autun, Beaune and Notre-Dame, Dijon; great ante-churches or narthexes, as at Vézelay; absence of aisles to the apse, but the employment of smaller apses on the eastern sides of transepts; closed triforia; and the cylindrical column, with its caps foliaged in a bold, papyrus-like style, are among the most prominent peculiarities of Burgundian Gothic.

The abbeys of Citeaux and Cluny, Pontigny, Charité-sur-Loire, Tournus and Vézelay attest the fact that, for some unexplained cause, Burgundy early became the favourite resort of hermits and holy men, who founded here these great monastic establishments which spread their influence, not only over France, but over the whole of Europe, controlling to a most extraordinary extent all the relations of Mediæval European society.

Some of these great establishments have almost entirely disappeared; for example, Citeaux and Cluny. The church of the latter was the grandest in Europe, being, within a few feet, as large as St. Peter's at Rome, and possessing five aisles, double transepts and seven towers.

Pontigny, Souvigny (near Moulins-sur-Allier, and although not actually in Burgundy—belonging to the Bourbonnois—sufficiently near to be included in this great group), Tournus and Vézelay still retain their enormously long churches, but the busy courts which whilom surrounded them now lie desolate.

In other provinces neighbouring to Burgundy—*i.e.* Berri, the Nivernois, the Bourbonnois, Touraine, Maine, and the Orleannois—provincialisms must not be looked for in such great cathedrals of those divisions as Bourges, Nevers, Tours, Le Mans and Chartres, belonging as they do to the great church-rebuilding ages, the twelfth and thirteenth centuries, but among the churches of the smaller towns and villages.

Those of Blois, Loches and Meungs in the Touraine present specimens of First Pointed detail hardly surpassed for elegance of effect and delicacy of execution. Both here and in the contiguous Orleannois we meet with the square Eastern termination, as in St. Julian and Notre-Dame de la Riche at Tours, and in three of those fine churches which render Etampes so delightful a place for a brief sojourn. Churches in the Orleannois, especially in that district of it known as La Beauce, cluster almost as thickly as in Leicestershire. Travelling from Orleans to Etampes—whose churches, by the way, seem to form a sort of frontier line between the architecture of northern and southern France—the almost universal saddleback steeples of its village churches form the only relief to this *pays ennuyeux*, as La Fontaine termed this, the granary of France.

(*To be continued.*)

An Ornamental Footbridge over the river Wye, connecting Hereford Castle Green with the meadows opposite, in honour of the Diamond Jubilee of the Queen's reign, was opened on the 29th ult. The reason of the delay in the work was the engineers' strike. The cost of the bridge was 1,200*l.*

THE SANITARY INSTITUTE.

IN the Section of Engineering and Architecture at the Birmingham meeting of the Sanitary Institute Mr. William Henman presided. In his address he described the important part taken by architects in the question of sanitation. Engineers and architects were, he said, the active agents by whom sanitary science was practically applied in permanent works for the benefit of mankind. The function of architects was not alone to produce artistic designs and decorations, but by a careful application of sanitary science, a knowledge of natural laws, of the nature and properties of building materials, of the earth's surface on which they built and of the air they all breathed, so to design and construct the edifices they erected that, without being devoid of suitable artistic expression, they might be convenient in arrangement, safe in construction, free from sanitary defects or such as might cause bodily hurt, mental trouble or untimely death. That the public had not always, and did not even now in every case demand this, must be evident. Too often, through ignorance, or on grounds of false economy and favouritism, was the 'prentice or inexperienced hand employed. Consequently, as individuals either could or would not take care that safe and healthy buildings were erected for their use, the Legislature had stepped in, and by various Acts of Parliament, local by-laws and various officials endeavoured to safeguard individuals and communities. The effect of this system was perhaps as good as could be expected, but it appeared to him unduly to relieve many of personal responsibility which it would be better they should bear; but the greatest evil was the lack of impartiality in administration apparent in some localities, so that, instead of inspection and regulation, there was too often dictation and interference at the caprice of authorities or their officials, who might consider they had a right to interpret by-laws as they pleased, whether or not safety or health was in question. Moreover, in matters of sanitation there was much yet to be learnt, and there was reason to doubt the wisdom of many regulations which had from time to time been laid down in connection therewith. There seemed to be a law of evolution in sanitation as in many another subject. Probably the greatest obstacles to the advance of sanitary science were popular prejudice and the unreasoning adoption of materials, means and methods which might be good under certain circumstances or conditions, but the cause of evils when wrongly applied or employed. Mr. Henman said he believed that the day would come when all "interceptors" and "traps" would be abolished, and with them the sewer-gas which they retained about dwellings. With good ventilation of house drains, air inlets to sewers, ample flushing, impervious and well-laid drains and sewers, all entrapped and free from obstruction, that gas might become a thing of the past. Engineers had sinned deeply in the construction of sewers. Apart from their general design, the method of construction and gradients adopted, the work had too often been defective in execution, so that, instead of aiding the quick removal of solids by water carriage, they had acted as filters or separators, permitting the fluids to escape and soak into the ground, or to run off and leave the solids to fester and become offensive. A new era in sewage disposal might be at hand if the "septic tank" fulfilled the promise of its rapid advance in public estimation. If what was claimed for that tank held good, a dual arrangement of sewers and storm-water drains would not be necessary. With regard to building materials the use of glazed materials was often advocated for the exteriors as well as the interiors of buildings. Many architects, however, preferred materials of permeable construction. Ventilation was another subject glibly talked of and much misunderstood. Failures in applying mechanical means for sewering ventilation in large buildings was in his opinion traceable to three causes:—(1) Too low an estimate of the volume of air required; (2) want of efficient mechanical appliances; (3) want of constant and intelligent management. So long as architects and the public shut their eyes to the ascertained fact that a change of air from seven to ten times per hour was essential for health and comfort, failure must inevitably result. Good health could not be secured in defective dwellings. Among the labouring classes the home was often defective. The reason was to be found in the system of existing ground-rents. The excessive value put on land for building purposes, particularly that required for the houses of the working classes, was a leading cause of bad building.

House Drains.

A paper by Professor A. Bostock Hill on the construction and ventilation of house drains was next read. He held that as to the size of drains, the smallest that would convey the necessary quantity of liquid was certainly best for purposes of cleanliness. The use of too large pipes was attended with grave disadvantages, such as the collection of putrefiable matter and the difficulty of flushing. The traps which, under the law, were commonly put at each junction of the sub-drain held a

considerable quantity of liquid and solid matter, and for the time being became a small depositing tank where solids in suspension precipitated themselves. The ventilation of sewers up private houses Dr. Bostock Hill regarded as a danger to health, and he protested against the method as utterly wrong in principle. He likewise protested against some of the systems of public sewering, which, instead of preventing the formation of noxious gases, tended to bottle them up and discharge them some few feet above the roofs of private houses.

Mr. Joseph Priestley discussed in a paper the subject of combined drainage. In practice he would restrict the number of houses allowed in a combined drain to six or less, and have the combined drain itself intercepted and ventilated separately. But with more than six houses the main drain became a sewer, and each house drain separately intercepted therefrom and ventilated. Where the system of drainage was simplified and the drains kept outside by means of a combined system, it ought to be allowed, instead of a separate drain being insisted upon. When six or fewer houses were combined, the combined drains were to be intercepted and ventilated separately as a whole; but where more than six houses joined the main drain had better be treated as a sewer, and each house separately intercepted therefrom and ventilated. The pros of combined drainage were many and the cons few.

In the discussion which followed on the last two papers, Mr. Henman expressed pleasure that the evils arising from the multiplication of taps and the interception of sewage and drains were being more clearly recognised. They were a result of the "model" by-laws of the Local Government Board. These by-laws were certainly not the best, but a very long way from it, and he hoped that a very strong feeling would be raised at that congress to show the Local Government Board that those regulations ought to be put into the waste-paper basket and fresh reasonable ones adopted in their place.

Mr. Close contended that outside traps should be abolished, but inside traps were necessary. Fresh-air inlets should be abolished, and ventilating pipes should be put in on the sewer side of the ventilating tap.

Mr. A. S. Campkin did not agree with the objections that had been made against the dispersion of sewage-gas about the roofs of houses.

Mr. Lewis Angell stated that in West Ham they had succeeded in throwing the cost of combined drains on private owners.

Mr. Sydney R. Lowcock admitted that many of the Local Government Board by-laws were obsolete, but he did not agree with the entire abolition of them.

Mr. Ernest Day advocated a system of exhaust shafts for sewers, passing the gases through destroyers.

The President thought they had to direct attention to the fact that it was possible to prevent the formation of sewer-gas. Fresh sewage did not give off gas, but in the traps, one to every house, were many gallons of putrefying matter, which at every flush was thrown into the sewer and produced gas. If there were a continuous flow through the sewers of Birmingham, and no places where matter could rest, the sewage would be discharged at Saltley before it had begun to give off gas.

Dr. Bostock Hill said he was opposed to the adoption of the exhaust system. With the hundreds of miles of sewers there were in Birmingham it was impossible to get the necessary draught; the sewers were not air-tight, and the expense would be prohibitory. Moreover, the principle was wrong. They must prevent the formation of the gas, and the rearrangement of the sewers for that purpose was one of the greatest problems which Birmingham and other large cities had to face in the future.

The concluding paper, read by Mr. A. Bertram Nichols (Birmingham), dealt with "Sewage Disposal in Connection with Tidal Waters," and led to considerable discussion by the representatives of a number of seaside towns.

The Prevention and Pollution of Streams and Rivers.

Dr. Christopher Childs, London, gave a lecture on "The Prevention of Pollution of our Streams and Rivers." The president (Sir Joseph Fayrer) presided. The lecturer said that in 1876 the Legislature passed the Rivers Pollution Act, for the purpose of putting a stop to the pollution of the rivers and streams, but it was generally admitted that the Act had failed in accomplishing the object for which it was designed, and that pollution had continued unchecked in defiance of the law and of the many efforts to reduce it. The chief difficulties in the way of reform were the ignorance and indifference of the people, the great cost of sewage purification and the uncertainty with regard to the best means to be employed, and also the defects in the law and the impotence of the measures provided for its administration. Ignorance and indifference might be dispelled by education and researches, and practical results obtained by scientists plainly demonstrated that the great difficulty, uncertainty and cost of purification, which had blocked the way for so many years, had been in a large measure due to our misconception of the true principles by which we should be guided in dealing with domestic sewage. The chief object of the purification of sewage and refuse was to secure that the effluent from any sewage manufacturing process or filth accumulation to any stream should be purified in such a way that it should not cause the water of the stream to be poisonous or dangerous to the health of those who drank it, nor be detrimental to the manufactures for which it might be used, offensive to the sight or smell, destructive to fish nor obstructive to the flow of the stream. Of those conditions, that which made the water poisonous or dangerous to the health of those who drank it was the most important for consideration. It was generally accepted that water polluted by sewage was always dangerous to health, and frequently the actual cause of outbreaks of cholera and typhoid fever. But it did not follow that the quantity or quality of organic matter which was dissolved in the water determined those outbreaks. In fact, water strongly contaminated with sewage might be drunk for an indefinite time without causing cholera or typhoid fever. The real factor which determined the danger or safety of water for drinking purposes was the presence or absence of living germs of disease, and the first step for the prevention of infection of our water supplies with fever poison was not the purification of sewage, but the destruction of the fever germs before they escaped from the sick-room of the patient into the soil, the sewers, or the drinking water. If complete disinfection were carried out in all cases of typhoid fever that disease would rapidly disappear and the dangers resulting from sewage pollution of our water supplies would be greatly reduced. It was imperative that water supplied from any river or other source which had been polluted in the least degree by sewage or organic matter, after adequate storage and sedimentation, should be subjected to complete and carefully managed sand filtration before it was distributed into the water mains. Where a community was able to obtain a water supply free from the possibility of any contamination, instead of one liable to such contamination, that community was bound, for the sake of the safety and the welfare of its citizens, to procure the supply which was above suspicion; and in cases where there was no alternative but to use the water of some adjoining river or other source liable to pollution, no measures should be neglected whereby poisonous and noxious elements might be prevented from finding entrance into the water, and whereby the last traces of such poisonous elements, if they had found entrance, might with certainty be removed through the best means available. He pointed out many defects in the existing Act of Parliament, and alluded to the difficulties which beset local authorities in dealing with the prevention of pollution. He instanced various reforms that were necessary, and, in conclusion, expressed a hope that all concerned in the health and welfare of the nation would urge upon Parliament the necessity of passing the Rivers Pollution Prevention Bill, by which the defective Act of 1876 would be amended and through which we might hope eventually for the total abolition of the pollution of our streams and rivers.

Birmingham Water Scheme.

A paper was read by Mr. James Mansergh on the "Birmingham Water Scheme." The area supplied by the water committee amounted, he said, to 130 square miles, which was 10 per cent. in excess of the county of London. The development of the area made an increased supply absolutely necessary, and in addition the committee had to face the possibility of increasing pollution of existing sources. The remedy seemed to be the acquiring of a distant water supply, and the prospects of abundant water and convenience of gravitation made them hit upon the Elan Valley. When they had so decided there was a necessity for prompt action, for the metropolitan authorities were searching for gathering-grounds for London. For this reason they found opposition to their scheme when it came before Parliament. There was national opposition too, for the Welshmen said that this was Welsh water, which should be reserved for Welshmen. Lord Swansea and Mr. Tom Ellis, M.P., fired off patriotic speeches, and there was an attempt to show that, by reason of elevation and the fall of the watershed, the Elan Valley was the natural ground for the supply of Glamorganshire; but he produced a little model of the locality, and "in ten minutes the Glamorganshire opposition had collapsed." As a nation, therefore, the Welshmen failed, but the individual members of it whose land was required for the works had had their revenge. Radnorshire had spoiled Birmingham to the tune of scores of thousands, and during the last few years a ditty of his childhood had recurred to his memory. It began, "Taffy was a Welshman, Taffy was a thief." They found another difficult class to deal with—the sporting fisherman, who demanded that they should release a tremendous quantity of water into the river. Ultimately it was agreed to release twenty-seven million gallons. Since then the river at the point at which this would be discharged had been

measured, and the flow found to be about four and a half millions, so that the quantity of water passing down would be increased six-fold. The area of the gathering ground to be acquired was fixed after carefully marking the watershed boundaries. The observations of the rainfall on this area satisfied him that they might calculate on obtaining seventy-five million gallons per day for the supply of Birmingham, in addition to the twenty-seven million gallons required for compensation. Mr. Mansergh described the work of damming up the watercourses so as to transform the valley into lakes. These storage reservoirs, he said, would hold sufficient water to provide for a drought of 180 days, or practically half a year. From the reservoirs at Elan to the receptive reservoir at Frankley, a distance of 74 miles, the water will be conveyed by tunnelling, the extent of which exceeds 30 miles, cut and cover, and iron pipes, and the water will be forty-four hours in completing the journey. Mr. Mansergh described the formation of a navvies' village in a situation which gives the water officials complete controlof it. There were stringent regulations which surrounded the admission of strangers and tradesmen to the village, the latter being required to give an undertaking that they would not introduce intoxicating drinks, while Sunday quiet was secured by the prohibition of the sale of any article except milk. The school, which gave accommodation for 168 scholars, had achieved such progress in bringing the navvy's children under discipline and regular instruction that the highest Government grant had been assured. The difficulty of the drink question had been solved by the establishment of a municipal public-house under the direction of a salaried manager, the regulation of the quantity of drink supplied and the persons to whom it was supplied. The profits from this took the place of a school-board rate, maintained the public hall, library, gymnasium, reading-room and recreation grounds, paid the deficit on the bath-house and provided occasional contributions to charitable institutions. As to the social results, while they could not say that they had created a Utopia, they had reduced the evil results of drinking to a minimum, taking into consideration the fact that on the opposite side of the river, within half a mile, there was another public-house on the usual lines.

Sir Joseph Fayrer moved a vote of thanks to Mr. Mansergh for his surpassingly-interesting lecture. It was, he said, one which was not only interesting to the observer of nature and to the scientific person, but to the inhabitants of Birmingham. It was a matter for congratulation to the Congress that the designer and director of those works, which would be a great success, had read the paper before it. He was also particularly struck with the social aspect of the work. So far as he knew, no better arrangement had ever been tried.

VENTILATION AND WARMING.

(*Continued from last week.*)

Alternatives for the System of Cross Ventilation.

I HAVE not attempted to calculate how the necessary amount of heat could be supplied by open fires in ordinary grates. The working of an open fire is seen to the greatest disadvantage in a dormitory where the beds are more or less uniformly distributed over the whole floor space. The distribution of heat from an open fire proceeds wholly by radiation, and only those who can see the fire get any direct advantage from it, though the indirect advantage of warmed walls, floor and ceiling are doubtless considerable. What is still more objectionable is that the inlets being all cold the association of open fires in ordinary grates with ventilation by open windows, results in draughts of the direst description. I do not therefore see any advantage in attempting to cure the coldness of cross ventilation by fires in ordinary grates.

If open fires are employed for warming comparatively large rooms it would be better to use grates supplied by fresh air in some manner more or less similar to that introduced into barracks by Sir D. Galton, to shut up the windows and use only the chimneys as extraction shafts, and pass all the air supply round the grates. We may consider how such a system would work out. We will take 21,000 cubic feet per hour as the air taken by a good-sized chimney, if there are proper inlet openings ; on that understanding one chimney will ventilate seven beds. The fire being a large one will burn, say, 4 lbs. of coal per hour, will produce 56,000 units of heat ; its duty, for a fresh-air grate, according to Morin, is ·35, and therefore ·35 of 56,000, or 19,600 units of heat will be given to the room per hour. This will warm the 21,000 cubic feet of ventilation air through 45 deg. Fahr., making no allowance for loss by conduction through walls and windows. As the air need only be warmed through 18 deg. Fahr., the heat supply is larger than is necessary, and the calculation exhibits a characteristic difficulty incidental to combined ventilation and warming by open fires, namely, that when the ventilation is sufficient there is too much heat. In practice, no doubt, there would have to be a compromise between the ventilation and the warming ; it would be impracticable to adjust matters by opening windows and so trying to supplement the open fire system by means of a cross ventilation system in cold weather, because the secondary head caused by the fires would determine an inward flow through all the openings, and the only course would be to reduce the heating by diminishing the fires, thereby reducing the ventilation. The number of fires for ventilating a dormitory of 100 boys on this system would be fourteen, the amount of coal consumed 56 lbs. per hour, so that it would be extravagant as compared with the hot-water pipe system ; moreover, the labour of attending to so many fires makes it inappropriate. It would have the very great advantage of making the ventilation practically independent of the wind, but a more advantageous arrangement, with the same result, would be obtained by a redistribution and consolidation of the work on some such plan as the following :—The fourteen chimneys to be replaced by one large chimney stack, such as is used for factories, the suction to be distributed by means of trunks carried along walls or ceilings, the fires to be concentrated in a furnace under a boiler, and the heat to be distributed by hot-water pipes placed in front of the fresh air inlets. Upon such a plan a very serviceable system of ventilation could be constructed.

Having been thus incidentally led to consider a substitute for the system of cross ventilation, it will be well that I should here mention the possibility of using mechanically driven blowing machines as a substitute. This would be practically equivalent to using a gas-engine or dynamo, driving a blower, to propel air into the dormitory instead of using the suction of the large chimney to extract the air. I hesitate to regard such an arrangement as suitable for dormitories. Whatever apparatus is adopted ought to run for eight hours or nine hours every night without attention. I confess that there are some circumstances about the Poor Law schools which make mechanical ventilation peculiarly appropriate to them. Except for the times when the children are out of doors there is always the same number of children requiring air ; they are simply redistributed at different periods of the day or night. For a school of 500 children a central fan delivering 150,000 cubic feet of air could be kept running day and night, and with a suitable arrangement of channels the air could be easily made to follow the children from the dormitory to the breakfast hall, from the hall to the schools, and so on. The arrangement would need and could have constant attention, and I have no doubt that in a new building it could be satisfactorily arranged. To introduce such a system into an existing building is a much more difficult matter. I do not regard its piecemeal introduction to individual dormitory wards as being the easiest or most satisfactory solution of the general problem with which this inquiry deals.

Summary.

I have now completed the examination of the system of cross ventilation upon which all the Poor Law schools practically rely. I have shown that it is not properly applicable to very wide dormitories; that in the narrower dormitories, where it gives as a rule satisfactory results as regards quantity of air, the system fails as regards the temperature of the air supplied in cold weather, and it fails also as regards quantity of air in calm weather. I have computed the heat supply which should be furnished to provide for the coldest ordinary weather, and I have indicated some alternatives that might be adopted. I will call the alternatives the open-fire system, the factory-chimney system and the mechanical system. It remains to be considered whether the system of cross ventilation can be so modified in the buildings as they stand as to make it reasonably satisfactory as regards warmth as well as ventilation, or whether, if adequate ventilation is to be insisted upon, the system should be abandoned in favour of the open-fire system, the factory-chimney system or the system of mechanical ventilation. I am of opinion that the system of cross ventilation should be retained for the narrower dormitories, and that it should be supplemented by hot-water radiators under the windows. Provision should be made for the windows being opened some 8 inches at the top, the opening having in front of it a perforated zinc screen, the perforations being a quarter of an inch in diameter, and the screen being fixed so that it can easily be cleaned on both sides. This would distribute the incoming air over about twice the area that an uninterrupted stream of the same volume would occupy, and therefore would facilitate its mixing with the column of warm air rising from the radiator. The opening may be obtained either by drawing down a window-sash, in which case a frame containing the perforated zinc should be close to the window frames. Or the top of the window may be a hopper light, and opening inwards fall against the frame of the perforated zinc when fully opened. The second arrangement affords better protection against the weather.

In order to provide for ventilation in calm weather special provision is necessary. For this purpose some arrangement for differentiating the windows into inlets and outlets is required, but the arrangement must not interfere with the use of any window in either capacity when the wind supplies the necessary motive power. I would propose to make the provision by dividing the windows into upcast and downcast ventilators. For that purpose I would suggest doubling the glazing of all the windows on one side. If the windows face north and south those on the south side should be doubled, if they face east and west those on the west side. The second frame should be set on side brackets, leaving a free space between the bottom of the frame and the window-sill, so far from the wall that the hot-water coil or radiator is vertically under the opening between the frame and the sill. The lower half of the inner window should be a sliding sash. The upper half should have a hopper light falling into the space between the windows and leaving an 8-inch vertical opening protected by perforated zinc.

I contemplate the hot-water pipes being used on comparatively few days in the year, and used to their full power on very few days indeed.

These arrangements may be applied to dormitories of less than 25 feet in width. I am of opinion that, with the present regulations as regards cubic space, the rooms will then be suitably warmed and ventilated practically the whole year round, provided that the apparatus be used with judgment. I believe the introduction of the double glazing on the sunny sides will be found very materially to reduce the heating effect of the sun and promote ventilation in summer.

For dormitories beyond 24 feet in width the same arrangements may be adopted with a larger window opening, viz. 1 foot instead of 8 inches; but I am of opinion that in their case the necessary allowance of cubic space per bed should be increased. My observations are not sufficiently extended to warrant any final conclusion as to the proper amount of cubic space to be allowed. The third row of beds might have one and a half times the space of the first two rows, the fourth row twice as much space, the fifth, sixth and seventh rows three times as much.

This would give a rule of allowance of cubic space, adjusted to the width of dormitories, approximately as follows:—

For every 100 cubic feet of space allowed to each bed in a dormitory not exceeding 24 feet wide,

110 cubic feet per bed should be assigned in a dormitory between	24 feet and 30 feet wide
130 cubic feet per bed should be assigned in a dormitory between	30 „ „ 36 „ „
140 cubic feet per bed should be assigned in a dormitory between	36 „ „ 45 „ „
160 cubic feet per bed should be assigned in a dormitory between	45 „ „ 54 „ „

A dormitory which is not adapted for cross ventilation, and which is not otherwise adequately provided, should, for the purpose of computing the allowance of cubic space, be treated as on the same footing as a dormitory of three times its own width, that is to say, a dormitory with windows on one side only and 18 feet wide should have the same allowance of cubic space per bed as a dormitory 54 feet wide, viz. 160 cubic feet for every 100 allowed in a narrow dormitory with provision for cross ventilation.

With the modifications suggested the ventilation, and more particularly the warming, would need intelligent management. It is almost universal for powerful heating apparatus to be abused by being employed when it is not wanted. I would propose to meet the difficulty by the issue of a card of instructions as regards warming and ventilation to be hung up in the room.*

I have endeavoured to keep in view the existing allowance of cubic space in the narrower dormitories, and to suggest arrangements that shall provide efficient ventilation without extending the allowance. Whether it be advisable to maintain the existing rules ought to depend upon the manner in which the system of cross ventilation works out in practice, when it is modified so as to provide for the adequate warming of the rooms. One point, however, ought to be mentioned. The coils or radiators ought to extend the whole width of the windows, and they will occupy in consequence a good deal of wall space. It is desirable that these coils should be as freely exposed to the room as possible, and easily accessible for cleaning. To set a bed immediately in front of and close to each one would not be a good arrangement. It is therefore desirable to make such allowance of cubic space as to make it possible to leave free space in front of the radiators.

*Possibly the organisation of a "ventilation drill" for some of the elder children might be an effective means of obtaining the best results from the use of the apparatus.

Wide Dormitories.

For dormitories more than 30 feet in width it would be desirable to have some other way of ventilating that might be adopted as an alternative to diminishing the certified accommodation. The precise plan to be recommended would depend upon many circumstances. For Edmonton, which would have to deal with the large boys' dormitory, to warm the girls' and the infants' dormitory, and to arrange for the two dormitories in the old house, which are not adapted for cross ventilation, a wide factory chimney would, in my opinion, afford the best solution. The chimney might not inconveniently be placed on the land between the buildings and the stream, and trunks led into it from the boys' dormitories; it would serve as a boiler flue for the hot-water pipe system, but the chimney should be much wider than is required merely for that purpose, and should be carried some 30 feet above the roof. There should be provision for supplying heat to the chimney when the boiler fire is not required. The distribution of rooms at Edmonton would also lend itself easily to ventilation and warming on the mechanical system.

Infants' Dormitories and Nurseries.

The considerations as to temperature, brought forward in the foregoing pages, have had reference to dormitories intended for the older children. For infants and babies the minimum temperature assigned would be much too low. For these a normal temperature of 58 deg. to 60 deg. is appropriate, and a minimum temperature of 50 deg. may be assigned, and the additional 10 deg. must be furnished by additional length of coil, or, as the heating available when employed at full power is more than sufficient for ordinarily cold weather, the existing open fires may be used in the coldest weather to supplement the heating of the rooms supplied with the normal amount of hot-water pipe.

Artificial Lighting.

In arranging for ventilation allowance ought to be made for the air required on account of artificial lighting. In the schools which I have visited the universal illuminant is gas. In dealing with dormitories I have made no allowance on that account, because at most there appears to be a single jet burning for each thirty occupants. It is better to have the gas fumes led away directly from the room by a suitable flue, and this is done already in many cases. The small amount of gas employed without special extraction need not affect the general considerations here put forward.

Existing Air Inlets and Extraction Flues.

The system which I have sketched out for ventilating and warming the dormitories is intended to enable the rooms to be adequately ventilated even in the coldest weather. On such occasions the active circulation of air caused by the hot-water coils will, I believe, dispense with the necessity for special openings near the floor for the purpose of ventilating the lower part of the room, and such as are provided may then be temporarily closed when they are found to cause cold draughts. For this purpose suitable covers may be provided, which can be opened or closed as may be found desirable. The best plan that I am acquainted with for securing this is to provide a wooden or iron sliding drawer to fit the opening. The drawer need have neither back nor top nor bottom, only a front and two sides, held together by a narrow bar passing from side to side. A plug may be secured in the top or bottom of the opening, which will prevent the drawer being entirely withdrawn. For an opening 6 inches wide it will be sufficient if the drawer pulls out so as to leave 3 inches clear at top and bottom. Suitable drawers of wood could readily be made in the carpenters' shops of the several schools. With an arrangement of this kind it is quite easy to see whether the ventilators are open or shut, and to shut them while cleaning is going on in the room, so as to prevent the dust accumulating in them. It is also easy to get at the openings behind them.

It is not desirable to close permanently the openings already existing, for in the summer openings at different levels are of great value, and for the warmer nights of spring and autumn they would be serviceable.

Recommendations as to Dormitories.

In accordance with the views set forth in the foregoing pages I beg leave to make the following recommendations with regard to dormitories:—

A.—1. That all air ducts, perforated skirting, extraction flues, radiators and other appliances for the supply or extraction of air (including air-bricks behind existing steam pipes), or for warming, be cleaned, and provision be made for facilitating their cleaning in future.

2. That provision be made for suspending in each dormitory a card enumerating the appliances for ventilation and for warming with which the dormitory is supplied, and giving

directions for their use and for the periodical cleaning of all air ducts.

3. That in case there are latrines or closets adjoining the dormitories, provision be made for a flue leading from near the ceiling of each closet up to and above the roof, and for a gas jet so arranged that the heated air from it passes directly into the flue, but not so that the gas jet is contained within the flue itself, nor so that all the air passing into the flue goes past the gas flame.

A lantern with a chimney, narrower than the flue, ending just at the commencement of the flue, would be satisfactory.

B. For Dormitories adapted for the System of Cross Ventilation.—1. That provision be made for supplying the dormitories with hot-water coils or steam coils (preferably the former) to the extent of from 5 to 10 feet of 2-inch pipe for each bed, arranged as radiators under each window. The radiators to extend the whole width of the window. The connecting pipes between the radiators to be protected to prevent them supplying heat to the room.

2. That provision be made for double glazing the windows on the south side or west side of the dormitories after the manner (generally speaking) indicated in the drawings.

3. That for dormitories more than 24 feet in width and for narrower dormitories not adequately provided with means for cross ventilation, the allowance of cubic space be increased.

4. That suitable covers be provided for floor ventilators and for other ventilators which give direct communication with the outside air through the walls of the dormitory.

C. For Dormitories which cannot be adequately Ventilated by Cross Ventilation.—That provision be made for ventilation by the "factory chimney" method or by "mechanical ventilation."

ARCHITECTURE AT KING'S COLLEGE.

THE following is the report of Professor Banister Fletcher, which was read at the distribution of prizes to the students of the architectural, building construction, studio and wood-carving classes of King's College on Friday last :—I have to report that the competition for the free scholarships, the gift of the Worshipful Company of Carpenters, took place in this college on Monday last. There were ten candidates, of whom eight sat for examination.

The result of the examination was as follows :—A. J. Wade was first with 104 marks out of a possible of 120, and G. H. Briggs was second with 103 marks. The work of the remaining students was good, in fact, four obtained more than two-thirds.

It has become so much the rule upon such a meeting as this to lay before you some figures showing the growth or decrease of the classes that, at the risk of tiring you, I am compelled to follow the custom and give you briefly the results.

Number of Students entered attending the Classes.

Session 1892-93	28
,, 1893-94	42
,, 1894-95	75
,, 1895-96	120
,, 1897-98	145

The individual students making these 145 entries number 84.

In the wood-carving classes the following are the figures :—In the day classes the instructor reports :—"I have much pleasure in reporting this year an extension of my list of pupils as compared with the previous year. During the year 1896-67 I had a total of 59 pupils, or an average per term of 19⅔, while during the year just concluded my pupils numbered in the aggregate 63, giving an average per term of 21." In the evening classes the instructor reports :—"A slight increase in members; there are now 60 students." The judges report that at the examination of the work submitted in both the day and evening classes there was a marked advancement in the craftsmanship.

The attendance at the several classes has been good and regular, notwithstanding the many inducements for pleasure that now exist; the reduction of the vacations between the terms has, I believe, been of great assistance in obtaining this improvement in attendance. We are this evening dealing with prizes and certificates won upon the college examinations, but I think it only right that mention should be made of the results obtained by such of our students who have sat for outside examinations, the proportion of failures being but 15 per cent.

Government appointments, surveyors—3 sat, all passed. Surveyors' Institute—1 sat, 1 passed. Institute of British Architects—4 have become probationers, 3 have passed the intermediate, and others are preparing for the November examination for the R.I.B.A. degree. City and Guilds—5 sat, 4 passed. Science and Art examinations—4 sat, 3 passed.

Architectural History Class.—We have had the full number to which I limit this class.

The following are the prize-winners :—F. G. Pain, gold medal; C. J. T. Dadd, silver medal and 3*l.* in books; W. Marchment, bronze medal and 2*l.* in books; W. G. Trew, certificate of distinction and 1*l.* in books. The reason a gold medal is given is that the student obtained first place in the examination for three consecutive years.

Architectural History Drawing Class.

The number of drawings prepared in this class is fifty. The prize-winners are :—C. J. T. Dadd, certificate and 2*l.* in books; W. G. Trew, certificate and 1*l.* in books. I can hardly speak too highly of the attention and earnestness of all the students.

A pleasing feature in our classes is the fact that very many of our students are not satisfied with one course, but are to be found again a second year working with renewed vigour in some special class or classes. That our classes are conducted with a view to embrace such teaching as will be most useful under all the various circumstances one has but to take at random any class and notice the several trades and professions of the students.

As an example we have one in the following :—One fellow of the Surveyors' Institute, one associate of the Surveyors' Institute, one associate of the Institute of British Architects, two School Board teachers, six architectural assistants, two plumbers, four carpenters, two masons, one telegraphic clerk, three clerks.

As to the far-reaching influence of our classes, I would also mention that among our students some come from Windsor, Guildford, Addlestone, Bromley, Gravesend, Stevenage and all parts of the postal district of London. The establishment of these evening classes in the session of 1892-93 was really a pioneer of the great educational movement that has resulted in the formation of the numerous huge polytechnics. In the face of this growing and keen competition, the fact that we are enabled this evening to place before you such a record is, I think you will agree, most encouraging, more so as upon looking over the list of teachers in kindred subjects held at the several polytechnics, we find therein men who have been through our classes here, and who must accordingly be strong competitors.

With regard to the architectural studio, which is open every day and evening, it has continued to be of great use to the students. It has been attended by eighteen students, and much good work has been done, as you will see by the exhibited work. One point has been in the satisfactory increase of the day students. Many of the students are preparing their testimonies of study for the R.I.B.A. examinations, while others simply come and improve their powers of design and drawing, and make practical working drawings of buildings to be erected. Many friendships are formed, too, which remain through life, and the encouragement which the students give to each other is of great value. Many of the students have obtained important posts after leaving the college, both at home and abroad, and I can confidently recommend all students to take the studio course. The possession of such a unique collection of models, drawings, diagrams and photographs (the number added this year is 829) as we possess, including the magnificent Scott collection, must always be an incentive to good work, and I am somewhat confident that you will agree upon examining the students' work to-night there is reason to be pleased with the result. We are ever anxious to still increase our numbers and classes, and trust with your assistance to come before you next year with another increase.

The classes reassemble as follows :—

October 3.—Studio, 6 P.M.; building construction lectures, 7 P.M.; constructional drawing, 8 P.M.

October 5.—Architectural history lecture, 7 P.M.; architectural sketching class, 8 P.M.

October 7.—Quantity class, 6.30 P.M.

It is usual to give to intending students a few words of advice. Last week some of you may have seen that the Poet Laureate, in unveiling a monument to the father of English poetry (Cædmon), said he had the great advantage of being "wholly unencumbered with the lumber of learning," and, it may be, some have thought in other walks of life learning may be dispensed with. Without deciding the difficult question of the poet, whom we have heard is so different from the rest of mankind, I cannot too forcibly remind you that it is impossible to get on in life without the lumber—and a very great quantity thereof—nor is it possible to acquire such lumber save only in early youth; that the man who neglects that period can only acquire knowledge with very much greater difficulty, if at all. With one more remark let me conclude. I have referred to it before, but not, probably, in such emphatic language as Dr. Garnett did recently in a paper he read before the London Chamber of Commerce. He said the German looks upon his business career as his life; the English boy merely regards it as a means of getting money to enable him to live. This is the reason of the great success of the former. Rest assured that only those can hope to attain great success who love learning for its own sake and the pleasure that it gives.

A NATIONAL PHYSICAL LABORATORY.

THE report of the committee appointed by the Treasury to consider the desirability of establishing a national physical laboratory has appeared. The committee consisted of Lord Rayleigh (chairman), Sir Courtenay Boyle, Sir Andrew Noble, Sir John Wolfe Barry and Messrs. W. C. Roberts-Austen, Robert Chalmers, A. W. Rücker, Alexander Siemens and T. E. Thorpe. After briefly reviewing the origin and scope of the work of the Board of Trade laboratories, the report says :—

In general the committee are of opinion that the appliances and facilities of the Standards Office and of the Electrical Standardising Laboratory are fairly adequate for the performance of their statutory duties. They understand, however, that on account of the want of means for the chemical analysis of the materials used in the construction of standards, those offices would find some difficulty, without extraneous assistance, with regard to any new standards that might be required.

They further desire to point out that many physical constants and data and numerical expressions are necessarily used in connection with standards and the standardising of instruments. Some of the data now in use at the Standards Office are known to require correction, and in the case of others further investigations appear to be desirable. There is, however, no legal obligation on the Board of Trade to establish new data and numerical expressions, and in consequence of the smallness of the staff of the office the work of the department is limited to that which is strictly enjoined by the Acts of Parliament. The department is at the present time chiefly dependent for more exact knowledge on such investigations as may be undertaken at the Bureau International des Poids et Mesures at Paris, or by foreign institutions similar to that contemplated in this country.

There is much evidence that further facilities are needed by the public for the standardising and verifying of instruments, both for scientific and commercial use ; and also that it would be of great benefit to trade if means were provided for the public testing of the quality of certain classes of materials. In particular the committee desire to draw attention to the evidence which has been laid before them as to the difficulties arising in certain Government departments in their dealings with contractors and others which might be overcome by the establishment of an independent testing authority. It would neither be necessary nor desirable to compete with or interfere with the testing of materials of various kinds as now carried out in private or other laboratories ; but there are many special and important tests and investigations into the strength and behaviour of materials which might be conducted with great advantage at a laboratory such as is contemplated in the reference. As illustrations we may mention investigations into the behaviour of metals and other substances under continuous or alternating stresses, which investigations are not, so far as we know, conducted at the present time at any testing institution in this country, and which could only be undertaken with satisfactory and authoritative results at a public laboratory.

After consideration of the evidence the committee have come to the conclusion that an institution should be established for standardising and verifying instruments, for testing materials, and for the determination of physical constants. Work useful both to science and industry could therein be performed for which no adequate provision is at present made, either in this country or at the Bureau International des Poids et Mesures. Such work could not, or, at all events, in all probability would not, be undertaken by individual workers, or by institutions primarily devoted to education. In the opinion of the committee the proposed institution should be established at the national expense on lines similar to, though not at present on the scale of, the Physikalisch-technische Reichsanstalt. The possibility of future extension should, however, be kept in view from the first.

To secure the efficient performance of the work, the committee are of opinion that the director of the institution should be a man of high scientific attainments, and should act under a governing body containing representatives of both science and industry. The director should not be called upon or allowed to undertake work not connected with the institution except with the consent of the governing body. He would require the support of an adequate staff. As regards locality, while it is desirable that the institution should be near London, it is necessary that the site be free from mechanical and electrical disturbance.

Among the most important questions considered by the committee was whether the proposed institution should be founded independently or should be a development of an existing institution. The duties of the Board of Trade, as custodian of certain standards, are defined by statute, and the committee consider that it is undesirable to alter existing arrangements in this respect. They are of opinion that the proposed laboratory, if established, should be managed by a governing body constituted and appointed as hereinafter described, and should not be under the direct control of a Government department. They recommend that the Board of Trade, as custodian of the standards, should be placed in close connection with the said governing body.

The character of the work done at the Kew Observatory suggests that all that is really necessary might be attained by the development of that institution.

The report concludes with the following recommendations :—

1. That a public institution should be founded for standardising and verifying instruments, for testing materials and for the determination of physical constants.

2. That the institution should be established by extending the Kew Observatory in the Old Deer Park, Richmond, and that the scheme should include the improvement of the existing buildings and the erection of new buildings at some distance from the present observatory.

3. That the Royal Society should be invited to control the proposed institution, and to nominate a governing body, on which commercial interests should be represented, the choice of the members of such body not being confined to Fellows of the Society.

4. That the permanent secretary of the Board of Trade should be an *ex officio* member of the governing body ; and that such body should be consulted by the Standards Office and the Electrical Standardising Department of the Board of Trade upon difficult questions that may arise from time to time, or as to proposed modifications or developments.

TESSERÆ.

Early Engraving.

EVELYN says the art of engraving and working off from plates of copper did not appear till about the year 1490. That is, it was not brought to perfection from the hints gathered from typography ; yet it is certain that in 1460, Maso Finiguerra, a goldsmith of Florence, by an accident that might have given birth to the rolling-press, without the antecedent discovery of printing, did actually light upon the method of taking off stamps from an engraved plate. Casting a piece of such plate into melted brimstone, he observed that the exact impression of the engraving was left upon the surface of the cold brimstone, marked by lines of black. He repeated the experiment on moistened paper, rolling it gently with a roller. It succeeded. He communicated the discovery to Baccio Baldini, of his own profession and city. The latter pursued the invention with success and engraved several plates from drawings of Sandro Botticelli, which being seen by Andrea Mantegna, he not only assisted Baldini with designs, but cultivated the new art himself. It had not long been in vogue before Hugo da Carpi tried the same experiment with wood, and even added a variety of tints by using different stamps for the gradations of lights and shades. From Italy engraving soon travelled into Flanders, where it was first practised by Martin, of Antwerp. He was followed by Albert Dürer, who carried the art to a great height, considering how bad the taste was of the age and country in which he lived. His fidelity to what he saw was at once his fame and misfortune ; he was happy in copying nature, but it was nature disguised and hid under ungraceful forms. With neither choice of subjects nor beauty, his industry gave merit even to ugliness and absurdity. Confining his labours almost wholly to religious and legendary histories, he turned the Testament into the history of a Flemish village ; the habits of Herod, Pilate, Joseph, &c., their dwellings, their utensils and their customs were all Gothic and European. Lucas, of Leyden, imitated him in all his faults, and was still more burlesque in his representations. It was not till Raphael had formed Marc Antonio that engraving placed itself with dignity by the side of painting.

Land-bocs.

Our ancestors before the Norman Conquest pursued no system of public registration, though there are numerous charters of the Anglo-Saxon kings and deeds between private individuals still existing, and historical events are found chronicled in monastic chartularies. The Anglo-Saxons, whose judicial proceedings were conducted orally, had no records except the "land-bocs" or charters. The transactions of the folk-moots were not registered or recorded, and in the administration of justice no reference was made to written precedents. In such a state of society, though the actual possession of land constituted one of the best titles to real property, still the "land-boc" furnished evidence of it also. And so important were these "land-bocs" considered, that when the monks of Ely purchased seven hides and a half of land, they gave three hides besides thirty "aurei" to recover the charter or "cyrograph" of the title. Duplicates and triplicates of these "land-bocs" were made, and one part was delivered into the custody of the burthegn, or chamberlain, to be preserved in the "horde," or royal treasury. When a written account is made of any act, it is clear that it is made

not for the exclusive benefit of one party only. In the Domesday book of the Norman Conqueror we see evidence that his power was far from absolute. The financial registrations (Rotuli Pipæ) of Henry I., in whose reign the earliest example is found—the records of the judicial proceedings of the "Curia Regis," which begin with Richard I.—and the special acts of the monarch himself enrolled on the "close," "patent" and "charter" rolls commencing in the reign of John—are all so many irresistible proofs how gradually larger interests were trenching on the will of the king, who formally recognised no other power than his own in the government of the kingdom. The judicial records of the King's Bench and Common Pleas, and the Parliamentary records beginning with Edward I., are further evidence of the increasing influence of the nobles and commonalty of the realm.

Harmony of Colours.

All the modes of harmony, or of producing that effect of colours which is required in a picture, may be reduced to three, two of which belong to the grand style and the other to the ornamental. The first may be called the Roman manner, where the colours are of a full and strong body, such as are found in the *Transfiguration*; the next is that harmony which is produced by what the ancients called the corruption of the colours, by mixing and breaking them till there is a general union in the whole without anything that shall bring to remembrance the painter's palette or the original colours; this may be called the Bolognian style, and it is this hue and effect of colours which Lodovico Carracci seems to have endeavoured to produce, though he did not carry it to that perfection which we have seen since his time in the small works of the Dutch school, particularly Jan Steen—where art is completely concealed and the painter, like a great orator, never draws the attention from the subject on himself. The last manner belongs properly to the ornamental style which we call the Venetian, being first practised at Venice, but is perhaps better learned from Rubens; here the brightest colours possible are admitted with the two extremes of warm and cold, and those reconciled by being dispersed over the picture till the whole appears like a bunch of flowers. From the Dutch school the art of breaking colour may be learned. Attention should also be given to the works of Watteau for excellence in this florid style of painting. To all these different manners there are some general rules that must never be neglected. First, that the same colour which makes the largest mass be diffused and appear to revive in different parts of the picture, for a single colour will make a spot or blot. Even the dispersed flesh colour which the faces and hands make requires a principal mass which is best produced by a naked figure; but where the subject will not allow of this a drapery approaching to flesh-colour will answer the purpose, as in the *Transfiguration* where a woman is clothed in drapery of this colour, which makes a principal to all the heads and hands of the picture, and for the sake of harmony the colours, however distinguished in their light, should be nearly the same in their shadows. And to give the utmost force, strength and solidity to the work some part of the picture should be as light and some as dark as possible; these two extremes are then to be harmonised and reconciled to each other. Instances where both of them are used may be observed in two pictures of Rubens, which are equally eminent for the force and brilliancy of their effect; one is in the cabinet of the Duke of Rutland, and the other in the chapel of Rubens at Antwerp, which serves as his monument. In both these pictures he has introduced a female figure dressed in black satin, the shadows of which are as dark as pure black, opposed to the contrary extreme of brightness, can make them. If to these different manners we add one more, that in which a silver grey or pearly tint is predominant, every kind of harmony that can be produced by colours will be comprehended.

Inigo Jones's Disinterestedness.

Webb declares that Jones was neither arrogant nor ambitious, nor exulted in his knowledge and his learning; on grounds which are at least equally sure he claims for him a nature generous and noble. Of this he gave a strong proof soon after his appointment. "The office of His Majesty's works," says his son-in-law, "of which he was supreme head, having through extraordinary occasions, in the time of his predecessor contracted a great debt, amounting to several thousand pounds, he was sent for to the lords of the Privy Council, to give them his opinion what course might be taken to ease His Majesty of it, the exchequer being empty and the workmen clamorous. When he of his own accord voluntarily offered not to receive one penny of his own entertainment, in what kind soever due, until the debt was fully discharged. And this was not only performed by him himself, but upon his persuasion the comptroller and paymaster did the like also, whereby the whole area was discharged." This Roman disinterestedness, as Walpole calls it, proves that the architect had other means of subsistence than his salary as surveyor; but he was never rich, and though he is upbraided by Philip, Lord Pembroke, with having sixteen thousand a year for keeping the palaces in repair, there is no proof that the bargain was profitable or that he gained more than the bare Government pay of 8*s.* 4*d.* per day, with an allowance of 46*l.* a year for house rent, besides a clerk and incidental expenses. "What greater rewards he had are not upon record," observes Walpole; "considering the havoc made in offices and repositories during the great civil war, we are glad at recovering the most trivial notices." His savings could not be large from his salary, and he was too generous to profit by the liberal spirit of his master, who was the poorest king of the richest nation in Europe. Of his modesty respecting the perquisites of his place there is a proof which no one will doubt, to wit, a written testimony by King James in the British Museum. "Whereas," says this document, "there is due unto Inigo Jones, esquire, surveyor of His Majesty's works, the sum of 38*l.* 7*s.* 6*d.* for three years arrears of his levy out of the Wardrobe, as appeareth by three several debentures; these are therefore to will and require you to make payment unto the said Inigo Jones or his assignees, and for so doing this shall be your warrant." For three years the king was unable to pay the annual price of his surveyor's livery, and the latter had the modesty and the forbearance to wait till accident or the tardy liberality of the Commons replenished the exchequer with the sum of 38*l.* 7*s.* 6*d.*

Fitness and Proportion.

Every form which is susceptible of proportion may be considered in either one or other of the following lights. First, in the light of its whole or general relation to the end designed, or when it is considered as a whole, without any distinction of parts; or, secondly, in the light of the relation of its several parts to this end. Thus, in the case of a machine, we may sometimes consider it in the light of its general utility for the end it is destined to serve, and sometimes in the light of the propriety of the different parts for the attainment of this end. When we consider it in the first light it is its fitness which we properly consider. When we consider it in the second light it is its proportion we consider. Fitness may therefore be supposed to express the general relation of propriety between means and an end, and proportion a peculiar or subordinate relation of this kind, viz. the proper relation of parts to an end. Both agree in expressing the relation of propriety between means and their ends. Fitness expresses the proper relation of the whole of the means to the end. Proportion, the proper relation of a part or of parts to their end. Where we have no acquaintance with the fitness of any form we have no sense of its peculiar proportions. No man, for instance, ever presumes to speak of the proportions of a machine of the use or purpose of which he is ignorant. When a new machine is shown us we may pronounce with regard to the simplicity or the complexness of its construction, but we never venture to pronounce with regard to the propriety or impropriety of its proportions. When our acquaintance is greater with the uses or purposes of any particular class of forms than the generality of people, we are sensible of a greater number of pleasing proportions in such objects than the rest of the world, and the same parts which others look upon with indifference we perceive as beautiful from our knowledge of the propriety of their construction for the end designed.

Early Stained-Glass.

In the earlier glass paintings, both Early English and Decorated, the material of which is very unevenly blown, it would seem that the artists were content with the sparkling effect thus naturally produced, and abstained from the use of diaper patterns; this is particularly the case with shields of arms: but that in proportion as the material became more refined in its manufacture, they multiplied ornaments of every kind in their works. The ruby glass was generally left untouched, out of consideration probably for its streaky appearance, which rendered any further enrichment unnecessary.

GENERAL.

Mr. W. Goldstraw, building surveyor to the Liverpool Corporation, is to be presented with the sum of twenty-five guineas in appreciation of the excellent manner in which he has carried out the erection and completion of the labourers' dwellings in Gildart's Gardens, Purcell Place and Kearney Place, in accordance with the scheme prepared by the former city engineer.

The New Reredos at St. Barnabas Church, Clapham Common, has been opened by the Bishop of Rochester. It is constructed of Caen stone, inlaid with polished alabaster. The sculptured group represents "The Last Supper," with richly carved canopies, and is of the Early Decorated style.

The Reopening and rededication of St. Mary's Chapel, Aberdeen, the lower church of the ancient parish church of St. Nicholas (which was consecrated by Bishop Elphinstone just 400 years ago), took place on Saturday afternoon. The work of restoring the crypt cost 654*l.*

The Liverpool Council Chamber is to be altered at an estimated expense of 8,000*l.*

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

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For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

ABERAVON.—Dec. 1.—Plans are invited, with estimated cost, for the extension of the covered market. A premium of twenty guineas will be awarded to the architect whose plans shall be selected. Mr. Jas. Roderick, borough surveyor, Aberavon.

SCOTLAND.—Oct. 15.—Designs are invited for an hospital for infectious diseases. Mr. John Adams, clerk to Joint Committee, Burgh Buildings, Ardrossan.

CONTRACTS OPEN.

ACCRINGTON.—Oct 15.—For erection of a vicarage, St. Peter's, Accrington. Messrs. Austin & Paley, architects, Castle Hill, Lancaster.

BISHOP AUCKLAND.—Oct. 13.—For erection of the No. 1 isolation hospital buildings at Tindale Crescent. Mr. Wm. Perkins, architect, Victoria Street, Bishop Auckland.

BURY.—Oct. 11.—For erection of a post office. Messrs. Gritten & Son, Abbey Buildings, Princes Street, London, S.W.

BARRY DOCK.—Oct. 13.—For erection of a chapel and schoolroom at Tynewydd Road, Barry Dock. Mr. T. W. Lewis, 160 Holton Road, Barry Dock.

BELFAST.—For erection of three terrace houses at Whitehead. Mr. Henry T. Fulton, architect, &c., 91 Donegall Street, Belfast.

BILSTON.—Oct. 10.—For erection of an engineer's house at the Bratch, Wombourn, Bilston. Mr. C. N. Wilson, surveyor, Town Hall, Bilston.

BRADFORD.—For erection of eight shops and residences in Westgate. Mr. Frederick Wild, architect, 7 Charles Street, Bradford.

BRIDGWATER.—Oct. 11.—For stripping and re-covering the various slopes of the roof, for repairing the lead roof, and for the provision of new roof-lights at the Market House, Cornhill. Mr. W. T. Baker, town clerk, King Square, Bridgwater.

BRIDLINGTON.—For erection of houses on the Hilderthorpe Hall Estate. Messrs. Howorth & Howorth, architects, Cleckheaton.

CAMBORNE.—Oct. 19.—For erection of proposed Masonic buildings. Mr. Alfred Walters, solicitor, Camborne.

CARDIFF.—For erection of two blocks of villa residences, near Porthkerry Park, Barry. Messrs. J. P. Jones, Richards & Budgen, architects, 18 St. Mary Street, Cardiff.

CARLISLE.—For erection of two dwelling-houses at Russell Terrace, Blackwell Road. Messrs. Johnstone Bros., architects, 39 Lowther Street, Carlisle.

CORNWALL.—Oct. 12.—For erection of a flight of steps at Cawsand and for constructing a culvert, &c., under the Halfway House at Kingsand. Mr. Fred. Wm. Cleverton, 4 Buckland Terrace, Plymouth.

CONSETT.—Oct. 15.—For erection of a dwelling-house in Aynsley Terrace. Mr. John Doherty, architect, 24 Sherburn Terrace, Consett.

DARWEN.—Oct. 17.—For erection of a Wesleyan church, Bolton Road. Mr. John B. Thornley, architect, 45 Market Street, Darwen.

DURHAM.—For erection of an engine-house. Heworth Colliery Office, Felling.

ECCLES.—Oct. 12.—For construction of a urinal in Barton Lane. Mr. G. W. Bailey, town clerk.

ELLAND.—For erection of a new infants' school at Elland. Mr. Herbert W. Booth, architect, Hopwood Lane, Halifax.

GRAVESEND.—Oct. 14.—For taking-down and re-erecting the rowing club buildings and adjoining Thames Conservators' store and outlook. Mr. Chas. E. Hatten, town clerk, Court House, Gravesend.

GREENWICH.—Oct. 13.—For erection of a workhouse for about 800 inmates on a site near Grove Park. Mr. Thos. Dinwiddy, architect, 12 Crooms Hill, Greenwich.

HALIFAX.—Oct. 21.—For erection of offices at Ovenden Mr. Medley Hall, architect, 29 Northgate, Halifax.



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HARROGATE.—For erection of a pair of villas, Ripon Road. Mr. T. E. Marshall, architect, Harrogate.

HARROW.—Oct. 11.—For erection of a classroom at the Harrow infants' school, for the Harrow (U.D.) School Board. Messrs. Houston & Houston, 5 York Buildings, Adelphi, W.C.

HERTFORD.—Oct. 12.—For erection of bridge at Totteridge. Mr. Urban A. Smith, county surveyor, 41 Parliament Street, S.W.

HOLMFIRTH.—Oct. 10.—For erection of residence. Mr. Joseph Smith, architect, Huddersfield Road, Holmfirth.

HORSHAM.—Oct. 17.—For erection of infirmary and administrative block to the workhouse. Mr. C. H. Burstow, architect, 6 West Street, Horsham.

IRELAND.—Oct. 11.—For erection of labourers' cottages and fencing the plots attached to them as follows:—1 cottage in Glassalton townland, 1 cottage in Clontail townland and 1 cottage in Newrath Big townland, Ardee. Mr. Louis Turley, architect, Laurence Street, Drogheda.

IRELAND.—Oct. 11.—For erection of labourers' cottages, out-offices and fencing of plots in various electoral divisions, Dromore West. Mr. M. Doudican, executive sanitary officer, Board-room, Dromore West.

IRVINESTOWN (IRELAND).—Oct. 15.—For repairs and alterations on the Methodist chapel at Trillick. Rev. J. Bradshaw, the Manse, Irvinestown.

KEIGHLEY.—Oct. 12.—For additions to 47 South Street. Messrs. W. & J. B. Bailey, architects, Bradford.

KINGSCLERE.—Oct. 12.—For erection of six cottages at Kingsclere. Mr. Walter Henry Bell, architect, Market Place, Newbury.

KING'S LYNN.—Oct. 18.—For repairs and additions to the Wesleyan Methodist chapel, Burnham Market. Mr. R. W. W. Carter, architect, Church Street, Cromer.

LANCASTER.—For erection of two semi-detached residences on the Building Estate, Hest Bank. Messrs. Holden, Whelon & Wilson, solicitors, Lancaster.

LANCHESTER.—Oct. 18.—For construction of a stone bridge over Newhouse Burn, near Moorside. Mr. Wm. Cumming, surveyor, Lanchester.

LEIGH.—Oct. 12.—For erection of new kitchens at the sanatorium, Astlee. Messrs. Banks, Fairclough & Stephen, architects, Leigh.

LEITH.—Oct. 17.—For alterations to Lorne Street public school. Messrs. A. & R. McCulloch, architects, 3 Bernard Street, Leith.

LIVERPOOL.—For the pulling-down of the existing theatre of varieties and shops in Lime Street and the re-erection of new building. Mr. Harry Percival, architect, 22 Buckingham Street, Strand, London.

LONDON.—Oct. 20.—For erection of an addition to, and for the alteration of, the Vestry Hall in Cable Street, for the Vestry of St. George-in-the-East. Mr. G. A. Wilson, Vestry Hall.

LONDON.—Oct. 18.—For enlargement of block D of the telegraph factory, Mount Pleasant, E.C., for the Commissioners of H.M. Works and Public Buildings. Mr. Tanner, H.M. Office of Works, Storey's Gate, S.W.

LONDON.—For conversion of houses into shops. Mr. P. Davies, architect, Haslemere, Rosendale Road, Herne Hill, S.E.

LONDONDERRY.—For erection of shop, stores and dwelling-houses in John Street and Foyle Road. Mr. R. H. M'Elwee, architect, 9 Carlisle Road, Derry.

LYME REGIS.—Oct. 15.—For erection of five cottage almshouses. Mr. Walter J. Fletcher, Wimborne.

MANCHESTER.—Oct. 13.—For brickwork, &c., required for seating two steam-boilers and altering the boiler-house at the workhouse, Crumpsall. Mr. Edward W. Ogden, clerk, Union Offices, Cheetham Hill Road, Manchester.

NEWCASTLE (CO. DOWN).—Oct. 19.—For erection of a bicycle-house, stables, coach-house and groom's dwelling-house. Mr. T. J. Brittain, Queen's Quay, Belfast.

NORTHALLERTON.—Oct. 15.—For erection of a house. Messrs. Clark & Moscrop, architects.

NORTH FINCHLEY.—Oct. 17.—For erection of a parish-room and institute at the junction of the Great North Road and Castle Road. Mr. Ernest A. E. Woodrow, 67-69 Chancery Lane, W.C.

NORTH SUNDERLAND.—Oct. 15.—For converting two cottages into two-storey dwelling-house. Mr. James Ewing, Sea Houses, Chathill.

NORTHUMBERLAND.—Oct. 12.—For alterations and additions to the Presbyterian school, Wooler. Mr. Wm. Robson Hindmarsh, jun., architect, Alnwick.

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OLDHAM.—Oct. 11.—For erection of a brick wall about 90 yards long, 7 feet high and 14 inches thick, with a buttress every 10 feet. Mr. B. Bailey, chairman of the surveyor's committee, Lees.

OLD HILL.—Oct. 10.—For erection of the Wright's Lane Board school at Old Hill for 348 boys and girls mixed and 340 infants. Messrs. Meredith & Pritchard, architects, Bank Buildings, Kidderminster.

PORTSMOUTH.—Oct. 10.—For erection of a public elementary school in Stamshaw Road to accommodate 600 boys, and for converting the existing Stamshaw Board school into a school for girls and infants only. Mr. G. E. Smith, Glendore. Victoria Road North, Southsea.

PONTYPOOL.—Oct. 17.—For alterations, repairs, paintings, &c., at town hall. Mr. Robert Williams, architect, Pontypool.

PORT TALBOT.—Oct. 15.—For erection of drill hall, workshop and alterations and additions to intermediate schools. Mr. Frank B. Smith, architect, Port Talbot.

ROMFORD.—Oct. 14.—For erection of public baths Messrs. Harrington & Ley, architects, 108 Fenchurch Street, E.C.

RUTHIN.—Oct. 17.—For alterations and additions to house at Brynhyfryd, including new school buildings in connection therewith. Mr. James Hughes, architect, Denbigh.

SALFORD.—Oct. 11.—For erection of lodges in the Albert and Ordsal Parks. Messrs. Brameld & Smith, architects, 7 Brazennose Street, Manchester.

SHEFFIELD. — Oct. 15. — For erection of the George Woofindin convalescent home at Fulwood. Messrs. Hemsoll & Paterson, architects, 18 Norfolk Row, Sheffield.

SOPHIA (BULGARIA). — Nov. 21. — For erection of eight public offices, viz., a Ministry of Public Works, Ways and Communications, a Ministry of Commerce and Agriculture, a Ministry of the Interior, a Ministry of Public Instruction, a Ministry for Foreign Affairs and Public Worship, a Ministry of Justice, and an Audit Office. Particulars can be obtained at the Commercial Department of the Foreign Office between the hours of 11 and 5.

SOUTH WALES.—Oct. 10.—For repairs and improvement of the Jersey Arms Inn, Cwmavon, Port Talbot. Mr. E. E. Bevan, Vale of Neath Brewery, Neath.

ST. ALBANS.—For erection of a stone staircase at the workhouse. Mr. T. Foster Woodman, St. Albans.

SWANAGE.—Oct. 12.—For erection of a police station. Mr. Walter J. Fletcher, architect, Wimborne.

TROWBRIDGE.—Oct. 23.—For erection of county offices at the back of Arlington House. Mr. Charles S. Adye, county surveyor for Wilts, Stallard Street, Trowbridge.

TUNBRIDGE WELLS.—Oct. 15.—For erection of 52 four-roomed cottages and 5 blocks of tenements. Mr. W. C. Cripps, town clerk, Town Hall, Tunbridge Wells.

WAKEFIELD.—Oct. 11.—For erection of pig-cotes at the workhouse. Mr. H. Beaumont, clerk, Union Offices, 47 Kirkgate, Wakefield.

WALES.—Oct. 18.—For erection of an assembly hall and other additions and alterations to the school at Llandaff. Mr. G. E. Halliday, architect, Cardiff.

WALES. — Oct. 15. — For erection of buildings, chimney shaft, &c., for the electric-lighting station. Mr. John Gill, borough surveyor, Bangor.

WALLINGFORD.—Oct. 20.—For additions to the Berkshire Lunatic Asylum at Cholsey, Wallingford. Mr. George T. Hine, architect, 35 Parliament Street.

WANSTEAD.—Oct. 27.—For erection of a school (one storey) and a caretaker's cottage on the Cobbold Road site. Mr. John T. Bressey, architect, 70 and 71 Bishopsgate Street Within, E.C.

WESTON-SUPER-MARE.—Oct. 26.—For erection of a school for 400 children in Locking Road. Mr. S. J. Wilde, architect, Weston-super-Mare.

WORKSOP.—Oct. 10.—For erection of offices, engine-houses, workshops, foundry, &c. Mr. John Allsopp, Worksop.

WORTLEY.—For demolition of the existing premises and erection of a new hotel on the site of the Oldfield Hotel, Oldfield Lane, Wortley. Mr. William Bakewell, 38 Park Square, Leeds.

THE memorial-stone of Kerse Church, Grangemouth, was laid on Friday last. The new building is estimated to cost 4,500*l.*, and it is expected that it will be open for worship towards the end of the year. It is seated for about 750 people, is designed in the Gothic style, and consists of nave and transepts, with a semi-octagonal recess at the west end, making the building cruciform on plan.

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Martin, Wells & Co.	£2,700 0 0
W. J. Snuggs	2,639 0 0
W. Garland	2,497 0 0

ALNWICK.

For construction of a settling tank and the providing and laying of 70 yards of 6-inch sanitary pipes and 15 yards of 6-inch cast-iron pipes, near Togston Hall.

T. Atkinson	£35 0 0
R. & G. Brown	30 0 0
A. DOUGLAS, Amble (*accepted*)	26 8 0

BARMBY-ON-THE-MARSH.

For repairing the Marsh Clough.

J. W. SHAW, Asselby, Howden (*accepted*)	£14 0 0

BARNSLEY.

For erection of five cottages in Spring Street. Messrs. WADE & TURNER, architects, 10 Pitt Street, Barnsley.

Accepted tenders.

J. Bycraft, Park Grove, mason and bricklayer	£404 0 0
M. Fleming, Eastgate, slater	53 5 0
T. Marshall, Horseywell Street, plasterer	44 10 0
W. Dransfield, Dodworth Road, plumber and glazier	18 15 0
C. Bridge, Doncaster Road, painter	12 6 0

BRISTOL.

For erection of a stay factory at Lower Easton. Mr. FREDK. GARDINER, architect, Bath. Quantities by Mr. A. BARRATT, Corn Street, Bristol.

J. Long & Sons	£12,099 0 0
G. Humphrey	11,990 0 0
W. Cowlin & Sons	11,984 0 0
E. Waters	11,900 0 0
E. Love	11,510 0 0
W. Church	11,483 0 0
Wilkins & Gosling	11,159 0 0
E. A. Hayes	11,090 0 0
Hayward & Wooster	10,666 0 0
A. J. BEAVEN, Bristol (*accepted*)	10,490 0 0

CHESTER-LE-STREET.

For construction of a sewer at Pelaw Grange, in the parish of Harraton, to consist of 348 yards of 6-inch sanitary pipes, with manholes, ventilators, &c. Mr. GEORGE SIMON, surveyor, Birtley.

J. Kelly	£75 0 0
J. Carrick	69 11 6
Davison & Bolam	69 10 0
J. RUTTER & SONS, Washington Station, co. Durham (*accepted*)	67 19 10

CLECKHEATON.

For painting and decorating large room in the town hall.

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T. Bray & Son	183 0 0
J. Hankins	173 0 0
A. E. Lister	131 5 0
T. H. Hewitt	127 10 0

DARTFORD.

For erection of fifty cottage dwellings. Messrs. DEAR & WINDER, architects.

E. Jones	£15,424 0 0
R. Walker	13,440 0 0
W. E. McGeorge	13,318 0 0
H. I. Stevens	13,000 0 0
Whitelaw & Wright	11,465 0 0
Dowell	11,376 0 0
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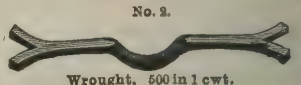
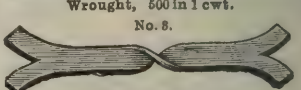
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T. Earl	£140 0 0
W. J. Hocking	127 0 0
Weeks & Boyns	93 0 0
Plymouth House-Painting Society	87 10 0
R. W. PITCHER, Devonport (*accepted*)	69 15 0

EASTBOURNE.

For construction of a gasholder tank. Mr. HENRY E. JONES, engineer, Stepney, E.

G. BELL, Tottenham and Manchester (*accepted*)	£5,791 0 0

ECKINGTON.

For asphalting about 1,134 square yards of road in the cemetery ground and top dressing about 1,230 square yards of road.

B. S. JONES, Wirksworth, 1*s.* 6*d.* per square yard, 1*s.* (*accepted*).

EDMONTON.

For erection of a new infirmary.

Chessum	£23,416 0 0
Fairhead	22,895 0 0
Hill	22,535 0 0
Wall	22,356 0 0
Knight & Son	21,995 0 0
Banyard	20,750 0 0
PORTER, Tottenham (*accepted*)	18,922 0 0

FARNHAM.

For erection of new infirmary, Farnham Union. Messrs. FRIEND & LLOYD, architects.

W. SMITH, Farnborough (amended tender) (*accepted*)	£12,510 0 0

FULHAM.

For construction of refuse destructor and steam-raising plant.

Horsfall Furnace Syndicate, Limited	£16,760 0 0
Beaman & Deas, Limited	16,520 0 0

HEREFORD.

For cleaning down, painting, decorating, fixing new window-frames, ventilation and other builder's work at the assembly-room, &c., at the Shirehall. Mr. H. T. WAKELAM, county surveyor.

W. Bowers & Co.	£503 0 0
J. C. VAUGHAN, Hereford (*accepted*)	487 10 0

HUDDERSFIELD.

For erection of ten houses for the Industrial Society, Limited, Deadwaters.

Accepted tenders.

Mark Brook, mason, Huddersfield.
George Ainley, joiner, Huddersfield.
Ernest Mitchell, plumber, Huddersfield.
Broadbent Bros, plasterer, Huddersfield.
Haigh & Shaw, painter, Huddersfield.
T. B. Tunnacliffe, slater, Huddersfield.
John Cooke, concreter, Huddersfield.
Total cost, £2,400.

HUNSTANTON.

For alteration and enlargement of the foreman's house at the gasworks.

Leach & Son	£130 0 0
R. Dye	127 0 0
J. Nelson	115 0 0
F. Southgate	113 10 0
J. BEETON, Hunstanton (*accepted*)	93 15 0

LOWER EDMONTON.

For alterations and additions and new stables to the Cross Keys public-house, for Mr. C. Gibbons. Messrs. A. DREWE-MERCER & A. E. TAYLOR, A.R.I.B.A., joint architects, Granville House, Arundel Street, Strand, W.C.

A. Porter	£10,389 0 0
J. Peerless	10,090 0 0
J. Weibking & Son	9,995 0 0
W. Gregor & Son (*too late*)	9,994 0 0
W. Johnson & Co.	9,546 0 0
A. Monk	9,133 0 0
S. & J. Redhouse	8,925 0 0
C. ANSELL (*accepted*)	8,737 0 0

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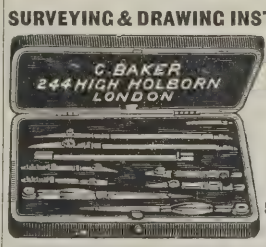
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KINGSWOOD.

For fitting-up the bar of the Station Hotel. Messrs. R. M. Chart & Son, architects, Croydon.

M. Patrick & Son, London (*accepted*)	£350 0 0

LEEK.

For erection of municipal science and technical school and county silk school. Messrs. Wm. Sugden & Son, architects, Leek and Hanley. Quantities by architects.

T. Godwin	£5,535 0 0
James Heath	5,300 0 0
T. Cornes & Son	5,150 0 0
Parnell & Sons	5,114 0 0
J. Fielding	4,948 0 0
S. Warburton	4,880 13 0
Sampson Salt	4,783 0 0
Thomas Grace, Leek (*accepted*)*	4,650 0 0
Heath & Lowe (woodwork only)	1,750 0 0
Mathews Bros. „ „	1,340 0 0
G. Stevenson (plumbing, &c., only)	482 17 0
E. Phillips „ „	482 0 0
M. Carding „ „	446 0 0

* Reduced by change in estimate of plumbing, &c., to £4,613 3*s.*

MIDDLESBROUGH.

For alterations to the Brougham Street chapel. Mr. Walter G. Roberts, architect, 61 Albert Road, Middlesbrough.

Full tenders.

Allison Bros.	£295 0 0
W. Thompson	202 5 0
W. A. King, North Ormesby	190 0 0

Joiner work.

W. A. King	120 0 0
Hudson Bros., Middlesbrough (*accepted*)	104 0 0

Brickwork.

W. Pounder	59 16 0
D. Doughty, Middlesbrough (*accepted*)	43 2 0

NORTHWICH.

For painting outside of workhouse.

Tomkinson & Bloomfield, Northwich (*accepted*)	£26 0 0

PADDINGTON.

For distempering ward at the workhouse.

Foxley (*accepted*)	£28 0 0

PORTSMOUTH.

For various works to be carried out at workhouse infirmary. Mr. C. W. Bevis, architect, Elm Grove Chambers, Southsea.

Engineering work.

McKinlay & Co.	£1,375 0 0
Portsmouth Water Fittings Company	1,195 0 0
W. Beuttell, Landport (*accepted*)	1,185 15 0

Sanitary work at imbecile ward.

Portsmouth Water Fittings Company	249 0 0
Phillip Bros.	218 0 0
W. Beuttell	215 0 0
D. Gammans, Southsea (*accepted*)	183 3 0

Sanitary work at old infirmary.

D. Gammans	373 11 0
W. Beuttell	367 0 0
Phillip Bros.	355 11 0
Portsmouth Water Fittings Company (*accepted*)	295 0 0

Painting.

A. C. Grylls	520 0 0
Fry Bros.	486 10 0
H. Carter	482 0 0
A. Petty	414 0 0
Phillip Bros.	397 12 0
D. Gammans (*accepted*)	295 15 0

ROTHERHAM.

For extensions to warehouses, &c., at Rother Works. Messrs. Edward Hutchinson & Son, surveyors, 18 Howard Street, Rotherham.

J. Bishop	£245 0 0
W. Thornton & Son	245 0 0
J. Earnshaw	239 0 0
R. Snell, St. Ann's Road, Rotherham (*accepted*)	233 0 0

ROTTINGDEAN.

For erection of two houses at Rottingdean, for Mr. W. Hilder. Mr. H. Curtis Card, architect, Lewes.

Saunders	£1,360 0 0
T. Nye	1,260 0 0
Berry, Seaford (*accepted*)	1,125 0 0

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RUGBY.

For additions to schools, Long Lawford. Mr. T. W. Willard, architect, Market Place, Rugby.

C. H. Rainbow, Rugby (*accepted*)	£350 0 0

SALISBURY.

For additions to the aged men's dayroom of the union. Messrs. John Harding & Son, architects, 58 High Street, Salisbury.

Pearce & Son	£240 0 0
Wort & Way	220 0 0
T. Dawkins	163 0 9
F. Dibben	150 0 0
W. Roles, Salisbury (*accepted*)	135 0 0

SOUTHEND-ON-SEA.

For erection of a small house in Preston Road, Westcliff, Southend-on-Sea, for Mr. J. Parker Ayers. Messrs. Clark & Hutchinson, architects, 28 John Street, Bedford Row, W.C.

J. L. Schiefer	£987 0 0
R. Gooch	840 0 0

SWANSEA.

For erection of the Manselton school for the (U.D.) School Board. Mr. C. E. T. Laurence, architect, 181 Queen Victoria Street, London, E.C.

Stevens, Bastow & Co., Limited	£19,998 0 0
D. Jenkins	18,960 0 0
H. Billings	18,110 12 6
Lloyd Bros.	17,473 12 5
Bennett Bros.	17,530 15 0
E. Morgan	17,725 0 0
J. & F. Weaver, Manselton, Swansea (*accepted*)	17,120 0 0

WHITLEY.

For widening, improving and repairing the road from Marine Avenue to St. Paul's Church, and the road from Park Road, Front Street, to the south end of Whitley Road at the district boundary.

G. Maughan, Jarrow-on-Tyne (*accepted per schedule of prices*).

WILMINGTON.

For erection of a school, for the School Board. Mr. E. Vinall, architect, Southdown House, Silverdale Road, Eastbourne.

J. Wilson	£798 0 0
C. Morling	745 0 0
T. Rich	721 0 0
W. Levett, Polegate, R.S.O. (*accepted*)	547 0 0

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The prospectus has been issued this week of The (New) N.A.P. Window Company, Limited. The share capital is fixed at 200,000*l.*, divided into 80,000 Six per Cent. Cumulative Preference Shares of 1*l.* each, and 120,000 Ordinary Shares of 1*l.* each; 50,000 shares of the capital of the company are reserved for working capital, of which 30,000*l.* is already guaranteed. The vendors have agreed to accept, if required, the whole of the Ordinary shares in part payment of the purchase consideration, and stipulate that at least 40,000 Ordinary shares shall be allotted to them, this number being the largest proportion allowed by the Stock Exchange authorities. 160,000 shares are now offered for subscription, 80,000 of which are Six per Cent. Cumulative Preference Shares of 1*l.* each and 80,000 are Ordinary shares of 1*l.* each. The directorate is an eminently practical one, consisting of the following gentlemen:—Major-General G. F. Blake (deputy chairman, Britannia Works, Lim.), chairman; Messrs. J. Starkie Gardner (director, London Southern Tramways Company), Art Metal Works, Albert Embankment, S.E.; Robert B. Maltby (director, New Carbrook Steel Works, Limited), The Hall, Swinton, Yorkshire; Sidney Marler (director, Waring & Gillow, Limited), 176 Sloane Street, S.W.; Thomas F. Rider, C.C. (president (1897) Nat. Assoc. of Master Builders of Great Britain), 181 Union Street, Southwark, S.E.; the Right Hon. the Earl of Westmorland (director, New Peterborough Brick Co. Lim.), Apethorpe Hall, Wansford Northamptonshire; and Mr. W. Youlten (managing director to the vendor company), 159 Victoria Street, Westminster S.W. (whose services have been secured as managing director to this company for a period of five years). The solicitors are Messrs. Ashurst, Morris, Crisp & Co. (for the company), 17 Throgmorton Avenue, E.C. With such sponsors, and in view of the excellence of the N.A.P. window, and the rapidly increasing appreciation of and demand for it which exists, it is very safe to predict a successful *début* and career for the new company.

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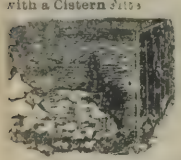
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BUILDING AND BUILDERS.

The memorial-stones of a new Primitive Methodist chapel have been laid in Netherfield Road, Nelson. The new chapel will take the place of an iron structure, and is being erected to meet the growing needs of the district. Seven memorial-stones were laid.

For stealing and cashing a cheque for 100*l.* belonging to his employer, Mr Downs, a Walworth builder, Charles Hampton, a clerk, was sentenced to six months' hard labour at Lambeth.

At Coventry County Court a widow named Lydiatt claimed 187*l.* damages from Councillor Wincott, builder, of Coventry, for loss of her husband, who was killed in an accident at defendant's brickworks. The demand was for the amount of three years' wages of deceased. Defendant agreed to a verdict of 55*l.*, without costs, and the case was settled on those terms.

Foundation-stones of a Union Church, the long-desired home of the Amalgamated Baptists and Congregationalists of the growing township, were laid at Beeston on Tuesday last. The building, which, when erected, will accommodate 400 persons, and is estimated to cost 2,350*l.*, is being built, from plans prepared by Mr. C. N. Holloway, of Angel Row, Nottingham, by Mr. William Turner, of Beeston.

The foundation-stone of a new physical laboratory to be erected at a cost of 30,000*l.* in connection with Owens College, Manchester, was laid on Tuesday last. The building will be of the most modern character in style and equipment. There are only two laboratories in the world larger than it is to be—those at Baltimore, U.S.A., and Darmstadt, but the site purchased is large enough for extensions in future sufficient to make it even more spacious than they.

The Southport Pier Company have resolved to bring their structure up to date. They intend to set back and improve the entrance, to widen the whole length of the pier, with the object of having a double line of tramways, and to erect a spacious pavilion for dancing and variety entertainments. The plans of these improvements are being considered by a committee of the Corporation, and it is expected that the scheme will have their approval.

The Secretary of Aberdeen Chamber of Commerce has received from the Secretary of Aberdeen Joint-Railway Station a letter stating that progress is being made with the plans for the enlargement of the station, and that it is expected they will be sufficiently forward to admit of application being made to Parliament in the ensuing session for the necessary powers. A public meeting has been called for to-day to consider what steps ought to be taken to have the station extended.

The members of a Liverpool syndicate are now in Douglas with the object of promoting a new theatre for the town. At present there is only one theatre, the Grand, to meet the histrionic requirements of the multitudes of summer visitors, and there has long been a feeling that there is room for another. It is reported that the Pavilion on the Harris Promenade, which was formerly used as a music-hall, will be acquired for conversion into a theatre.

Bradford is indebted to Mr. and Mrs. Joseph Cawthra, of Horton Hall, for the addition of another institution to those it already possesses. The building, which is to be known as St. Catherine's Home for Cancer and Incurables, has been erected at a cost of 10,000*l.*, which amount has been given by Mr. and Mrs. Cawthra in memory of their son, John William Cawthra Briggs. The opening ceremony was performed on Saturday by Lady Frederick Cavendish before a very large assemblage of interested persons. Another institution opened in Bradford on Saturday was Dr. Barnardo's Home for Incurable Children. There is accommodation for twenty-five young people of the destitute and waif class, and admission will be absolutely free.

A slater named Robert Rodgers was seriously injured at a building in course of erection at the corner of Ingram Street and Montrose Street, Glasgow. He was employed at the building, but had left his work on the previous day. He returned for his tools, and was met on the fourth storey of the building by the foreman, who went to get them. He left Rodgers waiting for him, and shortly afterwards he heard a crash, and on coming down found that Rodgers had disappeared. He discovered him lying in a heap of rubbish at the foot of the building. Rodgers, who fell a distance of 80 feet, received injuries to his head and was also hurt internally.

The Dundee Established Presbytery, acting in co-operation with the members of the Dundee Church of Scotland Office-bearers' Union, are at present considering a scheme for church extension in various parts of the city. In the first place, it is proposed to have a stone church erected in Lochee Road in place of the existing iron chapel known as St. Thomas's Established Church. At the east end of the city there is a

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considerable congregation worshipping in Maryfield chapel in Morgan Street, but in view of the large amount of residential building within recent years and the consequent moving of population in that district it is believed that a large congregation could be formed. With this object it is proposed to erect a new church in the neighbourhood of the existing chapel, and to utilise the present building for hall purposes. Another scheme is the erection of a new church in the Blackness and Cherryfield district, where there has also been a considerable amount of building within recent years.

THE report of the public works committee submitted at a meeting of the Dudley Town Council on Tuesday last, states that Councillor Hooper and others associated with him have purchased a building estate between the Buttery Road and the recreation-ground, containing 17 acres or thereabouts, upon which it is contemplated to erect houses mostly for the artisan classes, and that they are prepared to sell to the Corporation a piece of land adjoining the recreation-ground, containing 7,000 square yards or thereabouts. The committee, having considered the offer and discussed the same with Mr. Hooper, are of opinion that the enlargement of the recreation-ground as proposed would be advantageous and a great improvement, and recommend that it be accepted on the following terms :—"That the Corporation purchase the land to be thrown into the recreation-ground at the amount of the accepted estimate for making the roads ; that the purchase-money shall be paid when the roads are made to the satisfaction of the borough surveyor, and when not less than fifty houses, yielding an annual gross rental of 600*l*., are erected and finished ; possession of the land to be added to the recreation-ground to be given on the adoption by the Council of these recommendations and a conveyance executed to the Corporation, and that the amount of the purchase be included in a future loan."

ANOTHER arcade is to be built in Birmingham, between New Street and High Street, independently of the one already projected by the City Arcades Company in connection with their scheme for erecting an arcade between Corporation Street and High Street. The plans, prepared by Messrs. Essex, Nicol & Goodman, provide for the construction of an arcade from New Street to the Louvre, in High Street, and joining at right angles the arcade about to be commenced by the City Arcades Company, between High Street and Corporation Street. Under the new scheme there will be three shops fronting New Street, with entrance to professional and other offices above, and fourteen shops in the arcade, over which are to be ranges of offices and showrooms. Provision has been made for a large café underneath the whole of the front block of buildings, with imposing entrance from the arcade and a staircase down from one of the New Street shops. The arcade is to be three storeys in height, and the passage will be covered with an ornamental glass roof. The interior elevation is to be faced with ornamental glazed faïence ware, while the elevation to New Street will be similar in style to the Louvre buildings. The Arcade passage is to be repeated in the basement as a kind of lower arcade, the shop-fronts in the upper portion being continued downwards, while narrow openings in front, protected by ornamental iron rails, will enable the goods exposed in the show-rooms to be seen from the upper passage. The shops in the lower arcade may be let independently or with the upper shops, and they can be approached by a spacious staircase near the New Street entrance. In order that as much daylight as possible may be admitted to the basement the floor of the upper passage will be formed of glass prisms, and the basement shops will also be lighted at the rear by skylights. The first section of the City Arcades contract is only from High Street to about half-way towards Union Passage, but as the Louvre Arcade is expected to be constructed at the same time there will be a complete arcade joining New Street with High Street in the shape of the letter L. The total cost of the new arcade is roughly estimated at 25,000*l*.

TRADE NOTES.

THE House of Nazareth, Cardiff, is being warmed and ventilated by means of Shorland's patent Manchester grates.

OWING to improved manufacturing facilities the United Asbestos Company are enabled to make important reductions in their prices for many of their principal designs in "Salamander" decorations. We see from the revised price list which they have forwarded to us that the prices are in some cases reduced by as much as 33 per cent.

AT Kilmarnock the Equitable Co-operative Society, Limited, have opened a new and extensive suite of premises in John Finnie Street and Dunlop Street. In addition to shops on the ground floor the building consists of a fine hall seated for upwards of 500 persons, and library-room, reading-room, offices, &c.

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VARIETIES.

THE parish church at Wilmslow was reopened on the 29th ult. after restoration.

ST. HELENS (Lancs) parish church was reopened last week, after alterations involving an expenditure of about 800*l.*

A NEW technical institute at Wellingborough, which has been erected by the urban council at a cost of 3,000*l.*, exclusive of site, was opened on Thursday last.

DURING the progress of a boxing contest at Brock Street Hall, Bath, on Tuesday evening, the flooring, which also forms the covering of a swimming bath used in the summer months, gave way at one corner of the ring, where thirty or forty spectators were sitting or standing on forms and chairs. There was a terrible crash and a panic ensued, many rushing to the doors. The persons precipitated into the bath had a difficulty in getting extricated, and it was found that there were several injured, one being stated to have broken his leg.

AT Johnstone, N.B., the commissioners have just completed the extension of the buildings which was necessitated by the removal of a dwelling-house and the conversion of an upper flat into a suite of offices to accommodate the town clerk and burgh chamberlain A new public weigh-office has also been made adjacent to the town's buildings, and public weights put down so as to concentrate all the burgh work at the central buildings.

THE Rugby School Chapel has been reopened, after enlargement of the west end, as a memorial to the late Rev. P. Bowden Smith, an assistant master at Rugby for forty years. The part of the old chapel, built in Dr. Arnold's time, which was left in deference to the wishes of Dr. Arnold's old pupils when the chapel was rebuilt in 1872, has been removed, and the main building completed in keeping with Mr. Butterfield's designs, at a cost of 4,600*l.*

A SHOCKING fatality took place on Saturday last in the Abercorn Foundry, belonging to Messrs. Hannah, Donald & Wilson. John Dolan, labourer, who resided at 10 Caledonia Street, was employed clearing sand from underneath a condensing tank, when the supports gave way, and the tank, which weighed about 6 tons, fell upon him, crushing him to death. Deceased was about twenty-two years of age, and a native of Ireland.

THE quaint annual ceremony of toasting the memory of Sir Francis Drake, who, when Mayor of Plymouth, gave the town its first water supply, was performed on the 21st ult. for the last time, as the Head Weir, at which it has always been held, will by next year be submerged. After drinking to the pious memory of Sir Francis Drake in water, the company drank in wine the toast, "May the descendants of him who brought us water never want for wine."

THE Lords of the Committee of Council on Education have decided, at the suggestion of the Council of the Society of Arts, to hold during the autumn an exhibition of lithography in the buildings of the South Kensington Museum, on the west side of Exhibition Road. As lithography was discovered by Senefelder in the year 1798, the present is the centenary year of the invention, and therefore offers a suitable occasion for such an exhibition as is proposed. The Department will be assisted in the selection and arrangement of the exhibits by the influential committee, with some additional members, which had been already organised by the Society of Arts. It is proposed that the exhibition should be opened about November 1 and remain open for four months.

THE new stables at Perth Harbour, belonging to the Police Commission, which have been erected in connection with the manure depôt at the Friarton and the new culvert into which the water from Craigie Burn has been diverted, were formally opened last week in presence of a large number of the members of Town Council and burgh officials. The new depôt has cost about 5,000*l.*; the stables, which have accommodation for sixteen horses, 2,500*l.*, and the culvert 1,500*l.* In connection with the proceedings ex-Bailie Alexander, convener of the health committee, was presented with a gold key and a silver salver bearing a suitable inscription.

THE premises of Messrs. F. McNeil & Co., patent felt manufacturers in Lamb's Passage, Bunhill Row, E.C., sustained considerable damage by fire in the early hours of Saturday morning last. The firemen had to burst open the doors

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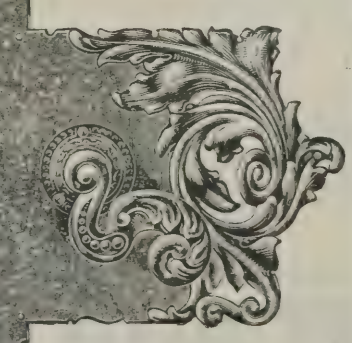
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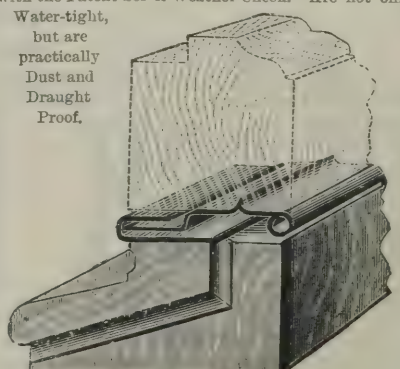


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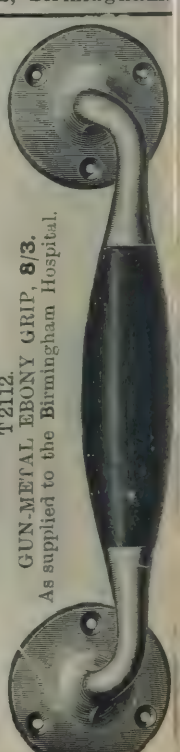


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before they could bring water to bear upon the fire, which was burning fiercely on the first and second floors, and threatening a second building belonging to Messrs. McNeil. Thanks to the strenuous efforts of the brigade, under the personal direction of Commander Wells, R.N., the second structure was saved from total destruction. The fire was overcome about daybreak.

THANKS to the liberal policy which they have consistently pursued, and the admirable management of Mr. Charles Morton, assisted by his ubiquitous and courteous lieutenant, Mr. Philip Yorke, the directors of the Palace Theatre, Limited, were enabled to announce to their gratified shareholders in meeting assembled the payment of a dividend of 13 per cent., which, with the interim dividend of 7 per cent. already paid, brings up the payment for the year to the respectable rate of 20 per cent. At the same time they carry forward a sum of no less than 15,000*l.*, against the 4,600*l.* carried forward last year. This being the jubilee year of Mr. Morton's connection with the "halls," the sum of 250*l.* was unanimously voted as a little memento of the occasion.

"SELL'S Commercial Intelligence," to be published weekly, will contain careful summaries of the valuable information contained in the Foreign Office and consular reports, colonial statements, American consular and other reports, German official and trading reports, and other information of value to manufacturers and merchants. An effort will be made to obtain from the Government departments prompt publication of reports corresponding to the American daily publication. By direct communications with America, Germany and the colonies efforts will be made to place before the public early intimations of trade movements and new departures, such as in the ordinary course would not be published for months.

AT the Aberdeen Town Council meeting Lord Provost Mearns called attention to the interesting fact that with the passing of the minute of September 19, 1898, there was now completed the 500th year of the continuous record of the Council's proceedings. The first minute in the record was dated September 30, 1398, and narrated the appointment by the whole community of the alderman or provost (William Chalmers) and four bailies, one of whom was Robert Davidson, afterwards Lord Provost, who fell at Harlaw. It also narrated the appointment of four standing committees of the time, namely :—(1) Appraisers of meat ; (2) the tasters of wine ; (3) the tasters of ale, and (4) the measurers. The first volume, commencing with the minute of September, 1398, was on the table, and there was a marked contrast between it and the printed minute which the Council had just passed. Aberdeen stood unique in this respect, for no other burgh of importance had so complete a record of its proceedings.

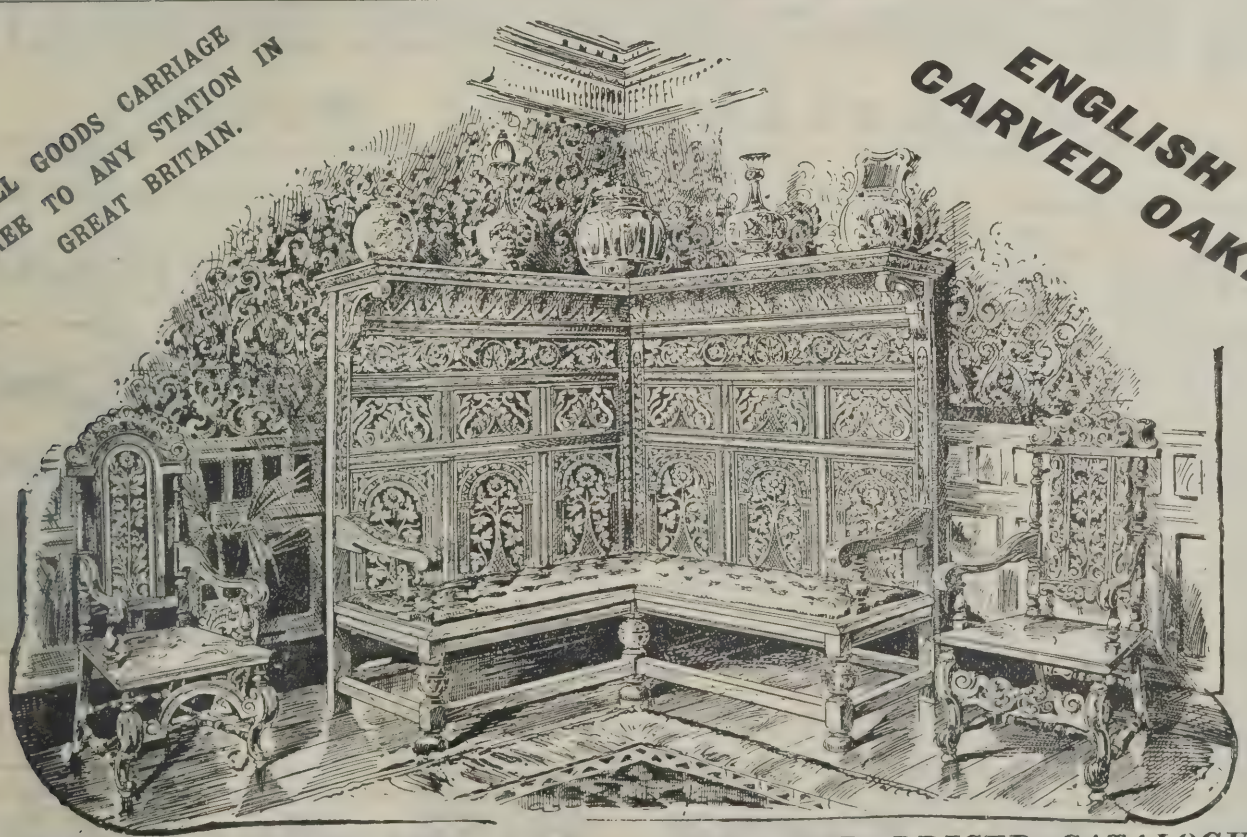
VANBRUGH HOUSE, in Whitehall Yard, which was built by Sir John Vanbrugh in 1796, and familiarly known as "the Pill Box," in consequence of its diminutive size, has been demolished. Prior to 1831 it was the residence of Lord Stuart de Rothesay, but in that year it was taken over by the then recently established United Service Institution, which, together with its famous museum of naval and military relics, was housed there until 1895, when the Queen granted the use of the historic banquetting house of the Palace of Whitehall. The old building, which stands on the site of the quarters allotted to the officers of the Jewel House, has now been demolished to make room for the erection of the new War Office, on ground formerly occupied by Carrington House.

A CONVENT chapel which the Little Sisters of the Poor have erected within their home for indigent old people in Gilmore Place, Edinburgh, was formally opened on the 29th ult. The church, which is capable of accommodating about 300 persons, is a not unworthy addition to the Roman Catholic places of worship in Edinburgh. Erected in Romanesque style from designs prepared by Mr. J. M. Monro, architect, Glasgow, its ground plan is a simple oblong with apsidal recess, but by reason of the height to which the walls have been carried, the roominess of the circular-arched roof, and the number and exceptional height of the side windows, the interior presents an unusually cheerful and lightsome, though at the same time quite unpretentious, appearance. In the planning of the building particular care has been taken to adapt it to its environment, and to place it in direct and convenient communication, by corridors and otherwise, with the various parts of the institution. The cost of the church is about 3,000*l.*

THE new High School at Woodlands, Falkirk, was opened on the 3rd inst. by the Marquis of Lorne, K.T., M.P. The building is of lofty and dignified proportions, with well broken elevations and skyline. The principal features of the main front, which has a northern exposure, are three gables, which are treated in a free manner with transomed windows, surmounted by carved pediments and flanked by pilasters. The centre gable is of a more ornate character, with carved pedi-

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ments and scrolls, a clock opening forming the central feature. The east and west elevations are treated in a similar manner, with gables at each end. The entrances are in these elevations, and are approached by flights of steps, flanked by stone balustrades. The ground-floor of the school is occupied by the junior department, the classrooms being six in number, three of these, however, being divided by glass sliding partitions, giving altogether nine classrooms. In addition to these rooms there is ample cloak-room and lavatory accommodation, besides a private room for the headmaster of the junior department. On this floor there is also situated the gymnasium, as well as the rector's business room. The school is planned on what is known as the central hall system, and by means of sliding partitions the central hall, junior department, hall and gymnasium can be thrown into one spacious apartment on special occasions. On the upper floor of the school are situated the classrooms of the senior department, and consist of English, commercial, mathematical, arithmetic, classical, modern language, sewing and cookery rooms, and chemical and physical laboratories, with large lecture-room. Space has been found for art and music rooms by raising the building to three storeys in height at both back and front. On this floor are also situated teachers' private rooms, as well as lavatories for the senior pupils. The classrooms have been designed and fitted on the most approved modern principles, and are large airy apartments, and being heated by low-pressure hot-water pipes, an equable temperature will be maintained. An entirely new departure in Falkirk is the teaching of joinery, &c., in school; but in secondary education schools, such as the High School, this is now compulsory under the Education Code, and in accordance therewith a workshop has been provided in the basement of the building of sufficient size to accommodate a class of twenty-five pupils. The accommodation of the school is:—Junior department, 426; senior department, 515; total, 941. The playgrounds are of large size, and two ash tennis courts are provided. The total cost of the buildings will be about 13,000*l*.

RAWMARSH parish church, by means of judicious restoration, has been transformed from an old-fashioned, inconvenient and unattractive interior into a modern, up-to-date edifice of much beauty. Important alterations and additions, as well as a thorough restoration scheme, have been carried out from plans and under the superintendence of Mr. Joseph Platts, architect, &c, of Rotherham and Rawmarsh. The work has cost upwards of 2,000*l*. The scheme of renovation embraced the erection of a new chancel, the refixing of the old stained-glass window, the removal of the gallery, and reseating, the provision of new windows, the building of a vestry and organ chamber, in addition to the thorough repair of the nave. It is rather more than two years since Mr. Platts pronounced the roof of the nave to be unsafe, his investigation proving most of the timber to be decayed. With the imperative demand for safety it was necessary to comply, and at first it was not intended to do more. A new ceiling of pitch pine, roofed with Westmoreland slates, was put in, and during the course of the work it was discovered that the walls of the clerestory were damaged. They were therefore repaired. The old galleries were taken out, and then it was seen that one of the stone pillars of the nave was cracked down its entire length, and a new one had, of course, to be put in its place. The new chancel, which is much larger and more elegant than the chancel it supersedes, is of octagonal shape, and has been arranged to fit the old stained-glass window given by the family of the late Sir Wm. V. Ross Mahon, Bart., the former rector. The floor is laid with encaustic tiles, and new altar standards and rails have been provided. The nave has been newly floored and seated with open benches of selected pitch pine, slightly stained oak colour, with worked and traceried ends. The hexagonal pulpit is of the same material as the pews, and is supported by traceried pillars, with open work above. All the internal stonework has been cleaned of the whitewash which formerly disfigured it, and new windows of cathedral glass have been inserted. The new chancel arch is of Roche Abbey stone with old English carved capitals. This rearrangement of the nave has affected the accommodation, but some of the places lost by the removal of the old and not very sightly galleries have been made good by the larger space left in the nave by the withdrawal of the choir-stalls to the chancel. It is estimated that the church will now seat about 400 persons. The alterations have required a rearrangement of the heating system, which has been renovated and improved.

THE ancient border-parish church of Lidgerwood in the presbytery of Earlston, which has been closed for about eight months, during which time it has been submitted to a process of complete restoration, was reopened on Sunday, the 25th ult. The alterations on the church at first contemplated were confined to interior improvements, and the restoration of the chancel to the extent of opening up the arch, giving it a roof and floor and other details. The work on the church was well advanced when an offer was made by Mr. W. van Vleck Lidgerwood, London, to restore the chancel at his own expense

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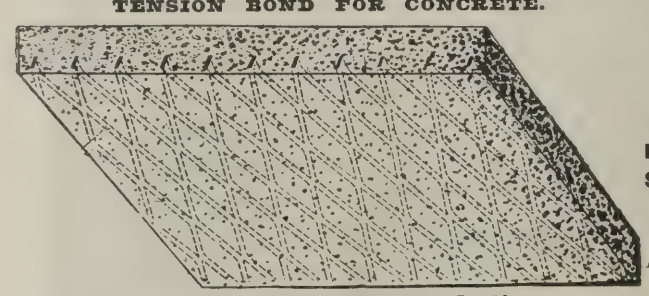
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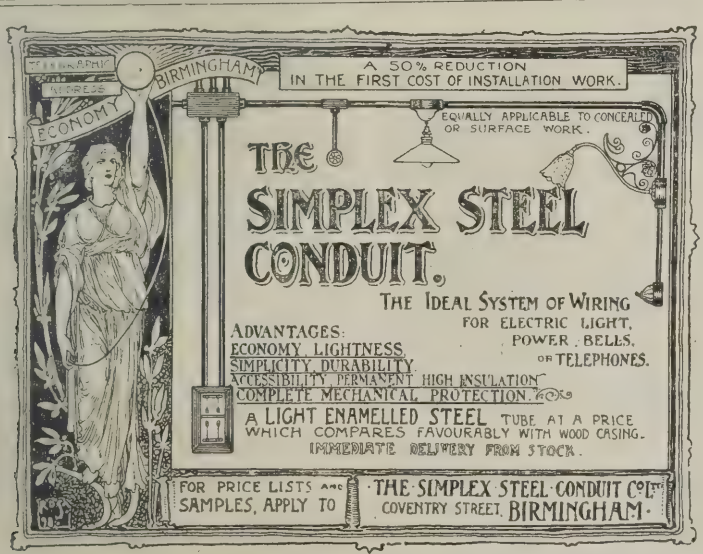
if done to his approval. This generous offer having been accepted, the building committee thought it advisable to extend their operations and make the church exterior in keeping with its Norman chancel, and this accordingly has been done. The pointed Gothic porches and windows have disappeared; windows have been reconstructed and new Norman windows made, including a circular one in the dead wall of the west gable seven feet in diameter with ten lights. A Norman porch has been built for the south entrance. The chancel has been from the first shut off from the church as useless for the reformed service; the arch was built up, and has remained so ever since. The building was partially dismantled and unroofed to make a private burial-ground, and this has fortunately preserved it from destructive alterations. The only material alteration seems to have been the removal of the gable and making a wide entrance door to the burial-ground. Apparently the building has suffered more from the damp and vitiated air of the church than from any mutilating alterations. The details which remain, however, amply justify the restoration as an interesting example of the early Norman of the twelfth century. The archway has been opened up, the gable restored with a circular light, 3 feet diameter, a corbel eaves course laid for north and south walls. The old windows, which are only 3 feet by 8 inches, have been opened out, and another made to match them where the door to the burial-ground had been broken through. The roof is of the best British oak, with ceiling of the same material formed within intersecting timbers of the roof, which are moulded and have short hammer beams, resting on two massive beams carried on four large pillars, which had been built with the walls at the corners. The chancel is about 17 feet square. The floor is laid with a fine pattern of encaustic tiles; the space under the arch is paved with polished stone, and a border of polished pavement forms a border beyond it for the wood floor of the church. The glass of the windows is from designs by Messrs. Ballantine & Gardner, and these are executed in pure mosaic of the richest coloured pot-metal glass. The circular light represents our Lord as "Light of the World," and the three lower windows have each their own Scripture floral emblems. Owing to the depth of colour and the entire absence of reflection from the dingy discoloured walls, the aspect of the interior of the chancel, as seen from the church, was to many eyes disagreeably dark. With the view of remedying this defect, and still retaining the stained-glass, the lower windows are made to open, and leave the clear glass only outside. The walls, which still retain some patches of the original creamy-white decoration with diaper in red, are painted the same colour with water-glass distemper, leaving untouched both the old pigment and all joints of the masonry. The walls thus reflect as at first the light of the brightly-lighted church, and it may not be necessary even to throw back the stained-glass when light is good. Mr. Lidgerwood has also provided handsome oak chairs for the twenty-eight sittings allocated in the chancel. The works have been carried out from plans by Messrs. Hardy & Wight, architects, Edinburgh.

ELECTRIC NOTES.

THE demand for electric lighting in Edinburgh is an ever-increasing one. Throughout the year arrangements have had to be made for the supply on an average of 1,500 eight-candle-power lamps per week. At Tuesday's meeting of the electric-lighting committee it was reported that the applications for the fortnight included a total of 3,196 eight-candle-power lamps.

AT the St. Pancras Vestry's meeting on Wednesday, Dr. Walter Smith, chairman of the electricity committee, reported that the total revenue for the half-year ending June 30 last was 17,408*l.* 17*s.* 3*d.*, an increase of 3,088*l.* 2*s.* 5*d.* upon the corresponding six months of last year, yielding a net profit of 1,166*l.* 6*s.* 7*d.* The total profit for the past eighteen months was 2,883*l.* 13*s.* 9*d.* But for expenditure on mains, which would not recur, and the reduction of the current to the consumer, the profit would have been 1,000*l.* or 1,500*l.* more. Dr. Smith regarded the last half-year's working as very satisfactory, and Mr. Rhodes said he had no doubt that if the vestry sold their electricity enterprise to-day they would get for their 210,000*l.* capital invested 50,000*l.* profit. The object of the vestry was not so much to make a profit out of the undertaking as to allow the parishioners to have the electric light at a price cheaper even than gas, and to supply the public lighting at cost price.

FOR some time past the electrical tramcars of the city of Utrecht have made their journeys straight across the middle of the venerable cathedral. This curious development of "up-to-date" traffic certainly needs some explanation. Utrecht Cathedral was built in the thirteenth century and stands upon the site where the ancient mother church of the Trajectum ad Rhenum was built by our apostolic fellow-countryman the English St. Willebrod about the year 720. During the great storm of 1674 the roof of the gigantic nave fell in, and it was



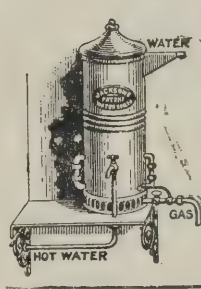
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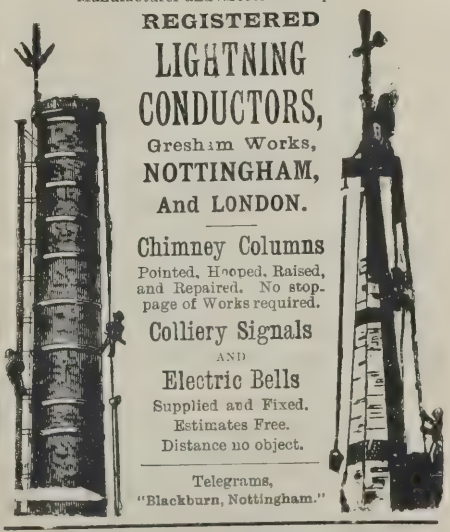
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never rebuilt. For two centuries the choir at the east end and the magnificent tower at the west end, over about 300 feet high, have continued detached by a wide interval betwixt the two. The practical Hollander turned the gap into a street, along which the lines of the electric tramway are now laid.

A LIVELY scene was witnessed at the last meeting of the Eastbourne Town Council, under the presidency of the Duke of Devonshire. When the scheme, originated by Councillor C. F. Simmons, for utilising the refuse destructor for the supply of the electric light came on for discussion, Councillor Maude asked whether those interested in the gas and electric-lighting companies were entitled to vote. The Town Clerk replied that they were not, and seven members then withdrew in a body. An animated debate followed, and it was stated that in respect of public lighting the scheme would yield a profit to the ratepayers of 1,500*l.* a year, even after setting aside 750*l.* a year as a special depreciation fund. It was decided to apply for a provisional order, and to offer to buy up the electric lighting company's undertaking on fair terms.

AT the monthly meeting of the Liverpool City Council, which was held in the council-chamber at the Town Hall on Wednesday, Mr. Petrie moved the adoption of a recommendation of the generating stations committee to the effect that the tender of Messrs. Morrison & Sons, Wavertree, for the erection of an electric power station at Pumpfields, Vauxhall Road, in accordance with plans and specification, and at the schedule of prices submitted by Messrs. Morrison & Sons, be accepted. Mr. Beloe stated that unless this station were promptly erected the city would be in a serious position for the lack of electric power. Consequently he failed to understand why the committee had deferred its erection until the last moment. The result of this haste was that they had been compelled to let the contract at a schedule of prices which almost meant letting it at an unknown price, whilst it left open a great margin for juggling.—Mr. Fletcher inquired at what date the building was likely to be completed.—Mr. Petrie stated that the land had only been in the possession of the lighting committee about two months. They were certainly in a great hurry to complete the contract and that was the reason why they had let the contract in this way. They had received schedules of prices from various contractors, and Messrs. Morrison & Sons' was regarded as the lowest. The estimated cost was 35,000*l.*, and the building was expected to be completed in nine months. He assured Mr. Beloe that there was no likelihood whatever of jobbery or corruption.

HEALTH EXHIBITION, BIRMINGHAM.

THE Seventeenth Exhibition of Sanitary Apparatus, Appliances, and Articles of Domestic Use and Economy, now being held at Birmingham in connection with the autumn Congress of the Sanitary Institute, was opened on the 27th ult., and will not close until the 22nd inst. In regard alike to the number and excellence of the exhibits, it shows a satisfactory advance on its predecessors, while the number of visitors who have so far attended it leaves little room for unfavourable comparison with former years. If among the exhibits there is no striking novelty to arrest attention, it may be said that the display is characterised by all-round excellence in design, quality and finish, and that the general tendency to improvement in the various manufactures and wares is consistently maintained. As the various exhibits are for the most part already familiar to our readers, we do not think it necessary to give an exhaustive description or criticism, and the following brief epitome will doubtless suffice to give an adequate idea of the scope of the show.

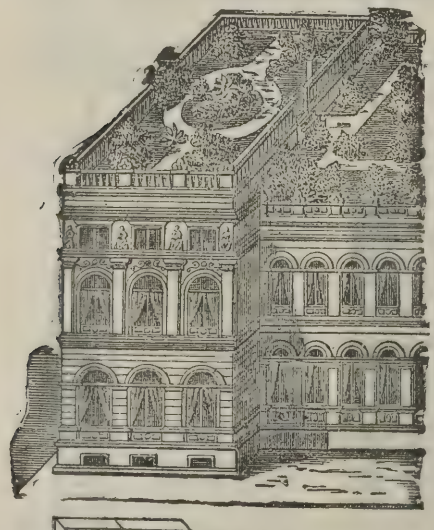
At Stall No. 2 Messrs. Shanks & Co. have on view their "Fin de Siecle" parallel-sided bath, metallic enamelled, rouge royal inside, decorated outside; their "Perfecto" bath porcelain enamelled white inside and decorated white and gold outside; a "Perfecto" bath, vitreous enamelled inside and decorated outside; a "Modern" bath, metallic enamelled inside and decorated outside; a "Fin de Siecle" taper-sided bath, porcelain enamelled inside and decorated outside; and other of their well-known makes of baths, lavatories, &c.

Mr. George Jennings (No. 3) shows a roll-edge porcelain bath fitted with new "Duplex" supply and sanitary waste valve arranged for public or private baths; it is also adapted for asylum use; a cabinet stand fitted with new "Duplex" supply and sanitary waste valve; a specially arranged hospital sink and bed-pan washer; and a "Riker" system American interchangeable lavatory.

Dr. Quine's patent sanitary ash-bin, with improvements, and Dr. Quine's patent damp courses for walls are shown by the Pendleton Sanitary Engineering Co., Manufacturers, 1 Leaf Square, Pendleton, Manchester.

Messrs. Hughes & Lancaster, manufacturers, 47 Victoria Street, S.W., show a model of Fischer system of water filtration at stall No. 45. The Fischer patent stone filters, whilst embracing the advantages of sand filtration, utilise them to better effect. Sand has been retained as the filter-

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ing medium, but it is employed in a much more compact form. The materials used in the manufacture of the Fischer filter plate are carefully washed to free them from clay or earthy matter, which it is well known are liable to get stopped up, and the plates are burnt at the high temperature of 1,800 to 2,100 F. It is claimed that an installation on the Fischer system only occupies one-eighth of the space required for a sand filter of equal filtering capacity. Here is also a model of the Shone hydro-pneumatic ejector for dealing with the sewage of low-lying and flat areas, which cannot be effectually dealt with by gravitation alone; also for raising water, sludge, chemicals and hot fluids, &c.

The Leeds Art Pottery and Tile Company, Limited, make an artistic display both of faïence and pottery. Foremost amongst their exhibits of faïence work is a piece of wall-tiling similar to what they are now executing, with special treatment of piers and arches, in the new building of the Westminster Fire Office, of which Mr. Thomas Mundy is the architect. It consists of a dado about 7 feet high of plain and embossed tiles of a soft brown tint, having a frieze with claret-brown Renaissance ornament on a flesh-coloured ground. The filling above is pale cream surmounted by a frieze with pale blue flutes, mouldings and cornice in light brown. Anything more charming could hardly be imagined. The same refined artistic feeling pervades the arrangement of the colour schemes of the numerous panels, tile dados and other faïence work shown. The modelling is everywhere good, and some of the figure panels must have been modelled by artists of talent and experience. Of special interest in connection with this exhibition, the Leeds Art Pottery and Tile Company are showing a large number of special tiles and a faïence dado similar to what they used for the tile and faïence work at the new Birmingham General Hospital, which we described in one of our former issues.

The Adamant Company's exhibits comprise Opaline, a substitute for glazed bricks or tiles; fibrous plaster enriched, in which the stand has been erected; fibrous slabs, as used throughout the New General Hospital, Birmingham, in their effective system of ventilation; "Granolithic," for staircases, cills, heads, either moulded or plain, and for forming pavements and floors, especially suitable for stabling; fireproof flooring, &c.

Messrs. A. R. Dean, Limited, Birmingham, show their patent Kensington syphonic closet, in action in various patterns. The special advantages of this closet are that it has a water surface of 9 or 10 inches or thereabouts, a nice appearance, and may be thoroughly depended upon in action; it cannot be syphoned out, nor the water seal broken; it is easy to fix, and is supplied in earthenware, with lead outlets, or the trap wholly in lead; the water and soil are discharged *en masse* from the basin (as is the case with valve closets) in exactly 3½ seconds, thereby thoroughly flushing the drain at each action; there are no valves, puff-pipes or other contrivances in connection with this closet, consequently it cannot get out of order, and so long as the flushing power is maintained it will last a lifetime. It is made in two pieces, exactly as the ordinary closet-pans and traps, therefore a new basin can be fixed at any time; it will also suit left or right handed, or straight outlets, according to the position of the soil pipes. The company also exhibit some capital specimens of the "Well Fire," a fireplace which gives a bright, cheerful and economical fire, and as the prices range from 65*s.* to 50*l.*, it will be seen that the range for choice of design and material is a pretty wide one.

On another stand the same company show as fibrous plaster manufacturers and decorators. Here is given a practical demonstration of the designing and manufacture (through its various stages) of fibrous plaster decoration, such as has been largely employed in the interior decoration of innumerable theatres, music-halls, restaurants, winter gardens, art galleries, &c.

Johnson's Sanitary Appliances, Limited, have a display of their patent gulleys, and Price & Johnson's patent lifting and locking apparatus for gulley grates and frames, lamphole covers, manhole covers, side entrances, telephone and telegraph street covers, patent travelling hinged cover for manholes, lampholes, telegraph and telephone, side entrances, gulley grates, &c. The advantages claimed for this cover are that it is much readier and easier to fix or take out, the possibility of the cover becoming fast in the frame is very remote, if not absolutely non-existent. The covers, after the cleansing process is done, may be allowed to fall down without the slightest risk of breaking them.

The Silicate Paint Company (J. B. Orr & Co.), Limited, show specimens of their sanitary durable and washable water paint "Duresco;" Charlton enamel paint; Charlton white; permanent Oriental red; silicate petrifying liquid, for preserving buildings from decay, and "Lithosote," tinted to match any decayed stone, brick or cement building exterior.

At the ornamental stand (No. 75) of the Welsbach Incandescent Gas Light Company, Limited, there is a brilliant display of the latest novelties in burners of which they are now

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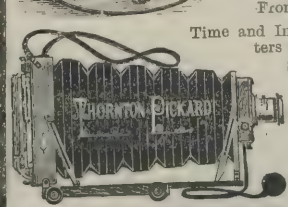
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Messrs. J. L. Wade & Co., Limited (No. 87), have two of their disinfecting tanks for use in water-closets and urinals, also in road-watering vans, insuring a regular supply of the disinfectant—a hygienic protection, practically securing the user an immunity from typhoid, diphtheria and other diseases due to drains.

Messrs. Sissons Bros. & Co., Limited, show specimens of "Halls," sanitary washable distemper; and Messrs. Burn Bros. show their special iron drain-pipes, inspection chambers, branches, bends, traps and gullies, patent baths, with anti-flooding overflow, &c.

Among other exhibitors whom want of space prevents our mentioning at length are:—Messrs. William Eggington, Birmingham (portable sewer-gas extractor and destroyer, in conjunction with sewer disinfector). The Septic Tank Syndicate, Limited, Exeter (model of installation, consisting of septic tank and five filters). Farrer, Barber & Co., Birmingham (automatic tanks, automatic flushing multiple closets, &c.). S. Dibble & Son, Birmingham (a sink and automatic waste water flush closet). Joseph Sankey & Sons, Bilston (steel-clad, copper-lined bath, &c.). L. Hugh Bristowe & Co., Limited, Westminster (portable plant of Riddell's patent filter). Rowe Bros. & Co., Birmingham (sheet lead, lead water-pipe, composition gas-pipe, &c.) Evered & Co., Limited, 35 Drury Lane, London (new patent pedestal valve closet with afterflush syphon cistern, in action). Adams & Co., Birmingham (an installation of Adams's patent automatic sewage lift, in operation, &c.). Day's Automatic Waste Water Closet and Sanitary Pipe Syndicate Company, Limited, Wolverhampton (Day's automatic waste water closet (the Stafford). for single closets, in section). Mould's Patent Boiler-Bath Company, Birmingham (a new patent boiler-bath, for small villas and workmen's dwellings). John Jones, Chelsea (drain and cistern stoppers, bag and screw expanding, drain-testing apparatus, &c.). Martineau, Beames & Madeley, Limited, Birmingham ("Vortex" patent Valveless Syphon cistern, in iron enamelled Madeley's patent). Plant & Co., Birmingham (baths, &c.). H. Pullen Candy, Manchester (automatic self-propelled distributor, for delivering sewage). Gaskell, Chambers & Foulkes, Birmingham (closets and sanitary ware). E. & T. Underwood, Birmingham (automatic deodoriser, for disinfecting and deodorising water-closets). A. Barraclough & Co., Limited, Heckmondwike (Eureka tin and asbestos-lined lead water pipe). The Sterilite Filter Company, Bury, Lancs. (filters). Thomas Ash & Co., Birmingham (ventilators and chimney tops). Major & Co., Limited, Hull (disinfectant fluids and powders, &c.). Oates & Green, Limited, Halifax (patent stoneware truinvert pipe, 12-inch, with double seal joint, and section showing joint when made; stoneware pipes various, &c.). Johnson's Sanitary Appliances, Limited, Birmingham (Johnson's street and other gullies). Arkinstall Bros., Birmingham ("Simplex" cinder sifters and dust bins, baths, &c.). "Ronuk," Limited, Upper Thames Street (sanitary polishes). W. G. & L. England, Barnsley (patent reversible and sliding sash windows). James Jones Aston, Birmingham (reversible window, with lines and weights). Major R. F. Ballantine, Manchester (instantaneous water heater). F. Braby & Co., Limited (hot-water tanks). The Eclipse Brass and Copper Company, Limited (instantaneous domestic water boiler). The "Cannon" Hollow-ware Company, Limited, Bilston, Staffs. ("Porceliron" sanitary ware). Walsall Electrical Company, Limited, manufacturers, 57 Bridge Street, Walsall (gas engines, switchboards, &c.). The National Gas Engine Company, Limited, Ashton-under-Lyne (gas engines). Ferrybridge Foundry Company, Ferrybridge, Yorkshire ("Fryston" ranges). Samuel Smith & Sons, Limited, Smethwick (self-setting cooking range). A. B. Coleman, Aston, Birmingham (working models illustrating the circulation of hot water). Bayliss & Inman, Birmingham (samples of rustic work), &c.

The exhibitors number upwards of two hundred, and, as the majority of the stalls are attractively arranged, the interior of Bingley Hall offers a bright and, at the same time, a business-like appearance which reflects great credit on all concerned.

The following is a list of the prizes awarded to the exhibitors by the committee:—

Silver Medals.

Adams & Co. (Adams's automatic sewage lift). The Cannon Hollow Ware Company (enamelled cast iron). J. Defries & Sons, Limited (Pasteur Chamberland filter). J. Defries & Sons, Limited (Equifex pressure disinfecting apparatus). Ferrybridge Foundry Company ("Fryston" range. Hughes & Lancaster (Shone's hydro-pneumatic ejector). J. Stott & Co. (mercury gas governor).

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Bronze Medals.

The Adamant Company, Limited (Adamant plaster for walls and ceilings). Adams & Co. (wedge disc valve). Aerators, Limited (method of ærating water by means of compressed carbon-dioxide). Burn Bros. (expanding drain stopper). Callender & Montgomery (Callender pure bitumen for linings). The "Cannon" Hollow-Ware Company, Limited ("Perfect" straining cover for cooking utensils). The "Cannon" Hollow-Ware Company, Lim. (the "Chef" gas-cooker). Davis Gas Stove Company, Lim. (automatic gas stove). J. Duckett & Sons, Lim. (Louvre air bricks). J. Duckett & Sons, Lim. (enamelled glazed urinals). Eclipse Brass and Copper Company, Lim. (Jackson's self-feeding water boiler). Farrer, Barber & Co. (the Helliwell system of glazing). Farrer, Barber & Co. (combined sink and lavatory). Formalin Hygienic Company (formalin). W. Glover & Sons, Lim. (new rotary watering van). W. Harriman & Co., Limited (floor channels, with sockets for waste pipes). W. Harriman & Co., Limited (Barron's channel bends made to pass a drain plug). C. Isler & Co. (tube wells). Jeyes' Sanitary Compounds Co., Limited (Jeyes' Fluid). Jones James (reversible window with lines and weights). E. N. Kenworthy & Co. (Paragon washer, wringer and mangle). E. N. Kenworthy & Co. ("Equipoise" wringer and mangle). Bernard Kuhn (chinosol). Leeds Art Pottery and Tile Company (wall decorations in Leeds' faïence). C. A. Line (new Willesden paper). C. A. Line (new Tynecastle canvas). Mould's Patent Boiler Bath Company (boiler bath). Newton Chambers & Co. (Izal). Oates & Green, Limited (glazed stoneware manger). Oates & Green, Limited (salt glazed wash tub and rubber combined). Parker, Winder & Achurch, Limited (Jones' combination bath). Parker, Winder & Achurch, Limited (ventilated hot closet for eagle stove). W. Parkinson & Co. (penny-in-the-slot prepayment gas meter). Pendleton Sanitary Engineering Company (Dr. Quine's ashbin). W. W. Rolston (thermometer for hospital wards). Rowe, Brothers & Co. (lead pipe made in any length). Sanitary Ventilating Syndicate (water-closet ventilating fan, worked by high-pressure supply to flushing cistern). Silicate Paint Company, Limited ("Duresco"). Steam Carriage and Wagon Company (steam tip wagon). Stock, Sons & Taylor (hydraulic ram and valve). Summerscales & Co. (improved "Challenge" ironing machine). Summerscales & Co. (washing machine for disinfecting under steam pressure). Sutton & Co (Green's Wyvurst channels and inlets for manholes). Twyford's, Limited ("Axis" watet-closet, with screw brass joint). Twyford's, Limited (triple vegetable sink). Twyford's, Limited ("Ideal" sink in two compartments). United Alkali Company, Limited (Chloros).

Deferred for Practical Trial.

Wm. Thomas Allen (automatic flushing tank). T. Ash & Co. ("Acme" ventilator). A. Barraclough & Co., Limited (Eureka lead waterpipe) Burn Bros. (steam heater for hot-water warming and supply). Burn Bros. (A. Court & Binny's system of hot-water warming and supply). J. Duckett & Son, Limited (automatic grease flusher). J. Duckett & Son, Limited (automatic syphon cistern). Evered & Co., Limited (automatic flushing tank). Farrer, Barber & Co. (automatic flushing tank). Hughes & Lancaster (Fischer system of water filtration). Geo. Jennings (duplex supply and sanitary waste valve). Mansfield Patents Company (chimney pot). Mansfield Patents Company (Mansfield ventilator). Martineau, Beames & Madeley (Pullen's "Scorcher" paint lamp). Parker, Winder & Achurch, Limited ("Victoria" ventilator). Parker, Winder & Achurch, Limited ("Empress" ventilator). Parker, Winder & Achurch, Limited ("Standard" ventilator). Plant & Co. (zinc roofing). "Septic" Tank Syndicate ("Septic" tank). Shanks & Co. (non-concussion taps). G. Skey & Co. (spiralvent chimney-top). Sterilite Filter Company (sterilite filters). Sutton & Co. (quarries for heating drying sheds). Twyford's, Limited ("Twycliff" syphon closet.

WELLINGBOROUGH TECHNICAL INSTITUTE.

THE above Institute was opened on the 29th ult. It has been erected from the joint designs of Messrs. Brown & Fisher and Messrs. Sharman & Archer in Church Street, on the site of some old tenements belonging to the town, and the carrying-out of the work has led to a great public improvement by the widening of what was hitherto a narrow and inconvenient thoroughfare. The building has a frontage to the street of about 60 feet, and the front is built of pressed bricks with dressings of Derbyshire and Weldon stone, and a large overhanging cornice. Entrance to the Institute is made through an arched doorway, approached by six stone steps and decorated with stonework. At each side of the arch is a three-quarter Ionic pilaster, and above this is an ornamental cornice and curved pediments. The words "Technical Institute" are carved in the stonework over the door. Folding-doors give admission to the entrance-hall, on the left of which is a large lecture theatre measuring 35 feet by 25 feet, and with a height of 14 feet. This room will accommodate sixty-two students at dual desks on a step gallery. Near the centre is a lecturer's table, fitted up with all the requisites for chemical and physical lectures. At the back is a large black-board and a screen for lantern illustrations, whilst in one corner is fitted up a fume cupboard. This room is also to be used for the popular lectures, for which the accommodation can be increased to 120. Adjoining is the chemical and physical laboratory, a spacious room 20 feet square, fitted with benches for twelve students, and complete with water and gas apparatus, fume cupboard, &c. Further on to the left of the entrance-hall is a room for the principal of the Institute, Mr. Clarence H. Creasy, fitted with benches, shelving and appliances for experiments. In the basement is a large room 35 feet by 25 feet, which has been fitted up with benches specially designed by Mr. E. Swaysland, the instructor for practical work in boot and shoe manufacture. Here, too, will be carried on carpentry, wood-carving, plumbing and all kinds of manual training, as well as the cookery classes. At the back of this room are two classrooms for the teaching of shorthand, type-writing, French and German, and dressmaking. Ascending to the first floor we find the elementary art room, 35 feet by 21 feet, and well lighted from the north by four large windows. The walls of all the rooms have been decorated in tints, and rising to these is a brick painted dado. Regard has also in all parts of the building been paid to the efficient lighting of the rooms for the special objects in view. The rooms are heated by means of ornamental radiators placed in the window recesses, through which warm air is allowed to pass and the vitiated air is carried off by specially constructed ventilators and flues in each roof. The staircases are constructed of patent Victoria stone, and to these have been fitted an ornamental iron balustrade. The hall floor is laid *in situ*, and the basement floor is of Excelsior stone, manufactured by Mr. Thompson, of Finedon. The building stands back 5 feet from the street, and along the front runs an ornamental palisading. The contractor for the building was Mr. William Stevens, of Park Street, Wellingborough.

THE WORKMEN'S COMPENSATION ACT.

AT the meeting of the Incorporated Law Society at Swansea on Tuesday, Mr. J. H. Cooke, Winsford, Cheshire, read a paper on "The Workmen's Compensation Act 1897." He described the Act as a measure which would at least have a tendency to create a little more thought for those who toil, without any serious deprivation to others possessed of the "wine and oil." The Act, however, had admittedly some dangers. Looking at it as a lawyer, it seemed to be as full of litigation as the famous Statute of Frauds, and its short provisions would cost many a golden sovereign per letter before they were finally construed by the courts of law. He examined with some minuteness the operative provisions of the measure, and illustrated by many possible cases the difficulties, the apparently illogical consequences and the serious questions which might arise under it, and concluded by offering the following suggestions to employers :—First, consult a solicitor of experience as to whether the whole or what portion of your workmen are under the Act. Second, insure against the liability. The premium will probably average 6*s.* to 10*s.* per 100*l.* of wages paid per annum. Third, define by printed regulations or agreement the duties of each workman or set of workmen, restricting the work connected with the most dangerous part solely to a certain section of the most skilled workmen, and forbidding others to interfere or be on that part of the works. A breach of such regulations or agreement, if strictly drawn, might, and probably would, be construed as "serious and wilful misconduct," thus disentitling the workman committing the breach to compensation. Fourth, remember that workmen who have no dependants receive least compensation; sometimes, however, they are most careless. Fifth, the Act forbids contracting-out, except by a scheme approved by the Registrar of Friendly Societies, but it does not appear to forbid an employer requiring a workman to contribute to an insurance fund, and inasmuch as the workman receives the benefit of the compensation, it seems only reasonable that such a proposition should be favourably entertained by all right-minded men. Such a course was, he believed, adopted in the United States. Sixth, employ strong able-bodied men as far as possible, and obtain a medical certificate of good health. Finally, whilst many might dislike the provisions of the Act, might imagine trade would decline by reason of its extensive operation, the sting might always be rendered innocuous by a wise and not very costly insurance.

The Mayor of Swansea made some general remarks upon the paper, which had a special interest in the coal-mining districts of South Wales. It was very much open to question whether colliery employers, at all events, could insure against

the operation of the Act by insurance at a comparatively small cost. The great insurance companies required a premium which represented a very serious tax upon the industry, and he moved a resolution recommending that in any future legislation the employer should be penalised only for such accidents as he might have guarded against by reasonable care and forethought, compensation for all accidents not so caused being borne by a national fund.

Mr. W. T. Rogers, Liverpool, seconded.

Sir A. Rollit, M.P., pointed out that the resolution would restore the old law as it existed from the time of Charles II., and he rather doubted the wisdom of the Society attacking recent experimental legislation and proposing a complete reversal of it.

The resolution was carried.

PROTECTIVE METALLIC COATINGS.

At a meeting of the Society of Engineers, held at the Royal United Service Institution, Whitehall, on Monday evening, October 3, 1898, Mr. W. Worby Beaumont, president, in the chair, a paper was read by Mr. Sherard Cowper-Coles, Assoc.M.Inst.C.E., M.I.M.E., M.I.E.E., entitled "Protective Metallic Coatings for Iron and Steel."

The author commenced by pointing out the comparative corrodibility of iron and steel under varying conditions, and the importance of the subject now that steel, which corrodes more rapidly than iron, is so largely used for structural purposes and for building light craft, such as torpedo-boats. He then gave some interesting examples of cases where failures had occurred in engineering structures owing to the rapid corrosion of iron and steel. He then stated that up to the present zinc had been found to be the most effective coating, which was due to the electro-chemical action set up between the steel and zinc. The author also explained that the electro-chemical action set up between two different metals made it necessary to carefully insulate copper sheathing from the steel hulls of ships, and rendered the direct application of copper valueless as a protective coating to iron and steel. The author said:—

At the present time galvanising has assumed the proportions of a very large industry, and is rapidly increasing now that steel of small section is being extensively used for constructional purposes. As compared with tinning, however, galvanising is a comparatively new industry, having been worked in Europe only since the early part of the present century, and introduced into the United States from England. Messrs. Morewood & Rogers appear to have been the first to produce commercially galvanised sheets. In December 1846 they took out a patent for immersing articles in a bath of molten zinc, or an alloy of lead, zinc and tin, or zinc-iron alloy, the surface of the molten metal being covered with sal-ammoniac or chloride of manganese. To equalise the coating they employed rollers, revolving in a flux kept at a lower temperature than the melting point of the coating metal.

The chief improvements effected in hot galvanising since its introduction have been in the construction and arrangements of the baths, and in the mechanical appliances for reducing the weight of spelter to the superficial foot. Rolled plates thus produced are not considered to be as good as flux plates, which have an average thickness of zinc of 2 oz. to the superficial square foot. Messrs. Davis & Sons, of Wolverhampton, have introduced a system of wet-rolling the plates after annealing and pickling, the advantages claimed being a more uniform coating of zinc with a smaller consumption of spelter. Another innovation is gas firing, which is being experimented with in place of coke or coal.

The term "galvanised iron," by the way, applied to iron that has been passed through a bath of molten zinc, is somewhat misleading, since it would seem to imply that the coating was effected by a galvanic current. It is intended, however, to apply to the nature of the protective influence, and not to the process. Lead also is sometimes used as a protective coating for iron, but, though lead galvanising is almost as old an industry as zinc galvanising, it has a very limited field, for two reasons. In the first place, it affords no better protection to iron than tin when once the coating is penetrated; and in the second place, its toxic properties render the indiscriminate use of lead-covered articles dangerous.

The comparative inertia of lead to the chemical action of many acids has given rise to the contention that it should form as good a protection to iron as zinc, if not, indeed, a better one. But a piece of lead-coated iron or terne plate, cut from a sheet and placed in water, will rust badly in the course of twenty-four hours, the water and plate being discoloured with red oxide. The use to which lead or terne plate (which contains a small percentage of tin added for the purpose of ensuring a more homogeneous coating) is principally applied, is for manufacturing boxes. Terne plate usually has about ¾ oz. of metal per superficial square foot. Attempts have been made to introduce lead-coated sheets for roofing and general purposes, but in several instances the plates were found to have rusted even before arriving at their destination. At one time a considerable quantity of lead-coated sheets were sent to Sweden to avoid the heavy duty of 66*s.* per ton on zinc-galvanised goods, but no market was found for the sheets, and the enterprise was eventually abandoned. An American process, patented by T. J. Clamer in 1893, and recently brought over to England, was experimented with on a commercial scale for coating iron and steel. According to the inventor, "lead while in a molten state absorbs various gases from its surroundings and the atmosphere, the gases thus absorbed prevent the lead from adhering closely to the surface of metals, and cause the small holes and blisters so frequently found in a sheet of metal coated with lead in the usual way. Messrs. Neumann and Streintz found that lead absorbed about one-eighth of a volume of hydrogen when the dry gas was passed over the heated metal. Mr. Clamer's process consists of fusing the lead to be used as the coating metal under powdered charcoal, and to every 100 lbs. of lead adding, first, 3 oz. of sal-ammoniac, secondly ½ oz. of arsenic, then 1 oz. of phosphorus, and lastly, ½ oz. of boraz or a similar flux.

About the same time as Mr. Clamer's process was put on the market, a process called "Dinizing," for coating articles with a lead alloy, was experimented with; the object being to render the lead electro-positive to the iron. Small quantities of sodium were mixed with the lead, ammonium cloride being used as a flux.

Lead-coated wires have never been adopted by engineers, apparently on account of the electro-chemical difficulties, although manufacturers of steel wire ropes and cables for haulage purposes have on several occasions had their attention drawn to lead as a protective and lubricating coating. Lead galvanising does not reduce the tensile strength of wires like hot galvanising.

The surfaces obtained by hot and by cold galvanising differ considerably in appearance. Hot galvanised articles are often covered with large spangles or crystals, which are obtained by adding small quantities of tin to the galvanising bath; but this attractive appearance is gained at the cost of the durability of the protection afforded to the underlying metal, as the spangles render the coating unequal in thickness and inferior in quality. For these reasons some of our leading engineers now specify that galvanised sheets shall be without spangle, and carry zinc to the weight of one ounce per square foot. Paint does not adhere firmly to zinc surfaces, so to increase the tenacity a varnish containing a small quantity of alkali is applied, which gives a slight roughness or mat to the zinc surface.

The zinc on electro-zinced articles coated by the usual methods has an unhealthy non-metallic look, which has created considerable prejudice against such articles when compared with the brilliancy and glitter of the spangles obtained by the hot process. The dull surface of the electro-deposited zinc can, by the adjustment of the current, be developed into a mat surface, which has been found especially suitable for the coating of nails, as it increases the holding properties, whilst, on the other hand, galvanising decreases the holding power. Galvanising roofing sheets is one of the largest, if not the largest, branch of the galvanising trade. Modern plants are generally fitted with a stretching machine to remove any buckles from the sheets before placing them in the galvanising bath. The average output of a galvanising bath is about 7 tons in twenty-four hours, or four baths working continuously would turn out about 270 tons per week. The cost of annealing 1 ton of sheets about 24 gauge is 2*s.* 6*d.*; and the cost of pickling 7*s.* The percentage of wasters averages about 7½ per cent., due to improper cleaning, flux marks, and cracks which do not develop until after pickling.

To surface-harden galvanised sheets, aluminium is sometimes added to the bath of molten zinc at the moment of dipping the iron sheets, whereby a compound surface of zinco-aluminium is formed on the articles under treatment. It has been claimed that the thin film of aluminium serves as a protecting coat to the molten zinc, reducing the formation of ashes and hard zinc to about half the amount usual where protecting covers of sal-ammoniac, fat or glycerine are used. The addition of the aluminium also enables a thinner coat of zinc to be applied. According to the patentee of this process metallic aluminium only enters into combination with zinc in the proportion corresponding with the atomic weights of the metals.

Some galvanising workers complain that the use of aluminium in the galvanising baths gives them more zinc dross, though they say that with aluminium they can cover a larger surface and do brighter work. The formation of more dross by the use of aluminium is probably due to two causes: first, an impure zinc; and, secondly, to the excessive use of aluminium. Aluminium should be introduced gradually in the form of a 5 or 10 per cent. aluminised zinc, and in a 5-ton bath not more than half a pound of aluminised zinc should be added at a time, so that the total amount in the bath is kept somewhere about

from 3 to 6 oz. of aluminium to the ton of zinc; but a very important point is that this aluminised zinc should be added gradually, and not all at one time.

The zinc iron alloy or dross which forms in the bath amounts in some cases to 25 per cent. of the whole of the zinc used. The quantity usually formed in the galvanising bath amounts to about one-third of the total amount of zinc used for a 24-gauge plate. The zinc iron alloy formed in the galvanising baths is sold to the manufacturers of alloys, or is subjected to distillation to recover the zinc.

The zinc applied by the hot process usually contains lead, tin and iron, and it has been found that iron above 0·13 per cent. makes the zinc too brittle to be properly bent. Lead up to about 1 per cent. is harmless, but above 1½ per cent. will not dissolve, and the excess collects and forms weak spots. Arsenic, antimony, cadmium and copper also occur, but practically never in quantities sufficient to be injurious. Some zinc removed from a Siemens-Martin hot galvanised plate was found to be very brittle, breaking when attempts were made to bend it. Analysis gave the following results :—

Zinc by difference	49·2
Tin	2·20
Iron	3·78
Arsenic	Trace

The average thickness of the coating was 0·015 inch. On the other hand, zinc applied by the electro process is very pure, and it is found to resist the corroding action of a saturated solution of copper sulphate (Preece's test for Post Office telegraph wires) very much better than hot galvanised iron. A specimen of hot galvanised iron, having 1·42 oz. per square foot, withstood three immersions, whilst a similar piece of iron, electro-galvanised, having 1·26 oz. per square foot, withstood five immersions.

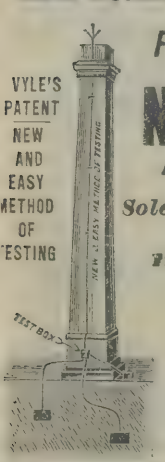
From this it may be inferred that with coatings of zinc of equal thickness, the article coated by the electro process will withstand the ordinary corrosion due to atmospheric influence much better than steel coated by the hot galvanising process; or, expressed in other words, steel coated by the electro process will have as long a life as hot galvanised steel, with less zinc than would be necessary in the case of the ordinary hot process. In applying Preece's test, it should be remembered that copper, when first precipitated on zinc, whether from a weak or strong solution, is black, but in the latter case it becomes chocolate colour as it advances, or red if the action becomes more rapid. The saturated solution of copper sulphate should be made up with cold water, not hot, to ensure that no free acid is present.

The process of electro-zincing is, however, not without its difficulties. The deposits obtained from zinc sulphate solution are adhesive only when great care is exercised in the preparation of the receiving surface. After pickling the iron should be well washed in alkali, otherwise the acid is retained in the pores of the metal and sows the seeds of decay. Other matters of moment are the slowness of electro-zincing when working with a low current density, and the difficulty experienced in coating articles of irregular shape. Difficulty is also experienced from the want of adhesion when the zinc has obtained a thickness beyond that corresponding to 1¼ oz. of zinc per square foot. Attempts have been made to overcome this difficulty by the method employed to make silver adhere to a baser metal, namely, by quickening—that is, immersing the copper or copper alloy to be silvered in an aqueous solution of mercury. As mercury will not amalgamate with iron, an electric current has to be employed. Dr. Leeson, in 1842, patented the use of mercury for preparing metallic surfaces for electro-deposition, both by simple immersion and by the electro-deposition of mercury. The application of this process to the coating of iron with zinc is found to be too costly, the mercury also has a tendency to render the zinc coating brittle.

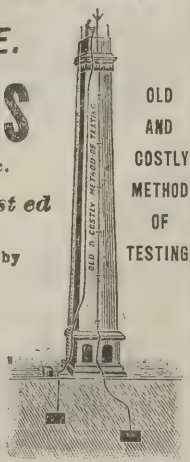
To reduce the labour that would otherwise be necessary in zincing small articles, such as bolts and nuts, successful attempts were made in 1870 to coat such articles by placing them in a revolving perforated metallic cylinder. A similar arrangement has been employed for coating steel bullet jackets with cadmium and zinc.

Even when ironwork is to be painted, a thin preparatory coating of zinc may be applied with great advantage. Engineers recognise the fact that the best results are obtained when the paint is applied direct to the iron surface, after the removal of all scale and before it has had time to rust, as the rust prevents the intimate contact of the paint and induces chemical action which causes the paint to peel from the iron. Mr. W. John, on examining some small mounds of rust on the outside of a recently launched steel vessel, found that under each heap of rust there was a small hole in the paint not larger than the size of a pin's head, and that beneath each hole was embedded a small particle of black oxide in a pit in the plate. No matter how many coats of paint are put on, they cannot arrest incipient

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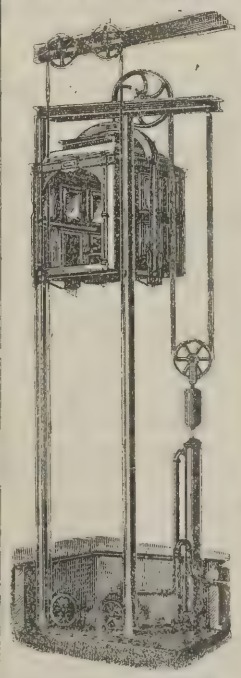


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oxidation, or that on the surface of a plate ; four or five coats of paint fail to protect the metallic surface to any greater extent than two or three coats of anti-corrosive paint possessing a good body and texture. The system of attempting to prevent corrosion by an increased number of coats, and therefore increased thickness of paint, is a deceitful one, for by reason of the thickness of the paint any corrosion on the surface of the metal may not show through the paint by discolouring it in spots or otherwise as it will do if two coats are used. In the latter case it can be remedied, being evident, but an increased thickness of the paint may hide the oxidation that is proceeding, and the mass of coats of paint may yet have sufficient adherence to mask the decay and give a false appearance of durability, until a length rust has formed to such an extent as to become detached from the surface of the metal, the paint ultimately falling off with the layer of rust attached to it.

Experience shows that pigments, usually metallic oxides or carbonates, act as carriers of oxygen from the air from the underlying iron, causing it to rust. An ideal paint should have a toughness which does not depend on a perishable ingredient; its elasticity should not be diminished by cold, it should not soften but rather harden by heat, it should contain no solvents but turpentine, which experience proves to be safe, and it should contain nothing which would act as a carrier of oxygen to the metal.

The durability of painted ironwork, therefore, largely depends upon the surface of the metal being properly cleaned and prepared. An excellent surface in this respect may be obtained at a very small cost by "zinc flashing," that is, coating the iron or steel after pickling with a thin coat of zinc, which will resist the effects of the weather and retain a perfect surface for receiving a coat of paint until such time as it can be applied. The practice of sending ships on their first voyage before painting, so as to allow the scale to detach itself, is not to be recommended.

(*To be continued.*)

SUPERANNUATION OF MUNICIPAL OFFICERS.

The conference convened by the Municipal Officers' Association at a meeting held on September 22 at 117 Holborn, E.C., had under consideration the question of again promoting legislation in the next session of Parliament, and decided to invite all associations and societies representing municipal officers to again send delegates to the conference. The chairman and secretary presented a joint report, together with balance sheet, showing what had been done last session in promoting the Local Authorities Officers' Superannuation Bill. In order to further the movement a conference will be held in London at the end of October to which municipal officers throughout the country will be invited to attend, and a very large gathering is anticipated. Particulars of the place and time of meeting will be announced in due course, and any further information can be obtained by letter from the hon. secretary, Mr. C. J. F. Carnell, 117 Holborn, London, E.C.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

19888. Francis Higgarty, for "An improved flooring or paving composition."

19918. Andrew Turner, for "Improvement in means for operating ventilators."

19988. John Utley Spence, for "Improvements in dog kennels for sanitary purposes, and also for safety and ornamental appliances combined."

20036. Abraham Weil, for "Improvements in cement roofing tile presses."

20166. William Wood, for "Improvement in the construction of lubricating brick dies for making bricks, tiles or blocks."

Specifications Published.

15516. Pease, for "Construction of fireproof flooring and the like structural arrangements."

16173. Imray, for "Manufacture of Portland cement."

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ROOM, THE HAGUE.

The Architect.

THE WEEK.

At the desire of the Town Council of Edinburgh, Mr. Waterhouse, R.A., has examined the thirteen sites which were proposed as suitable for the contemplated Usher Hall, viz. High Street, Chambers Street and Lindsay Place, Lauriston Place, Cattle Market, Earl Grey Street, The Meadows, Castle Terrace, Atholl Crescent, Melville Street and Stafford Street, Charlotte Square, George Street and Castle Street, Music Hall site, St. Andrew Square. Mr. Waterhouse was requested to report specially on five among them which were most favoured of late in Edinburgh, viz. (1) Chambers Street, (2) George Street, (3) Atholl Crescent, (4) High Street, (5) Melville Street. Before dealing with the particular sites, Mr. Waterhouse offered some general suggestions. He wrote :—"Edinburgh already possesses innumerable buildings of the highest architectural excellence and beauty, but there is not one of these, I should suppose, so entirely intended for the enjoyment and recreation of the community at large as this gift of Mr. Usher's is designed to be. The site selected should therefore be, in my opinion, not only easy of access and free from noise, but it should be as much as possible an isolated one, with nothing mean or sordid in its neighbourhood to detract from its festive character, and if this were attainable it should be more or less surrounded by lawns and trees, as nothing, in my humble judgment, so much enhances the enjoyment of fine architecture as the softening influence of neighbouring vegetation. Of the thirteen sites visited, only two (neither of which is included in the five before mentioned) appear to me to fulfil these conditions. I will therefore first touch upon these, viz. the Meadows site and the centre of St. Andrew Square."

Mr. Waterhouse considers the western extremity of the Meadows to fulfil the requirements in an ideal way, and as it is positively featureless, it "requires a beautiful building to give it point and character. There is no doubt in my mind that the City Hall erected there would add a crowning attraction to one of the most attractive spots in your beautiful city." According to Mr. Waterhouse, the centre of St. Andrew Square would be also a perfect site. It is free from trees, and is large enough for the buildings. There could be four exits to as many different streets. If properly designed, the Hall would form a splendid termination to the vista going east along George Street. It "would be so far removed from the buildings surrounding the Square (nearly 200 feet) as not, by any possibility, to prove obstructive to the light of those buildings. In no situation would your new building be more appreciated, I venture to think," adds Mr. Waterhouse, "than among the trees and gardens of St. Andrew Square. Nowhere could it be better seen from every side and to better advantage. The drawback to the adoption of this site is the necessity for the removal of the dignified Melville Monument." One of the objections which Mr. Waterhouse raises against the Castle Terrace site is that at present it is covered by modern buildings, and would therefore be expensive, and it is not so absolutely removed from more or less objectionable surroundings. The Chambers Street site is rather restricted. Atholl Crescent, although attractive, would allow of only one front, and that facing north-west. "I think I need hardly point out," says Mr. Waterhouse, "that the north is the worst possible aspect for a beautiful work of architecture. Its beauties are in that aspect only half appreciated." The corner of George Street and Castle Street is considered as not an ideal one for so important a building. The High Street site is described as very expensive, for there would have to be as much building below the level of the street as above it. The quiet dignity of Melville Street would be diminished if the hall were erected thereon. The Cattle Market site would be difficult of approach, and would have many incongruous neighbours. Similar objections apply to Lauriston Place. Earl Grey Street would be noisy. The north side of Charlotte Square is an architectural work of great excellence by the Brothers Adam, and it would be a great mistake to remove it. As the music-hall has architectural merit, especially internally, it should also be preserved. In conclusion, Mr. Waterhouse says:—"My opinion is distinctly in favour of the Meadows site (an absolutely unoccupied one), and next to it the site of the Melville Monument in St. Andrew Square. This opinion would be unaltered, even if the cost to the city for either of these was as great as for any one of the remaining sites. Between these two and the remainder of the thirteen there is a great gulf. But if for any reason the city finds the acquisition of either of these sites absolutely impossible, if it finds itself forced to accept a site of decidedly less fitness at a heavy cost, involving the destruction of more or less valuable property, then I should recommend Castle Terrace in the first place, and the Chambers Street site in the second."

At the meeting of the London County Council on Tuesday the following resolution was agreed to :—"That, as the present system which obtains in London with regard to the supervision of buildings and the responsibility for their proper construction, both from a structural and sanitary point of view, is unsatisfactory, it be an instruction to the Building Act committee to report fully on the subject." What is contemplated is of course an extension of the Building Act. A great many architects consider that too much official interference is now allowed, and their duties will not be lightened by having to obey a larger number of regulations. Unhappily, it will not be difficult to bring forward many cases which appear to prove the necessity for more stringent examination of plans and of structures. The difficulty is, when powers of the kind are sought, to know where to stop. The existing law was originally intended to diminish the risks of fire. By degrees a wider scope was given to the Act. If there are additional powers entrusted to the district surveyors, the expenses of building must be largely increased. As the profit at present rarely reaches a high rate, it is difficult to discover a means to prevent its diminution.

A meeting of the Royal Society of Antiquaries of Ireland was held in Dublin on Tuesday last, when some papers were read. Mr. J. J. Digges la Touche, LL.D., showed a series of photographic slides of old deeds connected with Christ Church, Dublin, which is one of the two cathedrals in the city, and was especially favoured by the Norman invaders. They included some of the oldest Anglo-Norman deeds in Ireland, for they were prepared in the twelfth century. Among the first exhibited was a deed of grant from one of the King Henrys of England of land situated between Portmarnock and Malahide, in co. Dublin, and at present called Kinsealy. This land was granted by the document in question to a Danish king. A portion of the Bull of Pope Urban III. was also shown, in which reference was made to certain churches in Dublin which were to be subsidiary to Christ Church. A deed, the date of which was about 1185, was further exhibited, in which grants of land were made by King John. A number of other documents dealing with old grants of land in and about Dublin formed portion of the series. Reproductions are likely to be published by the Society hereafter.

Visitors to Paris can now see the treasures which the late M. Cernuschi spent a life in gathering. Probably there is no museum in the world which is richer in examples of Chinese and Japanese art. There are three or four thousand examples, and there is not one among them which is devoid of interest; all are admirably arranged, and although the space is confined—for the museum was only the residence of the donor—yet on that account the character of the gift becomes more apparent. There are many figures of animals in bronze, some being enriched with enamels. The pottery is often exquisite and kakémonos, netzkès and other miniature carvings will delight amateurs. Two bronze figures are certain to attract unusual attention; one is a Buddha which expresses more than usual calmness, the other is a statue of an artist which was presented to him by his pupils. There is only one drawback to the exhibition—a catalogue is not yet prepared. But when we consider the value and the interest of M. Cernuschi's bequest it is not likely that visitors will have long to wait for information which is indispensable.

SCULPTURE IN WOOD.

THE announcement of classes for wood-carving, the accounts of the prizes gained by the students, and the publication of drawings for examples and various other signs are suggestive of efforts to revive an art that was almost moribund. That it flourished in England for a long period there can be no doubt. An abundance of suitable wood of various kinds was to be found in the country, and there was a demand not only for carved decoration in relief, but for figures. The English Mediæval churches must have contained many specimens of sculpture in wood. The examples of statuettes, misereres and relief which have survived prove the dexterity attained by the artists. A record is extant of an order of HENRY III. for the supply of three oak trees to the sacristan of Glastonbury, which were to be employed for images, and we may be sure that many owners of woods were no less generous in furnishing materials for a similar use. Probably there were no artists in Mediæval times who could, like GRINLING GIBBONS, imitate a lace cravat, or produce a pot of flowers which was so delicate that the leaves were shaken when carts passed before the house which contained the carving. But as far as can be judged by what remains, the sculptors in wood were at least equal in skill of representation to their rivals who worked in stone. From the resemblance of the styles it is reasonable to conclude that it was usual for sculptors to work in both materials as occasion needed. Some of the Renaissance artists were also willing to carve in wood, although they might prefer stone, in the belief that it was more likely to uphold their reputation. It was a wooden crucifix by DONATELLO which called forth the remark of BRUNELLESCHI, "You have made a peasant labourer, not a god," and led to the exaltation of the sculptor's style, and to the production of a finer crucifix by his critic.

If we go back to an early time it is difficult to determine whether clay, stone or wood was first utilised by sculptors. The earliest memorials were likely to be stones or boulders, which were found lying on the ground. After a time men may have tried to bring the stones into some approximation to a human form. But once the use of clay as a material was discovered it would from its plasticity have more favour in the eyes of archaic artists than stone. The advantages of wood were not likely to be ignored by early inquirers. The material was more easily carved than stone, it did not need time for drying like clay, and it possessed the advantage of portability. Idols were supposed to exercise a protective influence, and for that reason would be carried by tribes in their journeys, and become as necessary as are modern flags in a battle. It was also more easy to make colossal figures of wood than of stone or baked clay, for the parts could be fastened together by simple means. Wood also lent itself to the production of figures which were to be draped with embroidered stuffs. It would be necessary to carve those parts alone which were to be visible, and the remainder could be treated as framing. Wooden figures were also suitable when plates of gold were to be used for the exterior. For the reasons we have given wood deserved preference, especially in an age when men were unskilled as artists. But if the advocates of stone or of clay will insist on the priority in use of their materials, they will at least allow that, as far as age is concerned, wood is entitled to the next place.

The antiquity of wooden figures is suggested by the reverence which they obtained in the days when PAUSANIAS was gathering materials for his Itinerary. He found them surviving in many of the sacred places, and according to him they were generally known as *dædala*, for they were popularly associated with the mythic sculptor who was believed to be the originator of the art in Greece, and whose work, according to HOMER, was imitated by VULCAN when preparing the "Shield of ACHILLES." PAUSANIAS said he had seen a colossal statue of MINERVA POLIAS which was made of wood by EUDŒUS, the pupil of DÆDALUS. The goddess was seated on a throne, and held a distaff with both her hands. According to the same authority, there was a colossal figure of APOLLO made of cedar in Thebes, which was supposed to be carved by CANACHUS, an artist who was described by CICERO as holding a position in sculpture corresponding with the elder CATO'S in oratory. In Olympia were also statues of cedar by THEOCLES, one representing ATLAS bearing the heavens. Several other examples are mentioned by PAUSANIAS. When we read about them we appear to have gone back to the region of fable, where everything is a delusion. The Greeks could not mistake the character of the figures. They knew as well as CICERO that the figures of CANACHUS were wooden in another sense, "rigidiora signa Canachi," but they held them in reverence. Greek archæology was more than a science, and it is well for us events were recorded which the peoples of a later time would consider as childish.

As long as the Greeks were proud of the past and their predecessors, they were likely to do all they could to preserve ancient styles from becoming entirely obsolete. Sculpture in wood would therefore be, at least, occasionally produced. PHIDIAS was the sculptor of the colossal MINERVA of Platea, of which the head and feet were formed of marble, while the body was of wood and gilded. The combination of materials will nowadays appear unworthy, but the Greeks could reconcile things which were contrary in their nature and, moreover, the statue may have been intended to display the characteristics of an earlier work. The Platean MINERVA was, no doubt, one of the early works of PHIDIAS, but if we possessed accurate information about him, we might learn that he never altogether abandoned his practice in wood. The great *Zeus*, which was his final work, could hardly be produced unless the sculptor employed a kernel of wood on which to place his gold and ivory.

The woods which were available for the sculptor's use in Greece were sufficiently various. We cannot of course be certain that in every case the wood corresponded exactly with the description to which we give a similar name. Cypress is now being used in America for fences and palings. It must be altogether different from the Greek wood, and the cypress grown in England is supposed to be no more than an ornamental tree. Yet PLINY speaks of a statue of JUPITER made of the wood which was set up in the Capitol of Rome in the year 97 B.C., an event which reveals that at so late a period there was no prejudice against carved wood. The gates of the Ephesian temple were said to be of cypress, and to have endured for at least four centuries. If we credit PLINY, the gates of the Temple of Apollo at Utica, which were of cedar, were still more ancient, for they survived fifteen centuries. Cedar was evidently a favourite wood with sculptors, and the poets in all ages have had a weakness for it. From its durability it was considered to be well adapted for statues of gods. Some authorities say that the Greek cedar was a kind of cypress, while with apparently more reason it is classed with the thuja, or arbor vitæ.

Ebony was used for statues, and among the sculptors who preferred it were SCILLIS and DIPŒNE of Egina. Why such dark wood should be considered suitable is one of the unsolved puzzles of art. Time would consecrate its employment, but the difficulty is to realise what quality first made it admired. There is mention of a colossal statue of HERCULES for which beech was employed. The wood of the fig tree, from its ease in working and colour, is also mentioned, as well as oak, box, sycamore, olive, pear, &c.

The use of wood was not peculiar to Greek artists. HERODOTUS saw very large statues of the material in Egypt, and some of the most remarkable portrait statues which were derived from modern excavations are of wood. The hardest materials—basalt, porphyry, granite—were, however, more in keeping with Egyptian ideas about futurity, and were generally employed.

Of late years the doors of the Academy have been opened to several kinds of sculpture. But we cannot recall a single example in wood among them. The Academicians would say the material is only suited for the production of Swiss figures, which are adapted for toys or for appendages to clocks, and, therefore, would be out of place in Burlington House. But if an Academician would have the courage to produce a figure in wood occasionally, it would do much to elevate the character and to increase the value of the wood-carver's work. The art is one which is in our time too much associated with one class of decoration, and is in danger of being superseded by machine work and copies in composition. It has, however, an antiquity that is almost as remote as that of sculpture in stone, and for many modern purposes it has advantages over work in marble or metal.

THE ARCHITECTURAL ASSOCIATION.

THE opening meeting for the session 1898-99 was held on Friday evening last in the rooms of the Royal Institute of British Architects. The president, Mr. G. H. Fellowes Prynne, after distributing the medals, certificates and prizes to the successful students, delivered his inaugural address.

Medals and Prizes.

The principal prize-winners of the past session were :—

A.A. Travelling Studentship, value 25l., and Bronze Medal.—H. F. Waring.

A.A. Medal (Silver Medal and 5l. 5s.).—F. Dare Clapham. *Second Prize, value 5l. 5s.*—T. Tyrwhitt.

Essay Prize, value 10l. 10s., and Silver Medal.—F. N. Reckitt.

Measured Drawings Prize, value 5l. 5s.—A. M. Torrance. *Hon. Mention.*—J. G. N. Clift.

Andrew Oliver Prize, value 5l. 5s.—A. J. Roddis.

Arthur Cates Scholarship, value 10l. 10s.—T. Bee.

LECTURES.—*Division I.*—Silver medal and A.A. Scholarship, value 6l. 6s., S. H. Goodwin; bronze medal, H. S. Barrett; hon. mention, S. Wheeler. *Division II.*—Silver medal, T. G. Lucas; bronze medal, W. M. Settle; hon. mention, H. T. Bromley. STUDIO.—*Division I.*—Silver medal and certificate, not awarded; bronze medal and certificate, C. H. F. Comyn. *Division II.*—Silver medal and certificate, C. E. New; bronze medal and certificate, J. G. N. Clift. PERSPECTIVE PRIZE.—L. G. Detmar.

President's Address.

Mr. Fellowes Prynne began by describing the educational work of the Association, and the facilities offered for supplementings the present system of pupilage to those members who are unable to take advantage of the regular four years' courses. He then said :—

Undoubtedly the greatest need of the Association at present is the want of new premises. For years past this need has been unceasingly felt. The prospect of new and more suitable premises has so often been foreshadowed, unhappily without any tangible result, that I cannot wonder that members should feel disappointed, and consequently somewhat apathetic on the subject. But I can assure those who are not immediately behind the scenes that the question is by no means an easy one, and beset with many difficulties. The committee, as a body, certainly have not shirked the question. Time after time have different schemes been brought before them, and many hours have been spent in the inspection of possible buildings, and yet on only two occasions have we come anywhere near the solution of our problem, and then to find our hopes blighted by some unforeseen difficulties. The largeness of our requirements and the limited means at our disposal form the two great obstacles to the attainment of our long-deferred hope.

In company with several of my predecessors in the chair I had good reasons to hope that I should be able to bring before you this evening a scheme that would meet our requirements, and it is with much regret that I find myself at the last moment unable to do so. But I can say this much, that the Jubilee premises committee have under consideration another scheme that we sincerely trust we shall be able to submit for your consideration at no distant date. As certain questions have lately been put to me on the subject, I will briefly state what I consider our needs are, and what I shall aim at obtaining in any scheme for new premises.

In the first place, I should like to see our Architectural Association centre made much more of a true centre, a home or club, if you like it better, of architectural life ; a place where one and all members could drop in at all reasonable hours of the day and enjoy the privileges of a good common room, where light refreshments could be obtained, and a comfortable reading and writing and smoking-room ; a place where one would not feel ashamed to ask a friend or client to meet one, and where the parents and guardians of any student might call without feeling that they were visiting a sort of architectural wholesale warehouse or counting-house ; and last, but not least, a place where country members or members of allied societies could call and feel that they had a homely centre in this great Metropolis where they would be always welcome and could meet men of like interests to their own.

I have no wish to draw any fantastic picture, but in my humble opinion a modified club life such as I have referred to would be of great service to the younger as well as the older members of the profession. Within proper limits its tendency would undoubtedly be for good all round ; it would form a social background to the otherwise serious educational work of the Association, which would reflect warmth of feeling and create a spirit of *esprit de corps* amongst its members. I could wish that there was some such club life in the Royal Institute of British Architects that it might be in reality what it should be, the proper social as well as the professional centre in London for all architects.

In addition to good offices and library and classroom accommodation it is, I think, desirable that we should have our own meeting-room if possible and a large well-lighted and ventilated studio will be an essential feature ; and the next important new requirement should be demonstration workshops, an addition which will, I hope, be one of the great features of our future educational work. You will notice that I use the title demonstration workshops. I do so advisedly. Any scheme for extensive workshops in various trades would (even if it were desirable) be entirely beyond our means.

Men who wish to attend regular workshops where they can see a large variety of work can always make arrangements with some good builder to do so, and they will no doubt obtain a good insight into practical work. There are, however, many obvious difficulties, and I think some objections to regular builders' workshops training. To begin with, anyone who wishes this sort of training to be of real service to him must make up his mind that no half measures will be successful. He must drop any kind of kid-glove studentship and be ready to work with his hands, and on the same footing as an ordinary mechanic. There are troublesome class difficulties and craft jealousies to be faced—a footing to be paid for, added to which there are only too often influences of a low moral and degrading kind, that cannot be healthful to the younger student just starting upon his life's career, and in saying this I speak from personal experience. Again, hard manual work at the bench or banker may often be injurious to a man's sketching and pencil work.

It is for these reasons that I think the first practical training for architectural students should be in technical schools and demonstration workshops rather than at the actual bench or banker at a builder's works. If after such training a student can take the position of a clerk of works, or a place under a good clerk of works, I believe he will have precisely the kind of practical training that an architect requires.

The demonstration workshops that I should like to see in connection with the Architectural Association ought to consist of at least three large rooms ; one for carpentry, a second for mason and bricklayer's and tiler's work, and a third for plumbing and general metal-work. The furniture would, of course, consist of benches, bankers, lathes and other necessary tools and appliances on a modified scale ; but, further, it should be furnished with models of wood, stone and metal construction, and plumber's work. In some cases, such as roofs, floors, staircases and groining, the models would necessarily be on a small scale, but in all cases they should show accurately the construction, with joints, tenons, mortises, scarfings, &c., complete.

But for such details as doors, window-sashes and casements, and other things of everyday use that will readily suggest themselves, full-size models would be more useful, and so made that they could be taken to pieces and put together again, so as to be copied, bit by bit, to small scale by students.

It may be objected that the cost of such models would be very considerable, which, if they had all to be especially made, would certainly be the case. But I would suggest the following method for the commencement of work in this new department.

1. That the initial expense to the Association would be the necessary fittings, tools and materials. When these were once obtained the fees for the workshop course should be more than sufficient to pay the remaining expenses.

2. That the services of experts in each of the various trades should be obtained at a reasonable fee, and that the duties of such experts should consist of descriptive and practical lessons in setting out work on the board from scale drawings, and as to the best application of that setting out to the actual materials, so as to obtain the best results and avoid unnecessary waste, to give actual working demonstration on the bench or otherwise in preparing and afterwards putting together the model to be constructed.

3. To superintend the students' work in carrying out various portions of the same model or other work he may set them to do.

4. That certain members should be invited to become visitors, and that they should from time to time set a subject for a model, or a problem, and give designs and details, say, ⅛-inch and ½-inch scale, to be worked out in proper materials by students to 1½-inch or 2-inch scale, or larger as the subject might allow. By this means it will be at once seen that in a few years the Architectural Association would have a most valuable set of models always ready for reference, made by the students themselves under the supervision of an expert, and without any other than the ordinary running expenses being entailed. When our collection of models was large enough, no doubt the students who made future models would be glad to keep their own handiwork in memory of the happy hours spent in the demonstration workshops of the Architectural Association.

I may here remark that the manual labour involved in working out these models and details to scale is a very different

matter to working on large planks and heavy stones in a builder's yard, yet for all practical purposes the teaching would be the same, and that without injury to the hands for drawing purposes.

Please forgive me if I seem to have dwelt on this subject at some length, but I feel so strongly that this addition to our curriculum would be such a popular and useful feature in our future work that I could not refrain from expressing my views plainly.

There is one other class that I should like to see revived in connection with the studio, and that is drawing from the antique and from the life. I say revived, because as far back as 1864 a class was started for this end, but from lack of the method such as we now have it fell through. I cannot but think that such a class would be found very useful to many of our members of all ages.

I sincerely trust that my picture of what we hope for in our new premises is not merely a fancy one or fated never to take substantial form, but that ere long we shall see it an accomplished fact, and that our long and patient waiting will only make us value the more our new home, wherever it may be.

Gentlemen, at the commencement of this paper I addressed you as fellow-students in architecture. Believe me, I meant this to be no mere form of words. I take it as a simple axiom that we are one and all students in our beloved art, and this is an axiom that cannot be too often repeated, for I fear that after passing through the first stages of studentship and commencing practice, many are far too apt to agree with the sentiment of such an axiom without carrying forward their studies, and thus building up upon the foundation of their earlier architectural education. It may be safely asserted that no profession or art needs more keeping up and continuous study than architecture, and it is equally certain that an architect who ceases to study, not only by book-work, but by travelling and sketching, becomes sooner or later a mere repeating machine. His ideas crystallise, and his designs become cold and lifeless.

It is for this reason that I hope one and all of our members will claim the honourable name of student in architecture. We are only on different stages of the ladder. To those who are just commencing their climb let me say—look well before you start. Consider well what are your qualifications. Can you honestly say that you love art for art's sake, that you are prepared to work hard and in a great measure to sacrifice your pleasure for your art, that you do not take up architecture merely because it is a respectable profession? If so, then I think you may go forward with every confidence of future success. But if not, for the sake of your future happiness and welfare, you had far better turn back before it is too late. If you seek an easy-going and lucrative profession only, do not become an architect. The practice of architecture is neither easy nor lucrative; on the contrary, it is one of the hardest working and most poorly paid of professions, as a large number of its members have, I am afraid, learnt from sad experience.

On the other hand, the man who sincerely enters into the true art side of architecture will experience great pleasure in his work, a pleasure that it would be hard to surpass, if indeed to equal, in any other profession or calling, and although wealth will be within the grasp of comparatively few architects, yet with a true love for his art as his main guide, with industry, ordinary business capacity, and last, but not least, absolute integrity in all business transactions, he will almost invariably be sufficiently successful to render his professional career a happy one.

In speaking of architecture as a poorly paid profession, I am reminded of a somewhat amusing episode. A client of mine wrote a certain sanitary surveyor and auctioneer, &c., who she had previously employed on some sanitary work, complaining that his charges, which I may say amounted to over 15 per cent. on a total expenditure of some 1,600*l.*, were greatly in excess of the charges of architects whom she had employed before on other house work. The answer of the sanitary surveyor and auctioneer, &c., was to the effect that of course his charges were quite a different matter to those of an ordinary architect. He was a specialist. This, at least, indicates that there are some people who think that architects must be poor sort of things to charge so little, and in passing I cannot help remarking that our system of charges does seem somewhat an anomaly—the Scott, Street or Pearson of his age charging precisely on the same scale as Mr. Tom Brag, architect, auctioneer and house agent. It is somewhat like a Millais or Leighton charging at the same rate per square foot of canvas as Mr. Daub, who once succeeded in getting one of his pictures marked with a big D, and hung in the Academy.

The result is too often that the men who have made a name get more than they can possibly attend to properly, whilst the less-known men get little or nothing to do.

I feel that, from an art point of view, it is an utterly wrong system, but as the public, our patrons, would not be satisfied unless there was an equal schedule of charges, I acknowledge the difficulty of finding a remedy.

Having in the early part of my address referred to some of our smaller weaknesses in working, I think I may now fairly congratulate the Architectural Association on its otherwise prosperous condition.

Our roll of membership is the highest on record, and you will be glad to hear that our members have reached a total of more than 1,220. This in itself is sufficient to show how widespread is the interest that is taken in our work, and how popular our Association has become in every branch of the profession.

Added to this, I am glad to say that in spite of necessary extra expenditure our financial position is still sound, and again, that our position from an educational point of view is equally sound, in that our many able instructors are content to remain with us and to thus place us in a position of being able to offer students advantages in architectural education far superior to that offered by any other institution of the kind.

But these are not the only signs of encouragement or success. The rejoining of several old members who had allowed their membership to lapse and the joining of some new members whose names are well known in the profession has been quite a feature in the commencement of this session. Amongst the former I must mention our old friend Mr. Arthur Cates, who has been reinstated as a member on his own request, and has paid up his subscription for no less than thirty-four years, placing him now in the honoured position of the oldest living member of the Architectural Association, and amongst the latter are Mr. H. T. Hare and Mr. Edwin T. Hall.

We extend to these gentlemen and to all who have joined our ranks in like manner the hand of good-fellowship and warm welcome, and we hope that they will not be content with adding their names to our list of members, but will help us from time to time as occasion may require with their counsel and advice, or in such of the voluntary work that still happily remains a part of our system. It is here that I would venture to make an especial appeal to the profession at large to join our ranks, as by so doing they will not only help us morally by their sympathy, but by their annual subscriptions will help the educational work of the Architectural Association financially.

We year by year gratefully acknowledge the valuable help and support given us by the Institute, without which we should find it difficult to keep up the standard of our work. Whilst I cannot but consider that the Institute, as the leading architectural society in the land, only do what is their bounden duty in helping forward the educational work of the Association, yet the help they give us is the more valued because it is given freely, and without being trammelled with conditions, showing that the Council have faith in both our system and our officers.

The generous financial help given by several leading architects, when the Association most needed it, at the commencement of our present scheme of education, will always be remembered with gratitude. We cannot, however, expect this kind of help except on very especial occasions, or for very exceptional purposes.

Surely it is not too much to expect from other architects, who have been fortunate and successful in the practice of their art, and who have not previously helped our cause, that they should come forward and help to the best of their ability the great work of education being carried out by the Architectural Association.

Is this work to be left to a few hard-working architects, whose enthusiasm and love for the future welfare of their art urges them to give their time and talents ungrudgingly for the cause? Can we allow it to be said that we, as a profession, are so selfish, so warped in our ideas, so wrapped up in our own small centres of art and petty personal interests, that we forget, or will not take the trouble to remember that there is a great cause to be worked for as well as that which more closely concerns ourselves? Surely not. If the helping of our younger brethren in their early architectural training tends to the good of that great cause and the advancement of our art, as I maintain it does, then surely it is the duty of all to do what they can for that end.

Some twenty-five years ago, when I was in the Western States of America, on the shores of Lake Superior, an American friend met an old priest, who was a most eloquent preacher, and asked him why it was he was content to stay there in the then wild West, on a poor income of 500 dols. a year, when, with his powers, he could get 5,000 dols. in New York. His answer I have always remembered. He said:—"What you say may be true. What is 5,000 dols. to me, compared with my duty to the great cause I was sent to take charge of in this district? I am doing my little best to fulfil my duties: when my work is done, my little best will go to strengthen the great whole, and so the work of the great church advances."

I only give this as an illustration of a noble example of self-abnegation for the benefit of the whole body, and as it is applicable to any act of unselfishness for the good of others.

Although the great cause referred to in this simple anecdote is, of course, incomparably greater than ours, yet the same principle applies.

In common with that of the artist, our art of architecture, which is itself noble and refining, calls into existence one touch of the divine faculty—creative genius. We have in that art a great cause to work for, and the more we can make our individual work tell for the good of the cause as a great whole, and the more we can help others forward in working for that end, the better it will be for ourselves and for the advancement of our art.

Amongst the other encouragements in our work it is satisfactory to notice the growing interest and increased attendance at our fortnightly meetings, and the success of the discussion section.

It is often a cause of wonder to me how it is that the papers at these meetings keep up such a high standard as they do. As a set of educational papers they are most valuable, and, judging from the titles and well-known names of the readers of papers for the present session, we may hope for excellent results. I do hope that members will prove their appreciation by a large attendance, and further that the younger members will try and join in the discussion after the papers.

An excellent syllabus of papers has also been arranged by the energetic members of the discussion section. The papers of this section are often exceedingly good, as may be judged from some of those we have published in the "Architectural Association Notes." I should strongly advise students to join, as the meetings are so arranged as not to clash with other class work, and it is here that they will be able to gain confidence in asking questions and speaking in public.

There is another side of the Architectural Association work which is most useful, and is now as successful as it has ever been. I refer to the social side. Now there are some to whom this side of our system is somewhat a stumbling-block. They think, and I have heard some say, that it seems a pity we should spend money on such frivolities as our annual soirée and members' smoking soirée. I must entirely disagree with those who would cavil with us on this point. Their objections arise either from an entire misconception of the objects of our social gatherings, or else from want of experience in the work of such a Society as the Architectural Association. I can, of course, conceive that it would be easy to let the social become a too prominent feature in our system, which would be distinctly injurious to its main objects. But under our present elective system, in which a very large body of men of tried experience have a voice, I believe there is no danger of such an evil happening.

The social side of the Architectural Association is, and I trust always will be, one of its great features, contrasting as it does favourably with that cold red tape system that would dub every kind of relaxation as undignified, and every penny that was spent on it as wasted.

To speak more strongly, I would say that the social side of our work is one of our sheet anchors. Take away that social side and you will have a model in still life, perfect perhaps in its form, but lifeless and without soul.

Indeed, so strongly do I feel the great use of the social side of our work, that my great wish, as I have before stated, is to see a modified form of club life established in connection with our new premises.

It is this social side that is one of the main wants of the Institute. It would give it a kind of life and soul that it does not now possess; it would make it more attractive to young and old. This to my mind is an exact case in point—few can find fault with the thorough and business-like way in which the great and excellent work of the Institute is carried out, but no one will suggest that its social qualities as a body, almost exclusively confined as they are to a guinea and half annual dinner, are such as to inspire fraternal feelings in the bosom of the most warm-hearted artist.

But in the Architectural Association one of our greatest aims is to encourage that social intercourse which is so valuable, and that strong feeling of fraternity that should exist amongst all true artists. In a limited way our annual excursion helps to create, extend and foster that warm feeling of brotherly equality in art.

One episode in the last excursion was the admiration called forth by Nesfield's work at Hampton-in-Arden, Warwickshire—and especially his careful restoration of the village church. Here I felt, and I think we all felt a touch of brotherly kinship for the artist, of whom it may truly be said "though dead, he still speaketh."

May the works that we carry out speak in the same language to future generations, and here I cannot help referring to the loss we in common with the whole art world have sustained by the death of Sir Edward Burne-Jones. If there was any one artist more than another who entered soul and spirit into the greatness of his art, whose highest aims were purity and poetic ideals, whose work has influenced the whole world of art, and the result of whose influence and example will live on for generations to come, that artist was Burne-Jones. Such a life and such art as his must mark him out as the artist among artists of the nineteenth century.

In speaking of painters generally, one could wish that they, as a body, could enter more into the art side of architecture than they do. Of course there are many exceptions, but as a body I do not think it can be said that they really appreciate architecture, and certainly very few take any trouble to learn the guiding principles of our art.

The more they do so the more will architects be able to enter into their feelings, with results that cannot help being mutually beneficial in case of decorative work.

Undoubtedly we, as architects, have many bad traditions to unlearn, and much more that is good to learn.

We are much too apt to accept the shoddy decorator's bad copies of ill-drawn Mediæval work, and seek to obtain quantity instead of quality. It is only the drawing together of architects, artists and sculptors in mutual intercourse, and the exchange of ideas, that will help to break down the ignorance that exists on both sides and bring about the harmonious results to be desired.

This mutual understanding is equally, if not even more necessary, between the architect and the stained-glass artist. On the one side, how many buildings have been ruined by the stained-glass put into the windows, owing to the entire want of sympathy on the part of the artist with architectural surroundings, and on the other hand, it not unfrequently happens that the artist is trammelled by the requirements of an architect who knows little or nothing of the correct treatment of glass, and seeks rather to obtain a series of copies of pictures in glass than a glass picture.

The employers are, of course, often to blame for these incongruous results. Their estimate of the duties and capabilities of architects is often, and not without cause, a very limited one. That the architect's artistic powers should extend beyond the limits of bricks and mortar, drains and ventilation does not occur to many—on the other hand, their views of an artist's power, simply from the fact that he is called an artist, are sometimes extensive, and they would deliver the work of decoration of a building or the stained windows into their hands without for a moment thinking whether such artist has any sympathy with architecture, and without realising that the whole architectural proportions and effect may be simply ruined by the misapplication of colour decoration and ill-chosen glass. An amusing instance of how extensive the powers of an artist are considered to be occurred to my brother who, when considering the scheme for the mural decoration in one of my churches, was asked mysteriously by the churchwarden if he could consult him on a small matter of business. "The truth is," he said, "I have a friend who has a false nose, and he wants it painted. Will you kindly undertake the job?"

But whatever our powers, be they limited or extensive, do let us as a body try our best to get in touch with artists and craftsmen of all kinds, and then I feel sure that those whose work is worth having will gladly meet us half-way, to our mutual benefit.

In drawing to the close of an address of this kind one feels how much there is that might be said with advantage on many points that there is no time even to touch upon, and how many things one ought to have said that have been omitted. But please forgive such omissions, and although what I have said may at times have seemed, as before hinted, somewhat severely practical, I trust you will believe that the sentiments therein expressed are sincere.

Gentlemen, let my last words be to remind you that as architects our responsibilities are as great as our work is noble, and the growing appreciation of what is beautiful and what is highest and truest in our art, within our ranks, if we are true to ourselves, cannot but make its influence felt in the outside world.

Great as has been the advance in our art during the last sixty years, yet architecture as an art is at the end of the nineteenth century only beginning to be recognised as such by people at large. Officially, the best representatives of our art, the men who are entrusted with the building up of the nation's monuments of peace and prosperity, remain unrecognised and unrewarded.

A great, free and enlightened daily Press as yet treats architecture with comparative indifference, and from simple want of appreciation of the work involved in the design for any great building, in many cases consigns the name of an architect to oblivion. For some of this indifference and want of public acknowledgment we, as a profession, have in a measure ourselves to blame. When people have forced upon them such buildings as have lately been allowed to disfigure such sites as the Embankment, Somerset House and Victoria Street, Westminster; and when buildings that have been erected at great cost have from time to time to be condemned as unsafe through structural defects, it is no wonder that they cry out, Where is the art and science in architecture?

It is the object of improving matters that forms the very *raison d'être* of our Association. But we must also remember that however much we may value the appreciation of others, our art as such is in no way dependent upon public apprecia-

tion, which as all know is a fickle quantity. The highest art is the true reflex of the inner man. Let your work be truly your own work in every sense of the word, stamped indelibly with your own individuality.

It is by such work you will make your "little best" strengthen the great whole and advance our art. We architects are the writers of a nation's history in stone, brick, mortar and metal. It is our work that will speak of the nobility and greatness, or weakness and depravity, the richness or poverty of a nation.

Think of the history that is recorded to us by the great architectural works of Egypt, India, Athens, or Rome—think again, how accurately the work of the early and Mediæval times describes the character of men then living. Surely an art such as this is worth living and working for.

To us in a great measure is entrusted the comfort and health of the community, to us the raising of great municipal and national monuments, and last, but not least, to us is given the honour of designing temples for the worship of the Great Architect of the Universe, buildings that will each, in their own way, in the future, influence men's minds for good or for ill, as the buildings of our forefathers have influenced our own.

For students let my last words be those of Bacon:—"Our studies serve for delight, for ornament and for ability."

A vote of thanks, proposed by Mr. H. H. Statham, seconded by Mr. Beresford Pite and supported by Messrs. E. T. Hall, Cole A. Adams, W. Millard and W. H. Seth-Smith, was passed by acclamation to the President.

THE ASSOCIATION SCHOOL OF DESIGN.

IT has been desired by many architects that the close of the nineteenth century might leave the outlines of some new style which would mark the progression of the age and hand down to posterity the record of Britain's greatness in the years of Queen Victoria's sovereignty. The new buildings of to-day possess such freedom and broad-mindedness in treatment as could only be derived by the facilities for travel which are offered to the artist of our time. If therefore our national progress is to be marked by the adherence to certain principles of style in art, great care must be taken with the young architectural student to instil his mind with a genuine love for the beautiful, and if the teaching has been good, when experience has added its polish, the efforts of his masters will be apparent in those of the finished student.

Perhaps it is for this end that the Architectural Association has decided to bring before students the claims of a class of design and handicraft.

A preliminary meeting was held on Tuesday evening last at Great Marlborough Street, when addresses were given by Messrs. G. H. Fellowes-Prynne (president), Aston Webb and Cole A. Adams.

The President said that the object of the school was to assist students in the study of design. The class already existing did not receive the attention it deserved. During the last two sessions there had been a falling off both in membership and quality of work, and this had given great disappointment to the committee and those more immediately interested in this particular and most important branch of the Association's educational work. In the A.A. school of design the subjects are limited to four during the present session, and the fees for either the elementary or advanced class, including the practical workshop demonstrations, have been reduced to five shillings per session. It was hoped that these changes might be so appreciated by the students that the school of design would become the most popular and important in the Association. Many architects in the past had not the same advantages that the student of to-day had, and this particular class of study proved to many how deficient the old training had been. The Association encouraged no particular school of thought; in fact, throughout its entire training it wished to be as catholic as it was possible to be. The student was encouraged to develop in his work all that would mark it as his individual style, although freedom and originality in design must be followed with moderation. It was essential to understand the value of past experience, and unless we built upon these foundations, our results would only bring chaos. Sketching, deprecated by some, gave more help in design than any work—more even than notes and books. The first aim of the student was to make himself a good draughtsman, and then when he can make a good drawing the perfection of planning should be the one important end. However fine the exterior of a building may be it can never make up for bad internal planning. The style in which a work is to be carried out should be that in which the student feels he takes most interest. In these earlier attempts at design ornament should be left alone. Nothing shows more quickly the capabilities of the architect, but when bad nothing more quickly mars his purpose. If the building is wrong it can never be redeemed simply by its ornament. All ornament must express an idea given through the functions and objects of the structural part. The ornament is in a sense the interpreter of construction. Ornamentation must, however, arise naturally of itself and not appear forced. It must also be remembered that the decoration of the various parts must have rhythmical relation the one to the other and bind together the whole harmoniously. It was for the students' interest the committee were now working, as in so doing they felt they were helping forward in no uncertain way the noble art of architecture.

Mr. Aston Webb then made some remarks on planning in design. He explained his ideas on the blackboard, although it was not difficult to follow the simple language with which he instructed the students who were present. One of the first things of importance in planning is the placing of the building, a point which is often neglected, and one which requires long consideration in large towns where the space is so often limited. It was necessary to have an idea or principle of what one was going to do, and it was no use starting on a building until there was this scheme or idea regarding its elevation in our heads. This idea or principle would often, perhaps, get the same reception as the flower sung by Tennyson. Some in the world would consider it a weed, but in course of time others would see its merits and copy or steal the idea. When sitting down to make a plan it is advisable to do it to a small scale and enlarge it afterwards, when there is something to work upon. On the small scale, the walls could be represented by lines. When considering the site of a building it would be found to reap immense advantages by being placed at a right angle to the line of approach, and the grand effect of some buildings abroad was in a measure due to the observance of this rule. In London many of the streets lost their effect simply through its non-observance. Here many of our streets ran into acute angles, proving most painful and troublesome to the architect. Regarding the system of planning in public and private buildings, both must be different. In public buildings all the means of communication should be as simple as possible, whereas in a private house the reverse is necessary. Easy communication was not wanted with all the rooms. Broad, straight corridors, properly lighted, are essential in public buildings, and the question of lighting was an important one. A corridor, with a window at the further end, was better than to get the light through glass over the tops of rooms leading off from the corridor. Another point was that the lighting of a corridor should not be all the way alike; there should be light only at intervals, but still an ill-lighted corridor was as unsatisfactory as an ill-lighted room. As the first impression is a great thing in a public building, good effect must be a great aim. Halls are much finer and more imposing when entered at the end rather than the side. Mystery in planning is to be aimed at in public as well as private buildings. In dealing with staircases it is essential that they should be as prominent as possible in public buildings, whereas the private owner will often prefer the view of the staircase to be hidden, at least, from the front door. In private houses skill had to be exercised in the placing of doors and fireplaces. In a sitting-room the fire would be placed away from the draught of the door, whereas in a bedroom this was not so necessary. Mr. Webb said he had received so much good from the class of design in his younger days that he very gladly accepted the invitation of their President to make a few suggestions. He advised students to "work for the joy of the working, and not entirely for money and fame."

Mr. Cole A. Adams also read a short paper on "Colour."

A vote of thanks was passed by acclamation to the three speakers.

TESSERÆ.

Contorniate Medals.

THE term "contorniate" is sometimes employed to designate a species of medals or medallions of bronze let into a circle of another material. The contorniate medals have seldom such high relief as the common medals, being scarcely more raised than our modern current money. On many ancient medals of this sort are found a monogram composed of the letters P and E, or an R reversed, with a palm engraved in intaglio. On one side is generally a head, and on the other some historical mythological subject taken from their plays. What distinguishes the contorniate medal from others is the want of connection between the subjects of the reverse and the head upon the obverse. As mythological and heroic subjects, such as Cybele and Atys seated in a car drawn by lions, a bacchanal, the combat between Hercules and Nessus the centaur, that between Achilles and Penthesilea, queen of the Amazons, Diana and Endymion, the education of Achilles by Chiron the centaur, the rape of the Sabines and the Circus Maximus at Rome, as reverses to the head of Alexander the Great—gymnastic exercises, races in the circus, on the reverses of Homer, Horace, Socrates, Virgil, Apollonius Tyaneus

Terence, Sallust, Apuleius, &c. On a contorniate medal, described by Millin, is even found the heads of Nero and the younger Faustina. The same types are often to be found upon reverses of different heads, as the fable of Scylla is represented upon medals having the heads of Alexander the Great, Nero and Trajan.

Advantages of Criticism.

There are few spectators of a painter's work, learned or unlearned, who, if they can be induced to speak their real sensations, would not be profitable to the artist. The only opinions of which no use can be made are those of half-learned connoisseurs, who have quitted nature and have not acquired art. That same sagacity which makes a man excel in his profession must assist him in the proper use to be made of the judgment of the learned and the opinions of the vulgar. Of many things the vulgar are as competent judges as the most learned connoisseur; of the portrait, for instance, of an animal; or, perhaps, of the truth of the representations of some vulgar passions. It must be expected that the untaught vulgar will carry with them the same want of right taste in the judgment they make of the effect or character in a picture as they do in life, and prefer a strutting figure and gaudy colours to the grandeur of simplicity; but if this same vulgar person, or even an infant, should mistake for dirt what was intended to be a shade, it might be apprehended that the shadow was not the true colour of nature, with almost as much certainty as if the observation had been made by the most able connoisseur.

Inundations in Rome.

During many centuries Rome was liable to destructive inundations. Several are recorded by Livy, Eutropius, Dion and Horace, and they amount in all to sixty-two, from the first mentioned by Livy as having occurred A.U.C. 590, to the last in the time of Pius VII., in 1805. That recorded by Dion A.U.C. 731, destroyed the Sublician bridge; that of 744, mentioned by Horace, ruined the Temple of Vesta. That in 788 of our era swept away both the Flaminian and Sublician bridges; that of 856 reached the church of St. Mark; that of 860, in the time of Hunorius III., ruined the Palatine bridge, now the Ponte Rotto; that of 1280 rose 4 feet above the floor of the Pantheon. Those of 1378, 1412, 1476 and 1513 are marked by slabs inserted in the front wall of the Minerva Church, where the fourth and greatest, under Leo X., rose 12 palms above the level of the street in that point. In the same walls are slabs recording six others, of which the highest in 1557 (under Paul IV.) rose 30 palms 2 inches. In 1704 were inscribed on the two columns in the Ripetta all the inundations from 1495 to 1750, the highest, that of 1598, being 32 palms 6 inches above the ordinary level of the Tiber. Of the immediate causes to which these inundations must be ascribed the Marchese Melchiorri says:—"It is generally agreed that they must be attributed to a double occasion; the east wind, which raising the level of the sea, forces the sands to the mouth of the river and impels backwards its waters, raising their level; also the south wind, which bringing profuse rains, dissolves, by its warmth, the snow on the neighbouring mountains. The ancients took many pains to free the city from this scourge, maintaining embankments on the shores of the river, to which a special magistracy was appointed, to which belonged the conservation of the banks, under the title of Curatores alvei et riparum Tiberis. Tarquinius Priscus projected the changing of its course; Tiberius proposed to deviate the course of the tributary streams, and Claudius formed the celebrated fosses which conducted the water from the Tiber to the port, and from the port communicated with the sea. Trajan restored the canal at the right of the embouchure of the river, which Claudius had opened to facilitate its exit. The provident care of the Pontiffs has dissipated in modern times all fear of the renewal of those extraordinary disasters."

Roman Gardens.

The Romans, like the Greeks, laboured under the disadvantage of a very limited flora. This disadvantage they endeavoured to overcome by arranging the materials they did possess in such a way as to produce a striking effect. We have a very full description of a Roman garden in a letter of the younger Pliny, in which he describes his Tuscan villa. In front of the porticus there was generally a xystus, or flat piece of ground, divided into flower-beds of different shapes by borders of box. There were also such flower-beds in other parts of the garden. Sometimes they were raised so as to form terraces, and their sloping sides planted with evergreens or creepers. The most striking features of a Roman garden were lines of large trees, among which the plane appears to have been a great favourite, planted in regular order; alleys or walks (ambulationes) formed by closely clipped hedges of box, yew, cypress and other evergreens; beds of acanthus, rows of fruit trees, especially of vines, with statues, pyramids, fountains and summer-houses (diætæ). The trunks of the trees and the parts of the house, or any other buildings which were visible from the garden, were often covered with ivy. In one respect the Roman taste differed most materially from that of the present day, namely, in their fondness for the ars topiaria, which consisted in tying, twisting or cutting trees and shrubs (especially the box) into the figures of animals, ships, letters, &c. The importance attached to this part of horticulture is proved not only by the description of Pliny, and the notices of other writers, but also by the fact that topiarius is the only name used in good Latin writers for the ornamental gardener. Cicero mentions the topiarius among the higher class of slaves. Attached to the garden were places for exercise, the gestatio and hippodromus. The gestatio was a sort of avenue, shaded by trees, for the purpose of taking gentle exercise, such as riding in a litter. The hippodromus was a place for running or horse exercise, in the form of a circus, consisting of several paths.

French and English Cathedrals.

In building their churches the French and English seem to have exchanged principles. The reticence and regard for form, proportion and unity which govern the productions of French writers, French painters and French actors were ignored by the architects, and the opposite quality of an intense subjectivity embraced in their stead. In the whole length and breadth of France there is scarcely an instance of a great church built on a carefully-balanced design, like those of Salisbury or Wells. Imagination is allowed to run riot and to pile one upon another shapes which require the harmonising hand of time to justify their existence. The west front of Rouen has been turned by the rain and the smoke of centuries into one of the most poetic things in the world. But as a design it throws to the winds those qualities of fitness and proportion on which French art, as a rule, is apt to over-concentrate its mind. It is just the same at Amiens. The great portals are magnificent; so are the clustered pinnacles and buttresses of the apse; so is the flèche, and so, within, is the soaring height. But none of these things help each other, and each serves to draw our eyes to some complementary defect. The western porches dwarf the west front; the flèche is lost on the huge mass of the roof; the internal height is so great that the vault which ends it has had to be kept thin, poor and mesquin to save weight. All these defects correspond to faults which are common in English painting, in English poems and plays and novels, but which are rare in English architecture. Our cathedrals are often, nearly always in fact, combinations of one style with another. But that is because they are the work of different ages. Those parts which have been carried out at once have a balanced intention which is rare in the cathedrals that were rising at the same moment in France. Where it does occur, as in the west front of Notre Dame, it has a poverty that recalls the less satisfactory features of our own churches. As works of fine art the best of the English cathedrals are the finest in the world, because they avoid the mistakes which spoil Amiens. Their vaults are not forced too far up into the sky, so they have a far greater richness and variety than any to be found abroad. Moderation in height of roof allows towers and spires to be in proportion to the masses beneath them, while greater flexibility of plan gives scope for that varied outline in which churches like Salisbury, York and Durham are absolutely unrivalled.

Jacopo Palma.

His range was more limited than that of some of his Venetian contemporaries, but it left him scope enough for the creation of works which place him in the foremost rank of their common school. Subjects in which dramatic action is demanded he appears seldom to have handled, though his figures show no want of potential energy. He was at his greatest in those compositions for church altars or oratories where the personages command attention by their individual dignity or beauty, while they combine to form a consistent and harmonious whole. So is it in his many "sante conversazioni," in which the figures, grouped together in restful attitudes and filling the foreground, are enframed in sunset landscapes with blue mountain distances; idyllic conceptions, which foreshadow no pain and leave the mind in dreamland. All these come under the head of religious art. But not less attractive, and even more calculated to fix attention and impress the memory, are Palma's portraits of beautiful Venetians, wherein female loveliness, no doubt rather of a nobly sensuous than a highly intellectual cast, is presented to us with all the charms that glorious colouring, brilliant lighting, the finest sense of surface and the most masterly breadth of treatment can lend to a work of art. No studied idealism is perceptible in these heads, but absolute fidelity to nature, though to nature in the fulness of her perfection. The style of Palma underwent changes. His earlier works retain reminiscences of Bellini and Cima; later appears that largeness which, though Bellini led the way to it, was completely developed by Giorgione, Titian and Pordenone; finally a smoother, less thorough mode of practice, combined with a paler sort of colour, constitutes what is termed his "blond manner." As none of his pictures bear a date their chronological order can only be inferred from their style.

NOTES AND COMMENTS.

A TIME that is full of anxiety for the majority of the winners of the Prix de Rome in the section of architecture is when the studies are finished and practice has to be sought in Paris. Those who have commissions to give are aware that the young architect is without experience in construction, and therefore is better fitted to make views of buildings or restorations of temples on paper than to combat contractors. The ex-prize-winner is in the position of a man on whom a barren honour is bestowed, and in order to live he has often to accept a humble post. The late Madame MAILLOT was therefore well inspired when she bequeathed to the Académie des Beaux-Arts a sum of 2,000*l.*, the interest on which is to be applied for the benefit of young architects who have ceased to enjoy the hospitality of the Villa Médicis and are thrown on their own resources. As the daughter of FELIX DUBAN the lady must often have heard of the difficulties awaiting Prix de Rome men, and resolved to aid them by a prize which would be also a memorial of her father. The money will not be granted unless all the conditions imposed on such students have been faithfully complied with.

SANITATION in this country owes much to the late Sir EDWIN CHADWICK, who at one time stood almost alone in advocating the importance of the subject. His interest in the public health was unabated while he lived, and it was his intention to bequeath money for the promotion of sanitary science. His trustees accordingly decided to assign a sum of 700*l.* a year for the endowment of a chair of municipal engineering and a lectureship of municipal hygiene, and a further sum of 1,000*l.* to the purchase of instruments and appliances for the amplification of existing laboratories. These arrangements having been approved by the Court of Chancery and by the authorities of University College, London, the course of municipal engineering and hygiene was inaugurated on Wednesday. It is fitting that the first occupant of the chair is Professor OSBERT CHADWICK, a son of the founder. In his address he said that comparatively little practical instruction could be obtained from lectures alone, however complete, and their utility was vastly increased by a course of practical work. The drawing office was an essential adjunct to academic instruction, and it was above all things necessary that the student should be an expert draughtsman capable of drawing plans with accuracy, neatness and expedition. Engineering was a high art, the art of applying the great sources of power in nature to the use and convenience of man—an art only to be acquired by experience, practice and personal observation. In a well-equipped mechanical laboratory the student may be taught to produce the parts or whole of a machine, but obviously the construction of bridges, roads and the like could not be attempted. The student, however, could be prepared with the essential scientific knowledge and taught how to learn the profession of civil engineer. The course of municipal engineering would comprise a series of lectures by Mr. R. MIDDLETON on waterworks, sewerage works and the like. Examination marks would be awarded, and the student who diligently followed the course would be of value in the office of a civil engineer, and would so reduce the time that must elapse before he could take a responsible position. The lectures on municipal hygiene, founded by the Chadwick trustees, would afford elementary knowledge as to the causes of disease, as to methods of disinfection and as to bacteriology and other points which came strictly within the physician's province, in order that the engineer might give force to his instructions in the design of municipal works. The Chadwick Laboratory would be open to students for practical experiments with air, water, gas and other branches of practical chemistry. To assist the student to practical experience the Chadwick Scholarship of 100*l.* had been instituted, to be paid as an honorarium to a practising engineer taking the student as pupil, or to augment the small salary a student might receive as improver.

THE precise meaning of the phrase "stock bricks" is not always expressed by the definitions in dictionaries, and there is more or less variation between the descriptions given in books about brickmaking. Apparently the signification differs in different districts. A case which was tried in the Brighton County Court on the 7th inst. shows what consequences can follow from the want of uniformity between a builder's and a brickmaker's notions of the words. A firm of builders in Hove entered into a contract with a brickmaker in East Grinstead to supply 16,000 stock bricks at 27*s.* per thousand. The bricks sent were not accepted, for they were considered to be mainly "place bricks" taken as they rose from the clamp without any picking, whilst stock bricks should be picked. Bricks of the kind desired were therefore obtained elsewhere, and the builders claimed 11*l.* 6*s.* for their outlay on the substituted bricks as well as for expenses of carriage. The brickmaker claimed 21*l.* 12*s.*, the price agreed on. Witnesses appeared for both parties. Those for the builders held that stock bricks should be picked, while, on the other side, it was contended that stock bricks meant bricks burned in a clamp or stock, and taken without picking. Judge MARTINEAU said that in his opinion stock bricks meant picked bricks, which would be of a higher quality. Judgment was therefore given for the builders, and the counterclaim was dismissed. Picking may now be considered a sufficient ground for the promotion of place bricks to stocks. But in the early part of the century the difference between the two sorts was admitted to arise from the quality of the material, which could not be got over by any picking. Stocks were said to be "made of a good earth well wrought and with little mixture," place bricks being made of "the same earth, or worse, with a mixture of dirt and other coarse materials, and more carelessly put out of hand." It would be satisfactory if the standard were still materials and workmanship as formerly, rather than an indefinite process of picking which allows of too much latitude.

PEOPLE who are hopeful believe that the strike in Paris among the men employed on various works of construction will soon be settled. Everyone who loves to see France peaceful and prospering will devoutly wish for that result. Londoners especially are under an obligation to wish for the resumption of works, for there can be no doubt the example of their County Council has had much to do with the originating of the disturbance. The French workman has vague ideas about social economy, and when he learns that in London all the important works of the Municipality are carried out without the intervention of contractors, and that very high wages can therefore be paid, he quickly comes to the conclusion that a similar principle should be adopted in Paris. The Municipality of Paris dare not say that the proposed revolution in the manner of executing works would signify increased cost, for that would be a declaration that the hated bourgeoisie were to be mulcted. The Council accordingly have been juggling with the question, and listen complacently while the men in the streets are yelling "Vive la grève générale! Vive la solidarité ouvrière! Vive l'union sociale!" If it were not for Fashoda, we suppose the London County Council would be added to the vivats.

THE directors of the *Berliner Architekturwelt* are desirous to have an illustrated cover for their periodical. To obtain it they have arranged a competition, and offer one prize of 500 marks and two of 250 marks each. The jury will consist of Professors EMILE DOEPLER and SKARBINA of Berlin, Herren JASSOY and MÖHRING, architects, Herr SPINDLER, the publisher, and one of the Berlin painters to be hereafter nominated. The character of the design, which is to be reproduced by a single printing, is left to each competitor, but it is expected to be suggestive of earnestness and distinction, and of course the title of the periodical and the signet, an eagle, will have to be introduced. The designs can be sent in up to December 31.

ILLUSTRATIONS.

CATHEDRAL SERIES.—SOUTHWELL: VIEW FROM SOUTH-EAST.

18 PARK LANE, W.

THE NEW POST OFFICE, AMSTERDAM.

SUMMER HOLIDAYS AMONG FRENCH CATHEDRALS.

By the Author of "Ecclesiologia Germanica," &c.

Introduction (*continued*).

THE tedium of the railway journey across the monotonous plains of Champagne, Picardy and French Flanders is relieved by the great churches of Sens, Troyes, Châlons-sur-Marne, Rheims, Meaux, Beauvais, Amiens, Abbeville, St. Quentin, St. Omer and Tournai. Generally speaking, the predecessors of these glories of France have made way for larger and more splendid buildings which the increasing wealth and population of their cities demanded. Tournai, however, retains its peculiar Romanesque nave and its apsidal Transitional transepts, while the choir and transepts of Beauvais, respectively Geometrical and Flamboyant, soar above the severely simple ninth-century basse œuvre. A more gradual development is offered by the church of Montier-en-Der, near Vassy, where to a very simple Romanesque nave was added in the thirteenth century a First Pointed choir of the same dimensions.

In Champagne there is hardly a town or large village whose ecclesiastical architecture will not repay the trouble of breaking the journey, especially those with which the banks of the Marne between Rheims and Meaux are studded.

Of Early Champenois Gothic the two finest representatives are the choir of St. Remi at Rheims and the greater part of Notre Dame at Châlons-sur-Marne. The apses of these two churches are almost identical in plan and construction; the former retains its simple, solemn Romanesque nave.

The cathedral of Châlons is a fine specimen of Geometrical Decorated, but certain features, notably the imposing range of isolated cylindrical columns, have a very Netherlandish appearance; indeed, Teutonisms are more or less apparent in the majority of the churches in this north-east corner of France neighbouring to the Rhine and Belgium. The long, aisleless choir of another church at Châlons, that of St. Loup, ending in a three-sided apse, recalls Belgian and German examples of the thirteenth and fourteenth centuries, but the detail is infinitely superior. Five miles east of the same city is Notre Dame de l'Epine, perhaps the loveliest creation of the Mediæval architect on French soil. The windows exhibit a curious mingling of Geometrical and Flowing tracery; it possesses that rare feature in France, a rood-screen, and is altogether a structure that has given rise to no little speculation as to the nationality of its designer.

Further eastward we have the cathedral of Metz, whose doubtful *locale* creates a feeling of diffidence in the mind when assigning to it a nationality. The ground-plan of this great church, with the procession path and radiating chapels around its chevet, is French, while the exaggeration of the clerestory at the expense of the aisles is a feature essentially German. The cathedral of Magdeburg offers an example of this, the side aisles there being practically little more than one-third of the whole height of the church, and there being no triforium arcade, a disagreeable effect is created by the portion of unrelieved wall space intervening between the apex of the nave arcade and the string-course below the clerestory windows. At Metz this space is richly arcaded and the openings glazed, but there is no triforium passage of any depth. Fascinating as this arrangement may appear externally, sober reason tells us that such vagaries should not be attempted; but within, this defect is neutralised partly by the perspective and by the rich old stained-glass which not a few of the windows in this part of the church have succeeded in retaining. There is a wealth of detail in Metz Cathedral, especially in its foliaged ornament, and if the traveller sees it after the poor Middle Pointed work of the Rhine provinces, the relief is most agreeable; but should he approach the capital of Lorraine through such a richly churched district as the Ile de France he will experience a feeling akin to disappointment, which is, however, to some extent compensated for by the vastness and *élancé* character of this, the most imposing structure of its class in Europe.

In the Troyes district of Champagne we find a peculiar type of Flamboyant pervading the churches of its towns and villages, its leading characteristics being absence of capitals to the piers, the arch ribs dying off into them, and of foliation or cusping to the reticulated tracery of its windows. To an English eye, accustomed to the richness of our contemporary Perpendicular, such work appears tame and nerveless, but there is much that is grand and imposing about the scale of these churches, and this is aided in no inconsiderable degree by their ancient fittings, many having succeeded in eluding the hand of the "restorer."

In the city of Troyes churches cluster almost as thickly as in Cologne. Not a few of them are rich in old stained-glass, but especially that gem of thirteenth-century Gothic, the unfinished church of St. Urbain. The vitreous decoration of the cathedral of St. Peter and St. Paul in the same city is unusually splendid; indeed, nowhere in Europe can this particular branch of ecclesiology be seen in such profusion and magnificence as in the French cathedrals north of the Loire.

The towns of Melun, Montereau and Pont-sur-Yonne, which occur on the line of route from Paris to Sens, contain much interesting work, as do Joigny and St. Florentin, which are passed in going from the latter archiepiscopal city to Auxerre. The Early Renaissance in the churches of Joigny and St. Florentin is particularly rich and interesting. Troyes and Châlons can be reached either from St. Florentin, a line of route of comparatively recent opening, or by the older and more interesting one from Sens, passing through Villers l'Archeveque, where a few hours will not prove misspent.

We now come to the Ile de France, a small province, it is true, but enshrining within it some of the noblest buildings of the Middle Ages. Much fine work will be found in the Seine-side village churches lining the railway from Paris to Mantes, but these are eclipsed in architectural splendour and importance by those along the Oise, and for the exploration of which the town of Creil—itself not wholly uninteresting in an ecclesiological point of view—will be found an admirable centre. And not for these only, but for the beautiful architecture of the country of the Soissonaise, the cradle of Early Pointed French Gothic, will Creil be found a convenient *point de départ*—Senlis, Compiegne, Noyon, Laon, Soissons and Braisne all being within easy reach. As a whole the village church architecture of France may be said to fall far below that of England, but this succession of churches alluded to above as standing on the banks of the Oise—St. Leu d'Esserent, Champagne, Persan-Beaumont and Auvers, together with others of equally beautiful detail—is probably surpassed only by that glorious line extending all the way from Sleaford to King's Lynn, or by that remarkable Nene Valley series between Wellingborough and Peterborough. The above-mentioned line of churches is met going Paris-wards from Creil. In the direction of Beauvais are the contiguous villages of Cires and Mello, each with a noble and refined specimen of Early Pointed, while a short walk from Creil brings the ecclesiologist to Nogent les Vierges and Villers St. Paul. In all these churches the late twelfth and early thirteenth-century Gothic of France can be seen in perfection.

But of all the French provinces, that of Normandy, from the fact of its history having been for so many years interwoven with that of his own country, is to an Englishman indubitably the most architecturally interesting. Perhaps nowhere in France do we see all the styles brought to such a degree of perfection as in this the most delightful of her provinces. The Romanesque style of Normandy must not, however, be looked for in its capital, the cathedral of Rouen and other churches of that enchanting city having been rebuilt during the First and Middle Pointed epochs. But in the department of Calvados it is difficult to point to a village that does not present a specimen of "Norman" work, as for instance Bernieres, Fontaine le Henri, Bieville, Thann and Fresne Camilly, all within easy distance of Caen, which, with its two great mainly Romanesque abbatial churches of St. Etienne and La Trinité and its desecrated St. Nicholas, is quite a mine of study. Other large and important specimens of Norman work are the abbey church of Montivilliers and the humbler St. Honorine at Graville, near Havre; Cerisy, between Bayeux and St. Lo; St. George de Bocherville, near Rouen; and the collegiate church of St. Hildevert at Gournay, in the Pays du Bray, on the line of railway from Dieppe to Beauvais, and richest of all in the nave of Bayeux. Between Caen and the last-named city

is the exquisite First Pointed church of Norrey, quite a cathedral in miniature as regards its eastern portions. The long reed-like shafts in the belfry stage of the central steeple here, as well as in those of the neighbouring church of Bretteville, of St. Pierre and St. Jean at Caen, of Bernieres and of Langrune (two seaside village churches of great importance and interest) are an evident localism, and one perhaps unexampled in artistic excellence and gracefulness. In Normandy the First Pointed style is represented on a grandiose scale in the choir of St. Etienne at Caen, in the nave clerestory and choir of the cathedral at Bayeux, in St. Pierre at Lisieux, in the cathedrals of Coutances and Rouen, and in the nave of that at Seez. Other fine examples are the choir arcades and transepts at St. Jacques, Dieppe, the collegiate church of Eu, the abbey at Fecamp, and St. Pierre-sur-Dives.

Geometrical Decorated of a very high order is met with in the transepts of Bayeux, in the side chapels to the naves of Rouen and Coutances, in the transepts and choir of the cathedral at Seez, in St. Etienne le Vieux at Caen, and in the exquisite chapel (a contemporary with the Sainte-Chapelle at Paris) at the east end of the abbey of St. Germer, near Gournay. St. Ouen at Rouen—a perfect church of the fourteenth century—is in a later phase of Middle Pointed, melting into the Flamboyant, a style perhaps nowhere worked with such a degree of refinement and vigour as in Normandy.

Examples are numerous, but those worthiest of citation are the west front of the cathedral at Rouen; St. Maclou in the same city; the church of Caudebec, on the Seine between Rouen and Havre; the porches of the churches at Harfleur and Louviers; the tower of the Madeleine at Verneuil, and the upper portion of the nave of St. Jacques, Dieppe.

From Normandy we pass into Brittany, which, in architecture as in everything else, seems to have been behind the rest of France, but portions of the churches of Dinan, Dol, Folgoat, Guingamp, Nantes, Quimper, St. Pol de Leon, and Treguier are fine. Specimens of Romanesque or Early Pointed are rare, and much discrimination is required in fixing the dates of buildings, many of them having an air and style more ancient than they really are. The use of granite as a material is very frequent. Flamboyant, of a peculiar type, is the style par excellence of this corner of France, while the English look pervading many of the details and plans, and the manner in which so large a number of churches have retained their ancient primitive furniture delights the antiquary, the ecclesiologist and the lover of the picturesque. In the rood-lofts of Folgoat, St. Fiacre and Lambader we find a minuteness and delicacy of carving, especially in the foliaged ornament, hard to find among the works of an earlier and purer age. Its roadside crosses are, *inter alia*, a feature of Brittany; hardly a single point of intersection of two roads can be passed which is not marked by a cross—more or less mutilated—oftentimes restored by the piety of the present generation.

(*To be continued.*)

LEATHERHEAD, MICKLEHAM AND DORKING.*

LEATHERHEAD was known in the time of Alfred as Leodre, in Domesday as Ledret—the etymology is quite uncertain,; the British words Llethrod, Llethredd, which are said to signify a sloping situation, like that of Leatherhead on the banks of the Mole, down to which extensive gardens slope from one of its streets, have been suggested, but without much authority.

Leatherhead must at one time have been a place of considerably more importance than at present. The Sheriff's County Court was anciently held here and was only removed to Guildford at the end of the reign of Henry III. The river is crossed by a bridge of fourteen arches, close to which is "The Old Running Horse," a small inn said to be the hostel in which Elynour Rummyng "brewed moppy ale and made thereof port-sale," as celebrated in more curious than edifying verse by Skelton, Henry VIII.'s laureate. A portrait of the lady appears on one side of the house. According to tradition Elizabeth slept here on one of her visits to Slyfield, being unable to cross the river owing to the flood. The church at Leatherhead, which is of no great interest, was granted to the priory of Leeds in Kent about the middle of the fourteenth century, and from which time it principally dates. In the north-east wall of the transept is a curious squint. I am told the stained-glass in the east window was collected by a vicar, now passed away, from Rouen in Normandy.

Leaving Leatherhead we wend our way to the banks of the inconsiderable but not inglorious stream, the Mole. It has been noticed in lays of some of our most eminent poets. Spenser, Drayton, Milton, Pope and Thomson all mention it with epithets appropriate to its character.

In the episode of the marriage of the Thames and Medway Spenser introduced this river at the bridal feast in the following curious personification:—

> And Mole, that like a nousling Mole, doth make
> His way still underground till Thames he o'ertake.
> *Fairy Queen*, book iv. canto xi.

Drayton, in the seventeenth song of "Polyolbion," in amusing quaint poetic style represents Thames highly enamoured of "soft and gentle Mole." Tame and Isis, displeased at the passion of their son whom they intended for "the goodly heiress of Kent," the Medway—

> Employ their utmost power to hasten him away
> But Thames would hardly on, oft turning back to show
> From his loved Mole how loth he was to go.

Old Homesdale, the mother of the Mole, was fabled by the poet to be similarly aggrieved:—

> But Mole respects her words as vain and idle dreams
> Compared with high joy to be beloved of Thames,
> And headlong holds her course his company to win,
> But Homesdale raised hills, to keep the struggler in;
> That of her daughter's stay she need no more to doubt,
> Yet never was there help but love could find it out;
> Mole dig herself a pall by working day and night,
> According to her name to show her nature right.
> And underneath the earth for three miles space doth creep,
> Till gotten out of sight quite from her mother's keep;
> Her foreintended course the wanton nymph doth run,
> As longing to embrace old Tame and Isis' son.

Milton characterises this river as

> The sullen Mole that runneth underneath.
> *Miscellaneous Poems*, vol. iii. p. 321.

But Pope in his "Windsor Forest" uses the same epithet—

> The sullen Mole that hides his diving flood.

In Thomson's "Seasons" (Summer), Drayton's "soft and gentle Mole" is mellifluously amplified into

> The soft windings of the silent Mole.

More recently (1859) an entire poem in blank verse has been dedicated to the devious wanderings of this stream by Miss Bethune, whose work was privately printed in aid of funds for building national schools at Leatherhead. She traces the river from "its lonely fount" in "far St. Leonard's Forest" to the "solemn groves" of Betchworth, where

> The lingering waters of the brimming stream
> Sweep slowly round the wooded bank, so soft
> The gentle current that it scarcely rocks
> The floating water lily.

Then progressing with the tortuous stream around the base of Box Hill to the proud elms which "shoot forth their boughs" near Burford Bridge, she pursues its track by the "sunny slopes of Norbury," "Thorncroft meads," and the "many arched" bridge of Leatherhead to Stoke d'Abernon, where

> In its waveless course
> The Mole glides on, through quiet meadows, rich
> In yellow cowslips, and the tall foxglove,
> With its deep purple bells, dew laden.

This river, which was anciently called the Emele, Emlyn and Ernley stream, gives name to the Hundred of Ernley bridge, or as it is spelt in Domesday Book, "Amele-brige." The etymology of the name may be referred to the British or Celtic word Melin or Y Melin, the Mill, and thus indicate the Mill river—an opinion which receives corroboration from the Domesday record, wherein nearly twenty places are mentioned as possessing mills which must have been situated on this stream. Even its present appellation, the "Mole," by which it was also known prior to the Conquest, will admit of a similar origin, the Latin "mola" signifying a mill, and thus coinciding perfectly with the more ancient phrase. These inferences seem far more reasonable than that the river should derive its name from the vague comparison of "betaking itself to subterraneous passages like a mole," which Camden first suggested, and late topographers have unhesitatingly accepted his suggestion.

There seems little doubt that the river formerly disappeared during dry weather in the places called "Swallows" between Betchworth and Burford Bridge, when the stream flowed through or underneath the gravelly bed of the river; but the Rev. E. V. Brayley, F.S.A., in his "Topographical History of

* A paper by Mr. G. H. Lindsey-Renton, read at a visit of members of the Upper Norwood Athenæum.

Surrey," published in 1848, says :—"He may remark that the appearance of the 'Swallows' near Burford Bridge is now extremely different from the view attached to that account, the rapid current of the river during high flood having washed away much of the ground as well as the underwood and several trees." As you will have observed this afternoon, the undercut appearance of the banks in many places bears out Mr. Brayley's suggestion that much of the ground under which the Mole once ran has since been washed away.

Passing through some of the most beautiful scenery to be found in the county, we eventually find ourselves in the old village of Mickleham ; the chalk hills and undulating grounds of this parish, diversified as they are by the verdant valley of the Mole, and clothed with woods and plantations, give an extent and variety to the scenery which can scarcely be equalled in any other part of Surrey. The Roman road, styled Stane Street, passed across Mickleham Down, where its course may yet be traced, and Roman coins and fragments of Roman pottery have been found there.

Mickleham, the little dwelling-place, or as Mr. Brayley says it is called in some old deeds, Littleburgh or Mikelham—the latter is the spelling in Domesday Book—derives its name evidently from what is now considered Scotch, but formerly prevalent here,

Mony a mickle mak's a muckle.

The manor was held by the celebrated Bishop Odo, half-brother to William the Conqueror, but escheated to the Crown in consequence of the rebellion of that turbulent prelate in the reign of William II. (Rufus). Henry I. granted it to Robert de Mikelham to hold at a rent of 10*s.* a year. In the tenth year of Edward III. John Dewey and Margery his wife held the manor of the king in capite at the rent of 12*s.* and as castle guard to the castle of Rochester. Later it passed to John de Aperdele the younger, who in 1367 committed a felony, and being outlawed his estates escheated to the Crown. Edward III. in 1370 granted Mickleham to William of Wykeham, Bishop of Winchester, in fee, but in what manner it was afterward dissevered from that see is unknown, as well as its further descent until we find it in the hands of the Stydolfs in the reign of Henry VII. ; from that family the manor passed by successive changes, sales, &c., to the Talbot family, who became possessed of it in 1780, and one of whose descendants is the present possessor.

Mickleham Church is dedicated to St. Michael, and is a rectory in the deanery of Ewell. In the twentieth year of Edward I. the living was valued at 20 marks, but in the king's books at 13*l.* The registers commence in 1549, but are deficient during several years of the interregnum. Under date 1675 it is stated that "on the 19th Sunday after Trinity, John Lucas, senr., Lydia, his wife, and three sons John, Henry and James, and Anne, wife of Thomas Williter, were denounced excommunicated," but the cause is not assigned. In 1678, June 9, Second Sunday after Trinity, Anne Williter was absolved from excommunication.

Many of the Williter family who resided at West Humble have memorials in the churchyard.

The church is noticed in Domesday Book, and still exhibits distinct traces of Anglo-Norman architecture, particularly in the chancel and western doorway. In the years 1822 and 1823 the interior was renovated, and the north aisle about 1842.

In 1848, Brayley describes the church as consisting of an entrance porch and western tower, a nave and aisles, a chancel, a sepulchral chapel (annexed to the manorial seat of Norbury), and a robing-room and vestry of recent date. He says the tower is of a massive character and is further strengthened by buttresses of considerable projection ; it contains three bells and is surmounted by a shingled spire and weathercock. During repairs in 1823 the covering slabs of two ancient tombs were found in lowering the ground opposite the north doorway ; these have been placed in the porch and raised upon brickwork to form seats. The surfaces are much defaced, yet the foot of a cross appears upon each, with the remains of a supplicatory inscription in the Longobardic character. Brayley had some right feeling even in those days when the art of reverend restoration was so little understood, and he mildly rebukes the architect who renovated the building in 1823 for a "somewhat reprehensible deviation" from the original form "by substituting square piers for the cylindrical shafts or columns by which the arches were sustained." This, however, I believe was altered at a recent restoration.

On the north side is a decorated altar tomb in memory of William Wyddowson, a former patron. In front are three panelled compartments containing quatrefoils and shields ; on the central shield is the armorial bearings of the Mercers' Company and on the right a man on horseback, the other is defaced. An enriched canopy and panelled arch surmount the tomb, at the back of which are small figures in brass of a man and woman kneeling with a supplicatory scroll or prayer issuing from the mouth of each ; the man is represented in a citizen's gown with long hair, his wife in a long pendant headdress and a rosary at her girdle ; between them are the Mercers' Arms on brass, and beneath the whole the following inscription :—

Here lyth the body of Wyllyam Wyddowsown, Citizen and Mercer of London and of ye parych chyrch of Mekyllham late patrone ; and allso here lythe ye body of Jone hys wyfe the whych dyssesyd the xxvii. day of Septe'byr the 6th yere of King Hary the VIII., on whose soullys God have mercy. Amen.

Over the chancel arch are the helmet and banner of Sir Francis Stydolfe who lies buried here with many of his family ; several other memorials and tombs but not of any noted person.

Juniper Hall, near the church, is more especially known as having been an asylum during the French Revolution for a number of distinguished emigrants, Comte de Nartonne, Duc de Montmorency, Madame de Broglie, Madame de Staël, M. Girardin, Princesse de Zein, Talleyrand and a M. D'Arblay, who married the lively Fanny, daughter of Dr. Burney, whose "History of Music" is still extant, and who herself has written some amusing recollections of her life at the court of George III.

Leaving Mickleham we wend our way to Dorking, and as we enter the old Surrey town, our minds irresistibly recall the adventures of Mr. Stiggins at the Marquis of Granby, his devotion to "pine-apple rum," and his subsequent involuntary bath in the horse-trough into which he was assisted by Weller father and son. How marvellously has Dickens delineated the charms of this typical provincial town ; one can readily fancy the coaching days of sixty years ago, old Weller slowly wending his way to his inn, and his choking indignation to find the "Shepherd" in the bar parlour, insinuating himself into the graces of Mrs. Weller, his unctuous welcome to the "man of sin," and his subsequent attention to the particular tap devoted to the spirituous produce of the West Indies.

Here at Dorking the old Dutch merchants used to visit for the purpose of partaking of a special dish to which they were devoted, known as "Water Souchy of Perch."

Dorking, or, as it is written in Domesday Book, "Dorchinges," was given to Gunreda, his daughter, by William the Conqueror, on her marriage with the first Earl of Warren and Surrey, and through him by descent on the female side to the Dukes of Norfolk, whose eldest sons, as you are probably aware, bear the courtesy title of Earl of Surrey.

It would be superfluous for me to expatiate upon the beauties of this neighbourhood. Are they not written in many papers of the various rambles of which Dorking forms the centre? Suffice it to say that I hope whatever may be the shortcomings of this from an antiquarian or archæological point of view, you have enjoyed the delightful walk through one of the prettiest parts of this unequalled county.

RECENT DISCOVERIES AT POMPEII.

THE excavations at Pompeii, says a Naples correspondent of the *Times*, have been continued during the past year and have resulted chiefly in the discovery of small houses containing objects of secondary interest and importance. In the neighbourhood of the Gate of Vesuvius a portion of the city wall belonging to the earliest period of Pompeian building was laid bare, and is interesting, as it is apparently more ancient than such other portions of the wall as have been discovered. It appears to be of Oscan construction, being built of large blocks of rough stone neatly joined without mortar, and resembles somewhat the façade of "The House of the Surgeon," though the stones are larger and not so smoothly faced. This section of the excavations being exhausted, the ground already appropriated being finished, the director determined to excavate the small corner near the "Sea Gate," which was the only unexcavated spot in that part of the city. Experts had long been anxious to see what lay buried there, for there was a portion of a very large and handsome red marble pillar, which had long been above ground, and had given rise to sundry conjectures. On removing the soil the site was found to be occupied by the foundations of a temple which was in course of construction at the time of the destruction of the city in 79 A.D. This is particularly interesting, because it was supposed that all the sacred edifices of the city had been discovered long ago, no important deity being without a representative temple ; but unfortunately there is nothing in the rudiments of the temple before us to indicate to whom it was to be dedicated on its completion. It is evident that, though very small, it was intended to rival in its decoration any temple which existed in the city ; and though it had scarcely risen above the ground level, the marble architraves, carved with the usual egg-and-tooth moulding, are lying around it ready to be put up, and the Corinthian capitals, some finished and others only partly executed, are displayed in the enclosure, as well as the base of a pillar upon which the mason was at work at the time of the catastrophe which overwhelmed the city. The tool-marks on this base are clearly perceptible, and look as if the workman had only just left his task. As to the handsome red marble

pillar to which we have alluded, it is reasonable to conjecture that it was the base for the statue of the god, as it is about 4 feet long, and the only piece of coloured marble found on the site. The partly executed capitals are extremely interesting, as showing the methods of the Roman artist who was engaged upon them, while those that are complete are very good specimens indeed, considering that they belong to an age of decline.

If Pompeii itself has not been productive of sensation this year, a small excavation on private ground only a few yards outside the walls has more than made up for this by revealing one of the finest and most interesting mosaics of antiquity. Surrounded by a most exquisite garland of flowers, with a theatrical mask thrown in here and there to break the pattern, is a picture representing a group of seven philosophers, one of whom is seated with a papyrus in his hand, and the others are grouped round listening to him. In the background are some ruined pillars, and in the right-hand upper corner is a representation of the Areopagus of Athens, with its rocks and buildings. The mosaic is polychrome and in diminutive cubes of very fine workmanship, equal in merit to those by Dioscorides of Samos in the Naples Museum, which are believed to be the only signed mosaics of antiquity. It is about 3 feet square, and was, no doubt, intended for the centre of the pavement of a room. It had probably never been used and was a new mosaic, because it was not found on the ground, but leaning against a wall, showing either that it had been moved from some other place or that it was about to be put down for the first time. Its perfect condition leads one to prefer the latter conjecture. The Government has purchased it from Signor D'Acquino, and it will shortly be exhibited to the public in the mosaic department of the Naples Museum.

It is generally admitted that the earliest mosaics in Italy date from about 80 B.C., and there can be no doubt that in many cases they were reproductions, or, at all events, traditions of famous pictures. In the case before us, the sketch of the Areopagus, concerning the identity of which there can be no doubt in the mind of any one who knows the spot even in its present state, displays the Greek origin of the work, and the scene depicted must either be some celebrated discussion on "Mars Hill," or, what is more unlikely, a casual group of one of the Attic schools of thought such as might be seen there any day. At any rate, a sketch of the Areopagus which is recognisable at the end of the nineteenth century is no mean treasure, and we are encouraged to hope that one or other of the archæological schools of Athens may be able to throw some light on the subject of this interesting mosaic.

It is not thought likely that the D'Acquino excavations will produce other objects of great importance, as the house so far has shown no signs of being anything more than a suburban villa. After the rich find of silver which was made some three years ago in a house about a mile from Pompeii, and presented by Baron Rothschild to the Louvre, it is unsafe to speak with too much confidence, but the above is the opinion of the expert who is in charge of the excavation.

THE CHURCH OF THE REDEEMER, JERUSALEM.

ONE of the reasons which have inspired the visit of the Emperor of Germany to Jerusalem is the opportunity afforded to dedicate the new Church of the Redeemer, of which the corner-stone was laid five years ago. The ceremony will take place on October 31.

According to a correspondent of the *Times* in Jerusalem, there is much in the history of the site of the new German church that is well worth noting. It occupies the eastern half of the large enclosure to the south of the church of the Holy Sepulchre known as the "Muristan." This plot has historic mention as early as the reign of Charlemagne, who devoted much attention to the holy places of Jerusalem. On this very ground he erected a hospice for pilgrims. Bernhard of Eichstadt, a monk, acknowledged its hospitality in 870, and spoke of a church here, with Western rites, called St. Maria Latina, in charge of Benedictines. The peace that lasted during Charlemagne's friendly intercourse and exchange of costly presents with Khalif Haroun El Rachid ceased when the Holy Land came under the power of the Egyptian khalifs. This hospice and church, in common with all the churches of Jerusalem, were destroyed. This was in 1010, under the rule of Hakem. After his death intercourse with the West was renewed through Italian seaports, and churches were rebuilt. In 1063 merchants of Amalfi purchased the ground in question and built a hospice. For its service there was founded a small brotherhood of hospitallers, and this grew in a few years into the powerful and celebrated order of the Knights of St. John, which added warlike enterprises to its deeds of mercy in caring for pilgrims and the sick. This knightly spirit was fostered by the circumstances of those times when the Crusades were undertaken by which Jerusalem was wrested from the Turks of Asia Minor. This new order of knights filled their area with great structures—the church of St. John the Baptist; a hospital supported by 124 columns, where 1,000 pilgrims could find shelter; the palace of the master of the order, the dwellings of the knights and an armoury and mews. Upon the north-east corner of the enclosure stood the church of St. Mary Major, and adjoining it on the south the cloister of the affiliated order of nuns. This church was built in the old French style, and resembled the church of St. Anne, now standing near the St. Stephen's Gate. It is this church of which the ruins were uncovered by the German architects a few years ago. Its restoration was undertaken and is now approaching completion under the patronage and close personal interest of the German Emperor. An ornamental arch bearing designs symbolic of the twelve months of the year, which originally formed the northern entrance, was found standing, and now occupies its ancient place in the new structure and forms its most interesting feature. The cloister also was found in good preservation, and may now be seen much as it was in the days when Baldwin was king in Jerusalem.

Christian rule terminated within a century. In 1187 Saladin conquered the city and took up his quarters in the property which had belonged to the Knights of St. John. The cloister, from which the nuns had fled, he converted into a madhouse, called in Arabic "Muristan," which name the whole area has since borne. The Knights of St. John afterwards established themselves in Rhodes, and later in Malta, whence they were finally driven by Napoleon. But they have never ceased to exist, though the Reformation divided the order. The successors of those in Malta, who are called the Knights of Malta and are Roman Catholics, are found to-day in the house of the order and a hospital south of Jerusalem, at Santur, a little more than half-way to Bethlehem. The Protestant representatives of the order flourished in Prussia and were rich in landed possessions until during the Napoleonic wars these possessions were seized by the Prussian Government. Later the order was restored by Frederick William of Prussia. In its modern form it is devoted to deeds of mercy, supporting many hospitals and homes for the aged. It has a small but well-conducted hospice in Jerusalem, and will probably build a spacious one on this very site, upon which the order was founded. The membership of the German order is confined to princes and the nobility. The English order bearing the same name includes all classes and numbers women as well as men in its ranks. An ophthalmic hospital in Jerusalem is under the banner of this English order.

After Saladin's death the buildings of the "Muristan" were neglected and became mere ruins, and part of the land was sown with barley. Finally, the western half came into the possession of the Greek Patriarch, by whom the ruins of the church of St. John Baptist have been recently uncovered.

As in recent years German Protestant interests have increased in the Holy Land the Emperor William turned his eye upon this eastern half of the former site of the Knights of St. John. But it was impossible to acquire it by purchase, for it wbs "wakf," *i.e.* inalienable ecclesiastical property, and only obtainable by the will of the Sultan. All efforts to secure it failed until a favourable opportunity to bring forward a request for it occurred on the occasion of the opening of the Suez Canal, when the then Crown Prince Frederick visited Jerusalem. The request was granted, and the Sultan presented the plot of ground to King William on November 7, 1869, in proof of his friendly feeling towards the Crown of Prussia. Thus, after an interval of 700 years, this birthplace of the Order of St. John came again into Christian possession, and will before long again be in part appropriated to its ancient and honourable use as a Christian hospice. The hospice is to be erected to the south of the cloister upon the arches that enclose to this day the vast subterranean chambers, one beneath another, that have existed from the time of Constantine. The refectory of the cloister was fitted up as a place of worship, and in July 1871 was opened with 200 sittings.

In digging down in order to lay the walls of the new church on the old foundations it was found that only one pillar rested on the rock bed, the rest being built on débris. Hence followed one year and a half of anxious and expensive labour, which added 300,000 marks to the estimated cost of the building, shafts having been sunk to a depth of 10 to 14 metres.

The Truro Cathedral building committee met recently, when the treasurer reported that after paying nearly 2,000*l.* for preparing the foundations, 27,500*l.* remained available for building the nave. The architect was instructed to have specifications for the nave prepared, as well as a sketch of that portion of the interior. It is suggested that that should be the limit of the present undertaking, tenders for which will probably be invited in January.

VENTILATION AND WARMING.

(Continued from last week.)

Section III.—Day-Rooms.

THERE seems to be no general understanding as to the proportion which should exist between the size of the day-room and the number of children it is intended to accommodate. I have computed the proportions for the ten schools, taking as the number to be accommodated that mentioned by the superintendent, and not the total number of beds in the boys' or girls' dormitories, as the case may be, because I supposed the superintendent might be aware of some occupation which would withdraw a certain number of boys or girls from the day-room at the time when it is usually occupied. The results of the computation show that the allowance of floor area of day-room per child varies from 13 square feet at Hornchurch to 2·1 square feet at Leavesden for the boys, and from 13 square feet again at Hornchurch to 5·3 square feet at Forest Gate for girls, leaving Edmonton out of account, where the day-room provision for girls is of a very promiscuous description.

In the absence of any specification of the precise object to be aimed at by the provision of day-rooms of such varying relative capacity, I may be allowed to suggest one for which even the smallest might be made available, namely, that it should afford the children an opportunity of getting warm on a cold day if, as must frequently happen, they become chilled by exposure to the cold. The free supply of heat to a cold child appears to me to be almost as much a necessity as the free supply of water to a thirsty one, and I know of no part of the daily routine of the life of a child in the schools which offers a free opportunity for an exceptionally cold child to get warm. For this purpose an open fire has advantages which other methods of warming do not afford, and I think it is desirable that each day-room should have one or more good open fires kept burning and accessible to the children during cold weather.

The supplementing of the open fires by steam pipes or hot-water pipes, to bring the whole of the room up to a reasonable temperature (with a minimum of say 56 deg. F.), is of great advantage, but I do not think it wise to allow the hot-water and steam heating to displace the open fire altogether. Where hot water or steam is introduced it would, I think, be better to concentrate the heating under the windows, so that the incoming air may be warmed when the windows are opened for the purpose of ventilation. The practice of carrying one or more steam pipes all round the room, and protecting it by a low shelf to be used by the children as a seat I regard as satisfactory. It would, in my opinion, be better to concentrate the heating surface under the windows and thoroughly protect by slag wool or other heat-insulator the parts between the windows. Where open fires are used I think it is undesirable to have cold-air openings at the floor level. The cold air entering will always find the floor very quickly, and in the winter special ventilators near the floor are therefore unnecessary. They cause the temperature at the floor to be much too low for satisfactory warming, and I would willingly see the floor ventilators in day-rooms provided with doors that can be closed in winter. In the summer every opening is of advantage, and the covers to the floor ventilators should be removed as soon as artificial heating is given up.

Quantity of Air Supply.

Taking the case of the Hornchurch day-rooms, where there is an allowance of 13 square feet for each child, we have the problem of warming and ventilating a room 26 feet long by 15 feet wide, containing thirty children. It is the same problem again as the ventilation of a dormitory in an exaggerated form, on account of the smaller allowance of cubic space. But a frequently-opening door and less prolonged occupation may be regarded as items on the other side of the account, and probably the provisions suggested in the case of a dormitory would meet this case also tolerably well. The desirability of having an open fire introduces a somewhat serious modification, for the presence of so many children would of itself raise the temperature, and a somewhat smaller allowance of hot-water pipe would be sufficient. It might, perhaps, in the particular case of Hornchurch, be sufficient to replace the existing grate by one provided with an ample air supply. For the other schools it seems desirable to provide additional day-room accommodation.

The infants' day-rooms and nurseries are on a somewhat different footing as regards warming and ventilation from the day-rooms for the older boys and girls. They are occupied for long periods, and should therefore come under nearly the same rules as dormitories. As the allowance of cubic space is generally much smaller for a day-room than a dormitory, rooms of the same size require more air as day-rooms than as dormitories; an open fire may also be regarded as a domestic necessity in a day-room for the smaller children. Arrangements similar to those suggested for dormitories, with less heating surface in the hot-water pipes on account of the open fire, would probably be satisfactory.

Again, I think it is important that instructions as to the proper temperature to be maintained, and the mode of using the appliances for warming and ventilation, should be suspended in the rooms.

The covered sheds that are used to supplement the accommodation of the day-rooms should be provided with openings in the roof if there is no through ventilation, even when they are very freely open in front. It is astonishing how offensively ill-ventilated a lean-to shed in a protected situation may be when more or less crowded with children, although there may be wide openings in front, if there be no cross ventilation and no openings in the roof. We found an example of this at Leavesden, where the covered court is heated by steam pipes, and the experience of the superintendent at Leytonstone, where there are well-built covered play-sheds on each side of the hall, bears out the same view.

Recommendations as to Day-rooms.—1 and 2, as for dormitories. 3. That in each day-room during cold weather (when the external temperature is lower than 50 deg. F.), or when the external temperature falls suddenly after a spell of warm weather, or in very damp weather (when the external temperature is below 55 deg.) at least one good open fire be kept burning. That the warming be supplemented by hot-water pipes or steam pipes (preferably the former), supplying coils or radiators underneath the windows sufficient to keep the temperature of the room, when the windows are open 4 inches at the top, up to 56 deg. F. for boys' and girls' day-rooms, and up to 60 deg. F. for infants' day-rooms and nurseries. 4. That suitably-covered openings be made in the roofs of play-sheds and covered courts that are not properly provided with arrangements for cross ventilation. 5. That cold air openings at the floor level be provided with doors that may be closed in very cold weather and opened when no artificial warming is required.

Section IV.—Dining-Halls.

Temperature Observations.

The dining-halls are used for so short a time, and they are as a rule so amply supplied with windows on both sides or other means of ventilation, and they have such an array of doors repeatedly opened, that the question of ventilation becomes subordinate to that of warming. Any odour suggesting closeness when they were inspected seemed referable more properly to persistent scouring of the floor than to the stale smell of previous meals that is so characteristic of an ill-ventilated dining-room. If some satisfactory method of dry cleaning could be adopted for the hall floors, there would probably be little to complain of as regards the freshness of the air. I have not sufficient experience to make any recommendation on the point, but it is a point in which I believe great improvement is possible.

It is perhaps difficult to lay down any precise rules as to what ought to have been the range of the thermometer, but I should have regarded an initial temperature of 57 deg. and a final temperature of 60 deg. as a very satisfactory indication of well-managed warming and ventilation. At Edmonton, where the temperature before dinner approached nearest to 57 deg., direct cross ventilation is not possible, because a range of workshops lies adjacent to the dining-hall on the west side, and hall windows on that side communicate with the workshops, and not with the external air.

The adjustment of temperature and ventilation is, in my opinion, much more a matter of careful management than of apparatus in the majority of cases; on that account I am of opinion that the effect of carefully-drawn instructions for the use of the apparatus already provided should be ascertained before making any alteration.

Before any recommendations are formulated as to alterations in the apparatus for warming or ventilating the dining-halls, I think it would be desirable to obtain some more definite information as to the manner in which the temperature changes in them during the day. For this purpose a self-recording thermometer, which records the temperature for a week, is the most suitable apparatus. There are several patterns in the market and they are not very expensive. These records would be of great use in guiding the management of the apparatus for ventilating and warming, not only in the dining-halls, but in day-rooms and dormitories, and one specimen of the apparatus could be moved from one place to another for successive weeks. I think the advantage to be obtained from the records would more than compensate for the cost of the apparatus.

Recommendations as to Dining-halls.

1. That provision be made for the regular cleaning of the heating apparatus as indicated in the above remarks.

2. That a paper of instructions be issued directing what steps should be taken to secure that the temperature of the halls should be raised to between 57 deg. F. and 59 deg. F.

before the commencement of a meal, and that the ventilation should be sufficient to prevent the temperature rising more than 3 deg. F. during the half-hour of meal times.

3. That a self-recording thermometer be placed occasionally in each of the dining-halls during the winter months and the records kept for inspection.

SECTION V.—SCHOOLROOMS.

General Consideration of the Ventilation of School Classrooms.

Before considering the special points in connection with any particular school, it will be well to lay down the general principles upon which whatever criticism I have to offer is based. First, as to the amount of air required for ventilation. Since the rooms can be thoroughly aired by opening the windows fully in the "recess," after about an hour's use we may restrict the amount of air to that required for keeping the air within the limits of respirable impurity for an hour. This consideration enables us to reduce the supply from that required for ventilating with a view to continuous occupation in the ratio of two to three. Dr. de Chaumont fixed it at 2,000 cubic feet per hour for an average audience. If we allow some deduction on account of the members of the audience in our case being smaller than the average, we may, perhaps, put down 1,500 cubic feet per hour per child as the amount required. Dr. Carnelley, in his report on the "Heating and Ventilation of Schools," wherein he supported the view that mechanical ventilation by propulsion is the best method in practice for ventilating schools, quoted numbers between 800 and 1,400 cubic feet of air per head of accommodation as supplied by mechanical arrangements in good order at certain schools reported upon, so that 1,500 cubic feet per hour would seem to be a good allowance. This allowance per head implies, however, an enormous flow of air through the windows or other openings by which air is supplied for ventilation. Take, for instance, the Sutton classroom No. 97. There are two windows in the north side, three in the south side, and there are 58 children to be provided for, *i.e.* 87,000 cubic feet of air should be supplied. If this air passes in through the three windows on the south side, each window must carry a flow 29,000 cubic feet per hour instead of 18,000 as in the case of the dormitories. We require, therefore, for classrooms more effective cross ventilation and a greater window opening than in the case of the dormitories. At the same time, there is need for quite as great or even greater care to protect the children against draughts, for they are more exposed to the cold than when they are under the bedclothes. It is not, therefore, a matter for surprise that when schools are to be ventilated the mechanical method, by which a certain definite volume of warmed air can be delivered where it is wanted, should gradually gain ground as the most effective method of solving a difficult problem. According to Carnelley, a 4-feet Blackman fan at King Street School, Aberdeen, driven by a 3½ horse-power gas-engine, delivers upwards of 1,000,000 cubic feet of air per hour for the ventilation of the school, so that there is no difficulty in providing the necessary air supply on the mechanical system.

As regards temperature, Morin gives 59 deg. Fahr. as the proper temperature for schools. Some latitude may be allowed, but the temperature ought not to fall below 57 deg. Fahr.

In order to maintain the temperature closed stoves, open fires, fires with fresh-air supply, hot-water pipes, steam pipes, steam radiators are used in different school rooms.

Closed stoves cannot be regarded as a permissible form of heating for rooms that require warming and ventilating for a number of persons distributed more or less uniformly over the whole floor space. Their numerical efficiency as warming agents is very high, but they afford very little assistance to the ventilation. Unless the stoves are carefully lined with fire-brick, so that no iron surface becomes red-hot, they injuriously affect the air, and a long iron chimney, which may also get very hot, is liable to "burn" the air and make it injurious. The most serious practical difficulty arises when the warming has to be combined with ventilation for a large number of persons. All the air inlets are cold. The stove distributes most of its heat by conduction, the direct heating is very local and is associated with a rapid upward current of very much heated air all round the stove. The cold incoming air reaches the stove by coming through floor ventilators or by dropping down to the floor and moving along it towards the vertical rising column round the stove. Before it becomes warm it has already performed its ventilating. There is, therefore, no satisfactory distribution of heat and air together. A room heated by closed stoves is, I believe, always close if it is warm.

Open fires are themselves very active ventilators; they are unsuitable for warming and ventilating rooms occupied by a large number of persons because they distribute their heat mainly by radiation, and in a schoolroom it is practically impossible to distribute the desks so that each occupant gets an equal share of the radiation. Generally speaking, some get the advantage of the fire with a cold current of air to their feet by way of ventilation; others get a supply of fresh cold air to their backs, but lack the necessary warmth. The ventilating grates with fresh air supply afford considerable improvement if the supply of warmed air can be successfully distributed over the room. The warmed air naturally rises at once to the ceiling, and there is danger of its passing into extract flues without having been used. In a room warmed by an open fire there is an upward current of air near the grate rising to the ceiling and passing along it. The warmed air from behind the grate should be delivered into this current. The system is very much disturbed when a room is lighted by gas jets unprovided with separate flues, for in that case a reservoir of air vitiated by the gas collects at the ceiling and must find its way out at the top of the room, otherwise the whole air of the room becomes very heavily loaded with impurities due to the gas. To deliver warmed fresh air into this reservoir of heated and vitiated air is simply to waste it. It is from this point of view an advantage to have the amount of air delivered from behind the fires as large as possible and only slightly warmed, and to have it delivered not higher than the top of the grate.

One open fire will provide ventilation for about fourteen children in a classroom under the conditions indicated. A good deal of supplementary ventilation will therefore be required in the way of cross ventilation where a classroom for sixty children has only a single open fire.

Hot-water pipes and steam pipes distribute the heat satisfactorily, and they diffuse the air of the room by the local air circulation which they produce, but as applied to schoolrooms they are open to the objection that of themselves they give rise to so little head for ventilation that it is difficult to get the necessary amount of air through the rooms. The ventilation has, in fact, to be provided for independently. It is not unusual to make provision for the removal of air by openings in the ceiling leading to cowls of some sort above the roof. These cowls are often very efficient in extracting air, so long as there is wind enough to act upon them; but we have to consider the extraction openings in relation to the inlets, and the inlets associated with extraction cowls are the windows or other openings in the side walls. Sometimes those on one side, sometimes those on the other, will be in use, according to the direction of the wind; in the meantime the extraction ventilators are fixed in position, and their openings cannot be transferred from the one side to the other, and they are placed with proper impartiality where they are as useful for the one side as for the other. But the position is not the most effective one for either side, and the distribution of fresh air is not that which gives the greatest advantage, and a room thus provided may still be close although the ventilators are working actively.

(To be continued.)

THE CATALOGUE OF ENGRAVED NATIONAL PORTRAITS.

THE following defence of his catalogue has been put forth by Mr. Julian Marshall:—

The recently-issued report of the Select Committee on the Museums of the Science and Art Department contains certain paragraphs in reference to the Catalogue of Engraved National Portraits at South Kensington, reflecting very seriously on my appointment as compiler of that catalogue and on the way in which the work itself was performed. The paragraphs in question have been largely commented on by the press, and I ask therefore, as a matter of simple justice, to be allowed to show that the charges made by the committee, so far as they affect me personally, are absolutely without foundation. For this purpose I shall not need to travel outside the report itself and the printed evidence on which it is based.

The report states:—"A good deal of evidence has been laid before us about the Catalogue of National Engraved Portraits compiled by a cousin of the secretary of the Department. The compiler was appointed in spite of protests from the Keeper, who said that it would be a sheer waste of public money. The prediction has been verified. The catalogue has no index whatever. It is grossly inaccurate and full of absurdities, so far as the biographical notes, adapted (sometimes almost verbatim) from previous catalogues issued by South Kensington, are concerned."

The meaning which the foregoing words naturally convey, and which has been generally attached to them, is that I was not a fit person to be entrusted with the work, that the then Keeper of the Art Library (Mr. W. H. J. Weale) protested against my appointment, that I was appointed, in the face of such protest, because of my relationship to the secretary of the Department, with the natural result (foreseen by the Keeper), the production, at great expense, of a catalogue which is (alleged to be) worthless. Surely the committee, in thus suggesting that a barefaced job was perpetrated for my benefit, must have overlooked the following facts, which were in evidence before them, namely:—(1) That I had been, on previous occasions, employed in the Department, as an expert in prints,

on the written recommendation of the same Mr. Weale, made by him after previous inquiry at the British Museum as to my competency, and (2) that Mr. Weale's protest had nothing whatever to do with my competency, but related only to the question whether extra assistance from outside was needed at that particular time. The protest in question was addressed to the late Sir Philip Cunliffe Owen, who was at that time Director of the Art Museum, and it was couched in the following terms :—

"Since our conversation as to the employment of Mr. Julian Marshall, I have gone into the matter of prints and drawings, and find that it will be impossible to employ him at present. It would be a sheer waste of public money. Mr. Reid and Bedward are making inventories, which, owing to the frequent absences of both from ill-health, go on very slowly ; and, until these are completed, there is no use whatever in my asking for professional help. Mr. Marshall himself would feel that our material in its present condition ought not to be put before a man of his attainments and position."

Obviously the only point at issue between Sir Philip C. Owen and Mr. Weale was whether the catalogue should be begun at once or whether its preparation should be postponed until the completion of certain inventories then in hand. Sir Philip C. Owen, in the exercise of his discretion, decided that the catalogue should be proceeded with immediately, and he invited me to undertake the work. I had no communication whatever with Sir John Donnelly (the secretary of the Department) on the subject, and he expressly stated to the committee that the appointment was not made at his request or on his suggestion, and, further, that he had no knowledge at the time that Mr. Weale had raised any objection.

These, sir, are the plain facts, accessible to anyone, and I ask whether they lend the slightest colour to the suggestion in the report that my employment was, in any sense, a job.

I turn now to the assertion in the report that the catalogue was a sheer waste of public money. In justification of this opinion the committee pass certain criticisms (with which I will deal presently) on the biographical notes prefixed to the descriptions of the portraits. But the committee wholly ignore the fact that I was engaged as an expert in prints, and that my primary duty was to describe the prints placed in my hands, technically and otherwise, and to give any information about them which might, in my judgment, be useful to a student of portraits or prints. Whether biographical notes are or are not a desirable addition to a descriptive catalogue of this kind is a question upon which opinions may possibly differ. I added such notes because I was requested to do so ; but assuredly they form an altogether secondary and subordinate part of the work for which I was engaged. That the committee should criticise these notes is a proceeding to which I can take no possible objection, but would it not have been fairer if, before branding my entire work as worthless, they had called expert witnesses to testify as to the portion of it which constituted its special and distinctive feature? This they have not done, but have preferred, without any investigation, to include the whole in one sweeping condemnation. It is not for me to appraise the value of the descriptive catalogue, including as it does the recognition and identification of many nameless portraits, definition of "states" never before described, corrections (by the score) of former catalogues, &c. All this goes for nothing, completely ignored by the committee. Not a witness is examined, not a question asked, though in these points lies the chief value of such a catalogue as this. But I have reason to know that some, at any rate, of those who are best qualified to judge wholly dissent from the estimate of it formed by the committee.

My complaint against the committee as regards the evidence taken by them does not, however, end here. It is the fact, though it may seem scarcely credible, that this condemnation even of the biographical notes rests on the evidence of a single witness, Mr. Weale, who, as has been seen, was at first a strenuous opponent of the compilation of the catalogue, and who, being a man of great experience and knowledge, must naturally have felt aggrieved at being overruled by the late director. Of this I was, of course, entirely ignorant and unconscious. I do not for a moment suggest that Mr. Weale stated anything to the committee which he did not honestly believe ; but it is familiar knowledge that the judgment of the most truthful witness is liable to be affected and warped by his prepossessions, and especially so where his own reputation for sagacity is involved. It is strange, therefore, that the committee should have called no other witness to testify with respect to the biographical notes, and all the more strange since I myself, on hearing that Mr. Weale had criticised the catalogue adversely, wrote to the chairman of the committee offering to give evidence in its defence. But what did Mr. Weale in fact say? Simply that the portion of the catalogue examined by him was "very inaccurate." He gave no instances of inaccuracy, and he admitted that his examination was superficial and confined to a very small fraction of the whole work. Yet the committee, without further inquiry, and without waiting to hear what could be said on the other side, pronounced summary sentence of condemnation in terms which go far beyond anything which Mr. Weale had said.

It would seem probable, from a reference in the margin of the report, that the committee relied in some measure on certain criticisms which had appeared in a newspaper. This, if the fact, does not mend the committee's case. They did not call the writer of the criticisms in question, and, consequently, no opportunity was given for testing their value. The only oral testimony before the committee, on the subject of the biographical notes, was, as I have said, that of Mr. Weale.

Let me now deal with the particular criticisms of the committee. Their charge that the biographical notes are "grossly inaccurate and full of absurdities" is a serious one, and, if justifiable, should be capable of ample verification. The committee do not shrink from attempting to verify it. They cite five instances, which we may reasonably suppose are among the most striking which they could find. The first is my statement that Pugin, the architect, "cruised about the channel collecting archæological and natural curiosities." I am at a loss to know on what ground the committee consider this statement as either inaccurate or absurd. It rests on the authority of the late Samuel Redgrave, and will be found in his well-known "Dictionary of Artists of the English School," a standard textbook. I do not believe that its accuracy has ever been questioned. Surely the committee do not mean to suggest that I represented Pugin as fishing up archæological curiosities from the depths of the channel. I gave my readers credit for some modicum of common sense.

The next instance given by the committee relates to the note on Thomas Hobson, whose date is correctly stated in the catalogue, 1544-1630, and who is there said to have died "at the time of the plague." My statement that Hobson died in 1630, at the time of the plague, is regarded by the committee as inaccurate or absurd, or both. Apparently they are unaware that there was a considerable outbreak of the plague in 1630, more than 1,300 persons having died of it in London alone in that year. Hobson's death took place during that outbreak, and the fact is recorded in Granger's "Biographical History of England," a standard authority, whence, or from some other source, it has been adopted in the "Dictionary of National Biography." Where is the sense or value of such criticism as this?

The third instance cited is that in which I have placed the commencement of the friendship of Ballantyne and Sir Walter Scott in 1873. This is obviously a misprint for 1783. I regret that this misprint should have escaped me (among the thousands which I corrected); but as the date of Ballantyne is correctly given in my note, 1772-1833, and as he is there said to have printed Scott's works from 1799 until the author's death, no one using the catalogue could by any possibility be misled by that error.

The fourth instance is that in which I dated the taking of the Cape of Good Hope by Sir David Baird in 1873. This, again, is an obvious misprint. Sir D. Baird is said, a few lines above, to have died in 1829. Those who have done many consecutive hours of unassisted proof-reading will not be severe on an author who fails to correct a few among some thousands of such errors, especially in figures.

The fifth, and last, instance quoted by the committee is that in which Jackson, the pugilist, has eleven lines of biography, while Lord Beaconsfield has only three. As regards Lord Beaconsfield, the choice lay between a note of some considerable length and the briefest possible notice. The details of his career being familiar to every one, I judged it best to make the notice extremely brief; and I think that most people will be of opinion that in this I decided rightly. As for "Gentleman Jackson," possibly I may have erred in according him a little too much space ; but as he was a very remarkable person, much above his station intellectually, of distinguished manners, a friend of Lord Byron, who several times referred to him in his works, and probably altogether unknown to nine-tenths of my readers, I thought that a few particulars not generally accessible might be acceptable.

Such, sir, are the instances on which the committee base their finding that this catalogue is "grossly inaccurate and full of absurdities." They have not brought forward a single inaccuracy beyond two obvious misprints ; and they have not, I venture to say, pointed to a single absurdity. That the catalogue is entirely free from error I should be the last to assert, but the errors hitherto detected are almost all trivial errors of date of absolutely no importance in themselves, and such as could readily be set right by the addition of a page of errata. These errors have in nearly every case arisen from the circumstance that the authorities on which I relied, and which at the time when I wrote were considered to be the best, and were certainly the only authorities at hand, have, as the result of very recent research, been found in some instances to need correction. Some slips there doubtless are, for which I am justly responsible, but I believe that they are neither numerous nor important. I regret them and I plead as my excuse that

in a work running to over 500 pages, and filled from beginning to end with dates and facts, an occasional slip can scarcely by any amount of care or industry be avoided.

One other statement in the report I ought to notice. The committee assert that the biographical notes furnished by me were adapted from previous catalogues issued by the Department. There was no evidence to this effect before the committee, and I imagine that the statement must have been quoted from the newspaper to which I have already alluded. It is untrue, in fact. I was supplied by Mr. Weale's assistants with certain "slips" containing biographical notes relating to a small fraction only (certainly not one-sixth) of the engraved portraits. These notes, I understood, had been carefully compiled by Mr. Sketchley, a former assistant keeper and the compiler of the catalogue of the Dyce and Forster Library; and to some small extent I was able to make use of them, subject, of course, to verification. The bulk of the biographical notes, I should say fully nine-tenths of the whole, were compiled from standard works.

I have now replied to that part of the report which affects myself, and have shown, I hope conclusively, that it does me serious injustice. The wonder is how statements so sweeping, so injurious and so ill-founded can have made their way into the report. The printed proceedings of the committee throw some light on this. The paragraphs of which I complain were not in the original draft report, prepared by the chairman, on which the committee worked. They were added at a thinly-attended meeting on July 26, the very last day on which the committee met for settling the report. They were proposed by a member whose extraordinary zeal in hunting out supposed abuses had been conspicuous throughout the inquiry; and they seem to have been accepted *en bloc* without question.

In fact, looking to the immense amount of work which the committee had to get through at their last meeting, anything in the nature of adequate discussion was impossible. Had time been taken for careful consideration of the paragraphs so proposed, and for comparing them with the evidence actually before the committee, I venture to think that they never would have gained admittance into the report.

GLASGOW ARCHITECTURAL ASSOCIATION

THE usual monthly meeting of this Association was held in the rooms, 187 Pitt Street, on the 3rd inst., the subject for discussion being "Scottish Church Planning."

Mr. Blain, in describing the development of the Presbyterian church, traced the alteration in plan which the introduction of choir and organ had entailed. He pointed out that the service of the church had of late years undergone great modification. Nowadays the service might be considered in many cases suited more to the emotional than to the intellectual side of our nature. To plan a church for such a service the chancel might be more fully developed, its sacred character could be heightened by a careful disposition of the light, by proper placing of the choir and by the use of sacred symbols and emblems. A feature should be made of the communion table rather than of the pulpit. Features might be made of pews, galleries, font, &c., while broad passages were needed for processional purposes.

Mr. Whitelaw thought it a matter of congratulation that congregations were showing less of the dogmatic spirit which had hitherto prevented the church from being developed on the lines suggested by Mr. Blain.

Mr. Connor and Mr. Craigie maintained that the plan was developing on wrong lines. A church in which the preacher could be both seen and heard by his congregation still appealed to most Presbyterians as suited to their purpose. This, as Mr. Connor showed, did not militate against a church being also architecturally satisfying.

Mr. Hill, in concluding the discussion, pointed out that much that was good of the pre-Reformation times might fittingly be revived in our modern churches.

LANCASHIRE AND CHESHIRE ANTIQUARIAN SOCIETY.

THE opening meeting of the winter session of the Lancashire and Cheshire Antiquarian Society was held on Friday evening at Chetham's Hospital, Manchester. The president, Mr. J. Hulme Nicholson, read a paper in which he urged the enjoyments of pedigree-hunting; the pedigrees not of territorial families, the sources of whose history were so many that it would require a volume to treat of them, but of the undistinguished middle class about whom history was silent, but who might none the less have lived honourable and useful lives and have left, if nothing more, a good name to their descendants. A special reference was made by the President to the excellent work done by the Lancashire Parish Register Society, under the initiative of Colonel Fishwick.

Mr. Samuel Andrew followed with a paper in which he gave extracts from a diary dated from 1758. The diary indicated that strikes were not unknown long before the factory system was in operation. The southern march of the Young Pretender and his "Highlandmen" was shown to be responsible for an impoverished weaving trade, then entirely a domestic industry in Manchester and district.

Some conversation followed the reading of the papers.

Correspondence

Warning to Architects.

SIR,—I have been informed that a gentleman has been visiting architects with a view to collecting subscriptions for a new publication entitled *The Practical Decorator*, which he states is being produced under the auspices of the Architectural Association. I know nothing of the publication referred to, and the statement is false.—Yours faithfully,

T. HOWLEY SIM, Hon. Sec.

The Architectural Association,
56 Great Marlborough Street, London, W.:
October 12, 1898.

GENERAL.

M. Franceschini has discovered the tomb of Ghiberti, the sculptor of the famous gates and other works, in the old cemetery of the church of S. Croce, Florence.

Mr. John Getz will have charge of the department of decorative work in the American section of the Paris exhibition of 1900.

Sir Henry Harben, the chairman of the Hampstead Heath extension scheme, announces that 40,000*l.* has been received or promised towards the 41,000*l.* required to save Golder's Hill as an open space.

A Water-Colour drawing of the late Alfred Pizzey Newton, representing the Arch of Titus, Rome, in 1862, has been presented to the South Kensington Museum. The artist was chiefly known for his Highland subjects, but he also painted some foreign scenes during visits made abroad. It was probably while on one of these journeys that he painted the work which has just become the property of the nation.

"**The Society of Oil Painters**" will for the future be the title of the Institute of Painters in Oil Colours. The exhibition will open on the 27th inst.

The Pathological Laboratories attached to University College, Liverpool, were opened by Lord Lister on Saturday last. They were erected at the expense of Mr. Thompson-Yates, and have cost about 28,000*l.*

An Arbitration Case is being heard in Edinburgh to settle the claim of the Equitable Loan Company against the Corporation for 27,000*l.*, as compensation for value of premises in Milne Square required in connection with the North Bridge improvement.

Dr. L. H. Ormsby, in opening the medical session at the Meath Hospital, Dublin, on Monday, ascribed the progress of surgery as being partly owing to the improved system of building hospitals, and the better system of isolation of patients by pavilion wings and corridor wards, and the construction of new and improved operating theatres, replete with all aseptic instruments and appliances, with sterilising room attached, and walls and floors which are washable, permitting wholesale flushing of the theatre after each operation.

A House in the Rue de Rivoli, Paris, which was used as a dépôt for the archives of landed property, was sold on Saturday last for 1,800,000 francs.

The Admiralty intend to try fans worked by electricity in order to improve the ventilation of the lower decks of warships.

A Bust of Mr. Jacob Bright, by Mr. Onslow Ford, R.A., has been accepted by the Manchester Corporation, and will be placed in the town hall.

A Wesleyan Church House, with a hall to contain three or four thousand people, is likely to be erected in London if the million guineas for evangelisation can be raised.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than 2 P.M. on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

ABERAVON.—Dec. 1.—Plans are invited, with estimated cost, for the extension of the covered market. A premium of twenty guineas will be awarded to the architect whose plans shall be selected. Mr. Jas. Roderick, borough surveyor, Aberavon.

CONTRACTS OPEN.

ABERDEEN.—Oct. 20.—For erection of Learney public parish hall, Torphins. Messrs. Jenkins & Marr, architects, 16 Bridge Street, Aberdeen.

BARNSLEY.—Oct. 17.—For addition of a new Sunday school, with classrooms, &c., to the Wesleyan Reform chapel, George Street, Wombwell. Mr. John Robinson, architect, Wombwell.

BARNSLEY.—Oct. 19.—For erection of seven dwelling-houses, shop and outworks in Doncaster Road. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnsley.

BATLEY.—Oct. 20.—For erection of branch stores and terrace of houses in Warwick Road, Batley Carr. Mr. Harry B. Buckley, architect, Batley.

BIRMINGHAM.—Oct. 25.—For erection of stabling and offices at Saltley Wharf, corner of Crawford Street and Saltley Viaduct. Mr. John Price, city engineer and surveyor, the Council House, Birmingham.

BLACKBURN.—Oct. 22.—For erection of saleroom, Masonic hall and two shops in Northgate. Mr. Walter Stirrup, architect, Richmond Terrace, Blackburn.

BOSTON.—Oct. 25.—For erection of an engine and boiler-house at the slipway now constructing at Boston Dock. Mr. W. H. Wheeler, Market Place, Boston.

BRADFORD.—Oct. 17.—For enlargement of manual training-room at Belle Vue school. Mr. C. H. Hargreaves, architect, 20 New Corridor, Exchange Buildings, Bradford.

BRADFORD.—Oct. 24.—For erection of warehouse in Canal Road. Messrs. Samuel Jackson & Son, architects, Tanfield Chambers, Bradford.

BRADFORD.—Oct. 20.—For erection of seven houses at Pemberton Drive. Mr. Abm. Sharp, architect, Albany Buildings, Market Street, Bradford.

BRIDGEND.—For erection of forty workmen's cottages at the Llynvi Valley Colliery. Particulars can be obtained from the Manager at the Colliery.

BURNLEY.—For erection of lavatories, &c., at the market hall. The Borough Surveyor, Town Hall, Burnley.

CAMBORNE.—Oct. 19.—For erection of proposed Masonic buildings. Mr. Alfred Walters, solicitor, Camborne.

CARLISLE.—Oct. 21.—For erection of a caretaker's lodge on the Sauceries. Mr. Henry C. Marks, city engineer, 36 Fisher Street, Carlisle.

CARMARTHEN.—Nov. 18.—For erection of a stone bridge of three arches and approaches thereto over the river Towy at Dryslwyn. Mr. Thomas Codrington, Shire Hall, Carmarthen.

CHEADLE.—For erection of villas on the Cheadle Park Estate. Mr. Arthur Young, architect, 3 Iddesleigh Mansions, Westminster.

COVENTRY.—Nov. 12.—For erection of buildings at their proposed two new pumping stations on the side of the main road from Coventry to Daventry. Mr. James Mansergh, 5 Victoria Street, Westminster.

CUMBERLAND.—Oct. 17.—For alterations and additions to a dwelling-house at Frizington. Messrs. Moffat & Bentley, architects, Church Street, Whitehaven.

DARTFORD.—Nov. 1.—For erection of twenty-six cottages in Gordon Road. Mr. Ernest J. Hammond, architect, 111 High Street, New Brompton.

DARWEN.—Oct. 17.—For erection of a Wesleyan church, Bolton Road. Mr. John B. Thornley, architect, 45 Market Street, Darwen.

DEWSBURY.—For erection of a store at Lees Moor. Messrs. Holtom & Fox, architects, Westgate, Dewsbury.

DURHAM.—Oct. 22.—For erection of wash-house, laundry, lavatory and w.c.'s at Bede College. Mr. C. Hodgson Fowler, architect, Durham.

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Ebbw Vale.—Oct. 19.—For erection of a church at Victoria, Ebbw Vale. Mr. E. M. Bruce Vaughan, architect, Cardiff.

Hackney.—Oct. 26.—For construction of a public underground convenience at the north-east corner of the town hall grounds. Mr. James Lovegrove, surveyor, Town Hall, Hackney.

Halifax.—Oct. 17.—For supplying and fixing infant galleries and desks, and other work, for the Halifax School Board. Mr. W. H. Ostler, clerk, 22 Union Street, Halifax.

Halifax.—Oct. 21.—For erection of offices at Ovenden Mr. Medley Hall, architect, 29 Northgate, Halifax.

Heckmondwike.—Oct. 17.—For erection of a house and shed at the sewage farm. Mr. James Savile, surveyor, Oldfield Lane, Heckmondwike.

Horsham.—Oct. 17.—For erection of infirmary and administrative block to the workhouse. Mr. C. H. Burstow, architect, 6 West Street, Horsham.

Keighley.—Oct. 19.—For erection of shops and dwelling-houses in Cavendish Street. Messrs. W. H. & A. Sugden, architects, Keighley.

Kendal.—For erection of a detached dwelling-house, to be called Kingswood Cottage, at Arnside. Mr. John Hutton, architect, Kendal.

Kendal.—For pulling-down the Bull Hotel, Sedbergh, and the adjoining two cottages and stable outbuildings, and rebuilding new hotel on the site. Mr. John Hutton, architect, Kendal.

King's Lynn.—Oct. 18.—For repairs and additions to the Wesleyan Methodist chapel, Burnham Market. Mr. R. W. W. Carter, architect, Church Street, Cromer.

Lanchester.—Oct. 18.—For construction of a stone bridge over Newhouse Burn, near Moorside. Mr. Wm. Cumming, surveyor, Lanchester.

Leeds.—For erection of hotel, Oldfield Lane, Wortley, for Bentley's Yorkshire Breweries, Limited. Mr. William Bakewell, 38 Park Square, Leeds.

Leeds.—For erection of schools at Bramley, for the Leeds School Board. Mr. W. S. Braithwaite, architect, School Board Offices, Leeds.

Leeds.—For alteration of detached residence at Calverley. Messrs. James Young & Co., architects, 62 Market Street, Bradford.

Leeds.—Oct. 17.—For erection of pupil teachers' college to the ground-floor level, and upon a site adjoining the Central Higher-grade school. Mr. J. Mitchell Bottomley, architect, 46 Albion Street, Leeds.

Leith.—Oct. 17.—For alterations to Lorne Street public school. Messrs. A. & R. McCulloch, architects, 3 Bernard Street, Leith.

Liverpool.—Oct. 17.—For erection of a drying-room and sorting-shed in connection with the wash-house and laundry of the workhouse, Brownlow Hill. Mr. H. J. Hagger, vestry clerk, Parish Offices, Brownlow Hill.

London.—Oct. 18.—For enlargement of block D of the telegraph factory, Mount Pleasant, E.C., for the Commissioners of H.M. Works and Public Buildings. Mr. Tanner, H.M. Office of Works, Storey's Gate, S.W.

London.—Oct. 20.—For erection of an addition to, and for the alteration of, the Vestry Hall in Cable Street, for the Vestry of St. George-in-the-East. Mr. G. A. Wilson, Vestry Hall.

London.—Oct. 25.—For construction of an underground sanitary convenience in Golden Lane at its junction with Old Street. Mr. H. Williams Mellor, quantity surveyor, Vestry Hall, St. Luke's, E.C.

London.—Oct. 27.—For repairs at the casual wards, Great Guildford Street, S.E. Mr. G. D. Stevenson, architect, 13 and 14 King Street, E.C.

Mansfield.—For erection of conditioning stores, St. John's Place. Messrs. Vallance & Westwick, architects, Mansfield.

Masborough.—Oct. 18.—For erection of Board schools in Park Street. Mr. J. E. Knight, architect, 33 College Street, Rotherham.

Morecambe.—For erection of a wing to the Elms Hotel, Bare. Messrs. Lawson, Roper & Procter, Lancaster.

Morecambe.—Oct. 18.—For erection of two houses in Thornton Road. Mr. J. Tarney, architect, 16 Primrose Street, Morecambe.

Newbury.—Oct. 18.—For erection of farm buildings at Weston Farm. Mr. James H. Money, architect, The Broadway, Newbury.

Newcastle (co. Down).—Oct. 19.—For erection of a bicycle-house, stables, coach-house and groom's dwelling-house. Mr. T. J. Brittain, Queen's Quay, Belfast.

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NORTH FINCHLEY.—Oct. 17.—For erection of a parish-room and institute at the junction of the Great North Road and Castle Road. Mr. Ernest A. E. Woodrow, 67-69 Chancery Lane, W.C.

NORTON-UNDER-CANNOCK.—Oct. 24.—For enlargement of the Watling Street schools. Mr. T. H. Fleeming, architect, 102 Darlington Street, Wolverhampton.

OVENDEN.—Oct. 21.—For erection of offices. Mr. Medley Hall, architect, 29 Northgate, Halifax.

PONTYPOOL.—Oct. 17.—For alterations, repairs, paintings, &c., at town hall. Mr. Robert Williams, architect, Pontypool.

RATCLIFF.—Oct. 24.—For erection of public slipper baths on vacant site in White Horse Street, at the corner of Ball's Buildings. Mr. G. E. Holman, architect, 6 King's Bench Walk, Temple, E.C.

RUTHIN.—Oct. 17.—For alterations and additions to house at Brynhyfryd, including new school buildings in connection therewith. Mr. James Hughes, architect, Denbigh.

SCOTSWOOD-ON-TYNE.—Oct. 18.—For erection of an engine chimney in connection with the Benwell pumping station works. Mr. George Smith, secretary, Pilgrim Street, Newcastle-on-Tyne.

SHEFFIELD.—For erection of nine stone-fronted houses at Industry Street, Walkley. Mr. H. Wells Smith, 70 Queen Street, Sheffield.

SHEFFIELD.—Oct. 17.—For erection of a police-station house and cells at Chapeltown, near Sheffield. Mr. J. Vickers Edwards, County Hall, Wakefield.

SHOREDITCH.—Oct. 19.—For repairs and alterations at the branch school, 28 Lower Clapton Road. Mr. F. J. Smith, Parliament Mansions, Victoria Street, S.W.

SLIGO.—Oct. 18.—For repairing the west gable of the main house, for the Guardians.

SOPHIA (BULGARIA).—Nov. 21.—For erection of eight public offices, viz., a Ministry of Public Works, Ways and Communications, a Ministry of Commerce and Agriculture, a Ministry of the Interior, a Ministry of Public Instruction, a Ministry for Foreign Affairs and Public Worship, a Ministry of Justice, and an Audit Office. Particulars can be obtained at the Commercial Department of the Foreign Office between the hours of 11 and 5.

SPILSBY.—Oct. 31.—For erection of headquarters at Spilsby for the F Comp. 1st Vol. Batt. Lincs. Regt., including drill hall, armoury, sergeant-instructor's house, &c. Mr. J. E. Butcher, architect, Spilsby.

SWANSEA.—Oct. 17.—For erection of a ward block at the borough hospital in corrugated galvanised iron and timber, for the Corporation. Mr. Jno. Thomas, town clerk, Guildhall, Swansea.

TROWBRIDGE.—Oct. 23.—For erection of county offices at the back of Arlington House. Mr. Charles S. Adye, county surveyor for Wilts, Stallard Street, Trowbridge.

WALES.—Oct. 18.—For erection of an assembly hall and other additions and alterations to the school at Llandaff. Mr. G. E. Halliday, architect, Cardiff.

WALLINGFORD.—Oct. 20.—For additions to the Berkshire Lunatic Asylum at Cholsey, Wallingford. Mr. George T. Hine, architect, 35 Parliament Street.

WALSALL.—Nov. 7.—For erection of caretaker's house at the Wolverhampton Road schools. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WANSTEAD.—Oct. 27.—For erection of a school (one storey) and a caretaker's cottage on the Cobbold Road site. Mr. John T. Bressey, architect, 70 and 71 Bishopsgate Street Within, E.C.

WARSAW.—The Municipal Council of Warsaw invite tenders for the exploitation of the tramways of Warsaw under municipal control. Horse traction is at present in use, but it is intended to introduce electricity as soon as possible. Information as to the conditions can be obtained from the President of the town of Warsaw, Warsaw, Russia.

WARRINGTON.—Oct. 18.—For erection of a public convenience. Mr. James Deas, Bank House, Sankey Street, Warrington.

WESTON-SUPER-MARE.—Oct. 26.—For erection of a school for 400 children in Locking Road. Mr. S. J. Wilde, architect, Weston-super-Mare.

WORKINGTON.—Oct. 21.—For erection of further extension and additions to the Guard Street Higher Grade school. Mr. J. Eden, architect, 58 Pow Street, Workington.

THE foundation-stone of the new Science and Art Schools in connection with the Addey and Stanhope Foundation was laid in the New Cross Road on the 8th inst. by Mr. T. W. Marchant, chairman of the Governors.

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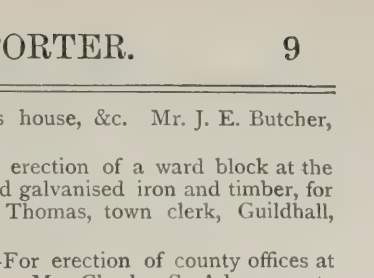
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TENDERS.

BASLOW.

For erection of two houses (eight rooms each). Mr. E. Morewood Longsdon, architect, Town Hall, Bakewell.

Accepted tenders.

G. Sheldon, mason	£658 0 0
S. Staley, joiner	345 0 0
J. Clark, plumber and painter	151 0 0

Also tendered for the whole work.

T. Allsop & Son	1,475 0 0
W. Knowles & Son	1,433 0 0

BECKENHAM.

For widening Croydon Road and Elmers End Road. Mr. John A. Angell, surveyor.

W. G. Cloke & Co.	£2,342 14 4
E. Iles	1,591 0 0
G. Wilson	1,566 10 0
W. Wadey	1,560 11 8
J. Mowlem & Co., Westminster*	1,403 0 0

* Recommended for acceptance.

For erecting about 200 cast-iron ventilating columns, 13 feet 6 inches high, on concrete beds, and laying 9-inch stoneware pipe connections to the main sewers, &c. Mr. John A. Angell, surveyor.

E. Iles	£1,366 0 0
J. Mowlem & Co.	1,327 0 0
G. Wilson, Walthamstow*	1,152 13 0

* Recommended for acceptance.

BEESTON.

For erection of a choir vestry, Beeston Church, Swadlincote. Mr. R. C. Clarke, architect, Nottingham.

W. Turner (*accepted*)	£295 0 0

BEVERLEY.

For erection of registrar's offices and extension of the County Council offices. Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowlalley Lane, Hull.

T. Hodgson	£4,829 3 3
J. Constable	4,548 14 9
G. Pape	4,239 17 10
J. R. Foley	4,163 0 0
R. Potts, Beverley (*accepted*)	4,161 1 7

BRISTOL.

For erection of a cookery-room and boys' additional classroom at the Avon Vale Board school, St. George. Mr. J. Mackay, architect, Richmond Place, Kingswood.

C. A. Hayes, Bristol	£1,139 0 0
F. Martin, St. George, Bristol	1,112 10 7
Keen & Keen, Weston-super-Mare	1,049 0 0
J. Hatherley, Bristol	1,040 0 0
W. J. Tanner, Lower Easton, Bristol	1,028 0 0
J. Slade, Bristol	1,010 0 0
T. Lovell & Sons, Bristol	950 0 0
S. Williams, St. George, Bristol	897 0 0

For erection of the superstructure of the new Bedminster swing-bridge.

Lysaght & Co., Limited, Bristol (*accepted*).

BROMLEY.

For erection of stabling, &c., at Lomond, South Hill. Mr. W. A. Williams, architect, 84 Chancery Lane, W.C.

Graty	£480 0 0
Somerford	414 0 0
Duthoit (*accepted*)	397 0 0

BURY.

For construction of brick manholes and other chambers in connection with sewers for one year.

Rawson & Jackson, 65 Myrtle Street, Bury (*accepted*).

CORNWALL.

For new rostrum, orchestra and reseating, painting and decorating at the United Methodist Free church, Pool, Carn Brea.

Moyle	£293 0 0
Hodge	288 0 0
T. Willoughby & W. H. Gray	280 8 0
J. Roberts & F. Mitchell, Pool (*accepted*)	280 6 0

DARLINGTON.

For alterations and additions to the North-Eastern Electrical Works, Feethams. Mr. Eugene E. Clephan, architect, St. Nicholas Chambers, Newcastle-on-Tyne.

R. Blackett & Son	£851 0 0
A. Atkinson & Co.	824 8 6
J. Donnison*	738 17 1

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For erection of stables and coachman's cottage at River. Mr. A. H. STEELE, architect, Dover.

Smith	£422	0	0
Golder	385	0	0
DIXON (*accepted*)	372	0	0

For erection of a cottage at Martin Mill, near Dover. Mr. A. H. STEELE, architect, Dover.

DIXON, Dover (*accepted*)	£280	0	0

ELGIN.

For erection of two houses in Rothes. Mr. R. B. PRATT, architect, County Bank House, Elgin.

Accepted tenders.

Mackenzie & Co., Lossiemouth, mason.
J. & A. Robb, Rothes, carpenter.
Lynn & Son, Elgin, plumber.
Ogilvie, Elgin, slater.
Logie, Fochabers, plasterer.
Garden & Ward, Dufftown, painter.
Total, £1,130.

FULHAM.

For exterior painting, &c., of the Town Hall, Walham Green, for the Vestry of Fulham.

J. J. RICHARDS, Brixton (*accepted*).

HARTLEPOOL.

For erecting a destructor-house, engine and mill-house, cottage, boundary walls and chimney at the proposed new sanitary depôt in Clifton Street. Mr. H. C. CRUMMACK, borough engineer.

C. T. Watson	£3,128	7	9
J. Howe & Co.	2,954	1	4
Watt Bros.	2,896	0	0
J. J. Rennie	2,720	0	0
R. J. MARSHALL, Bell Street, Hartlepool (*accepted*)	2,692	15	9

HASTINGS.

For construction of two covered service reservoirs (the capacity of each being about 1½ million gallons) at Ore, about 2½ miles from Hastings station. Mr. P. H. PALMER, borough engineer, Town Hall, Hastings.

P. JENKINS, West Marina, St. Leonards (*accepted*)	£17,140	0	0

HIPPERHOLME.

For erection of two houses. Mr. JOSEPH F. WALSH, architect, Lancashire and Yorkshire Bank Chambers, Halifax.

Accepted tenders.

S. Mitchell, Hipperholme, mason.
Sowood & Sykes, Halifax, joiner.
S. Jagger, Lightcliffe, plumber.
T. Lister & Son, Hipperholme, plasterer, slater and concreter.

HULL.

For erection of club premises, Carr Lane. Mr. B. S. JACOBS, architects, Bowlalley Lane, Hull.

W. G. Bray	£5,818	0	0
F. Blackburn & Son	5,468	17	0
T. Goates	5,464	0	0
Hockney & Liggins	5,143	8	5
Colley & Levitt	5,098	8	5
J. R. Wood	4,955	0	0
E. GOOD, LIMITED, Hull (*accepted*)	4,898	8	5

For erection of an art gallery, &c., over the museum at the Royal Institution, Albion Street. Mr. B. S. JACOBS, architect, Hull.

Hockney & Liggins	£3,549	0	0
M. Harper	3,509	0	0
T. Goates	3,483	0	0
Blackburn & Son	3,475	0	0
E. Good & Son	3,400	0	0
Colley & Levitt	3,298	0	0
W. G. Bray	3,269	10	0
Exors. of T. Southern	3,162	12	3
G. Jackson & Sons	3,144	0	0
J. R. WOODS, Hull (*accepted*)	2,710	0	0

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HULL—*continued.*

For alterations and extensions to the Beverley Road works of Messrs. Blundell, Spencer & Co., Limited, Hull. Mr. B. S. Jacobs, architect, Hull.

G. Jackson & Sons	£808 12 6
Hockney & Liggins	790 9 0
M. Harper	764 12 0
F. Blackburn & Son, Hull (*accepted*)	708 19 0

IRCHESTER.

For an extension of the 9-inch glazed pipe sewer in the main street, and for new sewer, New Street, for the Irchester Parish Council. Messrs. Sharman & Archer, architects, Wellingborough.

E. Mitchell	£129 15 0
G. Young	124 5 6
W. G. Willmott	108 0 0
T. & C. Berrill, Irchester, Wellingborough (*accepted*)	107 0 0

IRELAND.

For alterations and repairs of proposed new reading-room in Eblana Avenue and Sussex Street, Kingstown. Mr. W. Kaye-Parry, architect, 35 Dame Street, Dublin.

G. Dixon	£850 0 0
H. Pemberton	795 0 0
A. Redmond	753 0 0
Ring & Son, Kingstown (*accepted provisionally*)	720 0 0

IVYBRIDGE.

For building a wall in Chapel Wood, for the District Council.

Phillips (*accepted*)	£38 0 0

KING'S LYNN.

For levelling, kerbing, channelling and making of macadam roads to Diamond Street and approaches. Mr. John R. Fayers, surveyor, 8 St. Nicholas Street, Market Place, King's Lynn.

Renant Bros.	£454 0 0
Hill & Horsley	410 0 0

For laying-in pipe sewers, Wisbech Road, Lynn. Mr. J. R. Fayers, surveyor.

Read & Wildbur, Limited, Norfolk Street (*accepted*)	£240 0 0

LEEDS.

For erection of stables at the Melbourne Brewery. Mr. A. E. Dixon, architect, Leeds.

Accepted tenders.

J. Hardy, mason, bricklayer, ironfounder and plasterer	£325 17 8
W. Fenn, carpenter and joiner	158 16 6
J. Allan & Son, stall divisions	65 10 0
J. Atkinson & Son, slater	25 0 0
J. E. Bedford, plumber and glazier	9 17 0
Roylance & Horsman, painter	8 6 9

For whitewashing, painting and paperhanging portions of the union infirmary, Beckett Street.

W. Grisdall, 18 Dewsbury Road (*accepted*)	£170 0 0

For extension of works for Messrs. Harding, Richardson, Rhodes & Co., Limited. The work will be proceeded with immediately from the plans and under the superintendence of Mr. William Bakewell, Leeds.

Accepted tenders.

Wade Bros., excavator, bricklayer and mason.
A. Whitehead, terra-cotta work.
Nicholson & Son, carpenter and joiner.
Seasons, slater.
Tattersall, plumber.
Bagshaw & Son, Batley, ironfounder.
Heptonstall, painter.
The total amount of contracts is £15,642.

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For furniture and fittings at the new offices, for the Guardians.

C. Brough & Sons (*accepted*)	£84 10 0

LITTLEHAMPTON.

For improvement works in Gloucester Road and Purbeck Place. Mr. H. Howard, surveyor.

Accepted tenders.

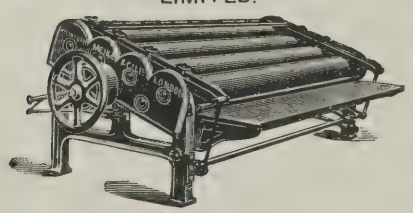
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Snewin Bros., Littlehampton	131 0 0

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For drainage works at 168 Clerkenwell Road.

Morland	£184 0 0
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J. W. Heeps	157 0 0

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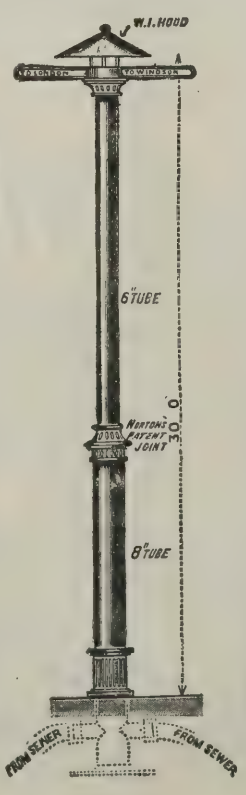
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Hall, Beddall & Co.	£42,265 0 0
Ashby & Horner	41,920 0 0
G. Trollope & Sons	41,310 0 0
J. Mowlem & Co.	40,946 0 0
Holland & Hannen	39,360 0 0
Foster & Dicksee	39,220 0 0
Barnsley & Son	38,980 0 0
Colls & Sons	38,696 0 0

For alterations and additions and erection of new stables to the Cross Keys public-house, Lower Edmonton. Messrs. A. DREWE-MERCER and A. E. TAYLOR, joint architects, Granville House, Arundel Street, Strand, W.C.

House.

A. Porter	£6,697 0 0
W. Gregor & Son (*too late*)	6,525 0 0
J. Peerless	6,450 0 0
J. Weibking & Son	6,375 0 0
W. Johnson & Co.	6,250 0 0
A. Monk	5,923 0 0
S. & J. Redhouse	5,740 0 0
C. ANSELL, Lambeth (*accepted*)	5,485 0 0

Stables.

A. Porter	3,692 0 0
J. Peerless	3,640 0 0
J. Weibking & Son	3,620 0 0
W. Gregor & Son	3,469 0 0
W. Johnson & Co.	3,296 0 0
C. ANSELL (*accepted*)	3,242 0 0
A. Monk	3,210 0 0
S. & J. Redhouse	3,185 0 0

For extension of shops 32, 34, 36, 38 and 40 Forest Hill, E.C., over the forecourts, and alterations and repairs. Mr. EUGENE C. BEAUMONT, architect, 78 Fleet Street.

H. Brown	£1,352 0 0
A. COOMBS, 44 London Road, Forest Hill, S.E. (*accepted*)	1,266 15 0

LONDON—*continued.*

For erection of stable buildings at Stoney Lane, Tooley Street, for the proprietors of Hay's and Cotton's Wharves. Messrs. NEWMAN & NEWMAN, architects and surveyors, 31 Tooley Street, London Bridge, S.E.

Colls & Sons	£14,480 0 0
C. Wall	13,820 0 0
Rider & Son	13,500 0 0
W. Downs	13,333 0 0
J. GREENWOOD (*accepted*)	12,987 0 0
Patrick & Son	12,942 0 0

LLANELLY.

For construction of an embankment about 650 yards long, with open-cuts, culverts, tidal doors, &c., at the Marsh, near Tir Morfa. Mr. GEO. WATKEYS, engineer, Town Hall, Llanelly.

E. E. Jones	£3,200 0 0
B. Howell & Son, Limited	2,400 0 0
J. Vevers	1,858 12 0
G. Mercer	1,800 0 0
E. H. PAGE, Castle Street, Cardiff (*accepted*)	1,775 0 0

NELSON.

For construction of about 110 lineal yards of culverting over the river Walverden. Mr. B. BALL, surveyor.

J. DENT & SONS, 1 Ripon Street (*accepted*).

OUNDLE.

For erection of the proposed town hall. Mr. J. B. CORBY, architect, Stamford.

J. Gutteridge	£2,246 12 11
J. Woolston	2,200 0 0
G. Henson	2,064 0 0
Coates & Son	2,028 0 0
G. F. Fisher	2,000 0 0
S. J. Halliday	1,993 10 0
SIDDONS & FREEMAN, Oundle (*provisionally accepted*)	1,725 0 0

PEMBROKE DOCK.

For construction of pumping station and storage tank at Milton. Messrs. FREDK. BEESLEY & SON, engineers, Westminster.

W. Meredith	£3,196 1 9
W. Jenkins	2,503 18 11
E. POWELL, Pontypridd (*accepted*)	2,524 6 0

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PLUMSTEAD.

For paving the roadway of part of White Hart Lane. Mr. W. C. Gow, surveyor.

W. Griffiths	£1,159 15 0
Fry Bros.	1,142 14 2
Thomas & Edge	1,120 0 0
Mowlem & Co., Westminster (*accepted*)	1,087 0 0
W. Wadey	1,053 5 0
Bentham & Co.	991 0 0
W. H. Wheeler	946 15 0
Kent Road Maintenance &c. Co., Limited	944 15 0

RIPLEY.

For erection of five dwelling-houses at Derby Road. Mr. R. Argile, architect, Ripley, Derby. Quantities supplied.

Contract No. 1—Brickwork, &c.

J. Warren	£658 0 0
W. Harris	599 0 0
H. Jordan	591 4 11
Harris & Hunt	582 0 0
E. Slater, Ripley, Derby (*accepted*)	535 18 0

Contract No. 2—Woodwork.

H. Jordan	219 6 0
S. Gee	212 0 0
E. Slater (*accepted*)	201 18 4

Contract No. 3—Plumbing, &c.

H. Jordan	121 11 7
Frost, Ripley, Derby (*accepted*)	120 0 0
E. Slater	119 19 6

SCOTLAND.

For reconstruction of the Oakshaw public school, Paisley. Mr. Charles Davidson, architect, Paisley.

Accepted tenders.

J. Barclay, mason, &c.	£1,347 0 0
A. McFadyen, joiner, &c.	862 9 10
W. Allison, plumber, &c.	345 13 6
W. Speirs, plaster, &c.	172 19 8
J. Boyd & Son, heating	133 0 0
A. H. Kilpatrick, slater	48 17 11

SEDGLEY.

For supply and erection of a hot-water high-pressure heating apparatus at Sedgley Queen Victoria Board schools.

Perkins & Son	£324 0 0
C. D. Harris, Birmingham (*accepted*)	283 10 0
Longbottom & Co.	277 15 0
J. Jackson & Co.	260 0 0
H. Lucas & Son	244 0 0
Express Heating Co.	192 10 0
S. Pearson	130 14 0

WALTON-ON-NAZE.

For sewering, kerbing, channelling, paving and metalling Station Road. Mr. H. W. Cladwell, surveyor.

D. Mackenzie & Son	£851 0 0
B. W. Glenny, Colchester (*accepted*)	780 0 0
Surveyor's estimate	800 0 0

WATFORD.

For making-up Liverpool Road. Mr. D. Waterhouse, surveyor.

Nowell	£734 0 0
Dupont, Watford (*accepted*)	623 0 0
Hearn & Bailey	596 0 0

WESTBURY-ON-SEVERN.

For erecting kitchen, stores, laundry, committee-room, tramp wards, receiving wards, porter's lodge, &c., at the workhouse. Mr. W. Fitzgerald Jones, architect, 21 George Street, Gloucester.

A. King & Sons	£15,996 0 0
Collins & Godfrey	12,913 0 0
W. Bowers & Co.	12,856 0 0
J. Coleman	11,770 0 0

Consideration of tenders deferred.

WEST HARTLEPOOL.

For erection of refuse destructor, boilers, &c., adjoining the electric-lighting station, Burn Road. Mr. J. W. Brown, borough engineer.

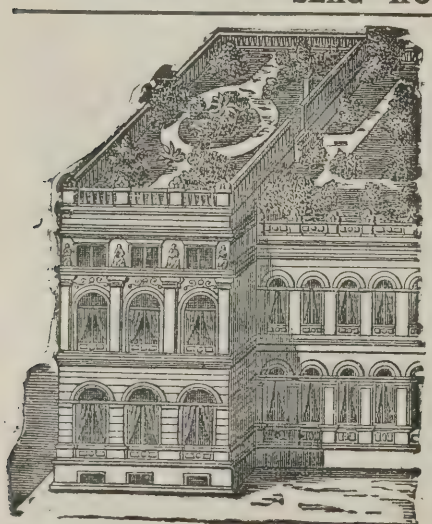
Horsfall Furnace Syndicate, Ltd., Leeds (*accepted*).

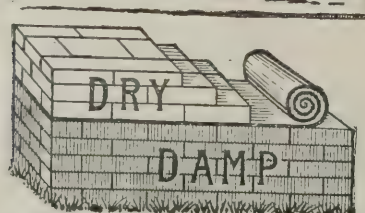
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DOMESTIC DECORATION.

It is a little curious that, excepting in very rare instances, a new house or a house about to be renovated is always decorated piecemeal. The decorator adorns the ceilings, frieze, dado and walls; the cabinet-maker supplies his special goods; then comes the upholsterer and the ironmonger and other trades. The result of this is only too frequently that incongruity—sometimes very glaring—is apparent in the ornamentation and furnishing of a room or suite, while, in addition to this, unnecessary expense is incurred, to say nothing of the trouble involved in receiving accounts from two or three different tradesmen.

As an effort to abolish this system, or rather lack thereof, Messrs. A. R. Dean, Limited, of Corporation Street, Birmingham, undertake to decorate a room, a suite or a house right through. That is to say, they will take a suite of rooms with nothing beyond the bare walls and decorate and furnish it completely.

That Messrs. Dean are in a position to do this was quite clear from a visit which we lately paid to their workshops and showrooms. For here we found several departments in each of which work was being carried on. There was the drawing-office in which designs were being got out, and from there are passed to the moulding, where the fibrous plaster was being manipulated. This plaster and its enrichment constitute one of the firm's specialties, and very successfully they deal with it too.

From this shop we passed to that wherein wood was being sawn and otherwise treated by labour-saving machines of all kinds; then to the joinery-room and subsequently to the upholstery department, while a room wherein some artistic carving was being skilfully executed, and also the polishing department, was not forgotten. In the warehouses and showrooms the firm have a large stock of mantels, registers and decorative metal-work, though mantels and overmantels are, of course, made by the firm themselves.

Thus it became clear to us that the system which Messrs. Dean adopt is not only a good one—though that we always knew—but is, with the resources at their command, quite feasible. The course adopted is this: given the empty room or rooms with bare walls, a complete scheme of decoration and furnishing is formulated. This includes covering, ornamenting and enriching the walls and ceiling; covering the floor by the aid of parqueterie, or carpets, or in other ways; the addition of such fitments as may be deemed suitable; and, finally, the supplying of the furniture, ironmongery, and gas or electric fittings.

The advantages of this system are obvious, for the whole work is one great scheme, everything being *en suite*. And this the more certainly in that furniture or decorations of any kind can be made in the firm's own workshops by the firm's own workmen, and under the direct supervision of the author of the scheme.

In the showrooms of Messrs. Dean is a suite which had been treated in this way, and very admirable it was. The general scheme was in each room appropriate, while in the apartments in which ornamentation was artistically permissible the treatment, though free, was in excellent taste. Thus the existence of a capable staff of designers and artists became apparent, and these, added to the resources which one had previously seen, satisfied us that Messrs. A. R. Dean, Limited, are in every way capable of carrying out the complete scheme of which we have spoken.

It only remains to be said that though Messrs. Dean can and do supply their own designs, yet the schemes of architects themselves can be carried out when such a course may be desired.

TRADE NOTES.

The new laundry, Kirkstall Road, Leeds, is being ventilated by means of Shorland's patent exhaust roof ventilators.

Messrs. J. & E. Goad, of Phœnix Steam Marble Works, Plymouth, are proprietors of extensive marble quarries in different parts of Devonshire, from which they obtain marbles of remarkable beauty, alike as to colour and "figure." They are suitable for columns and pilasters, whether ornamental or purely constructional, and for panelling and other forms of decoration they are unsurpassed. They have been largely employed with excellent effect at the Brompton Oratory, the Leeds and Birmingham Municipal Buildings, numerous churches throughout the country, and are being exported to the Continent and the colonies.

A new Roman Catholic church was dedicated on Sunday last at Ballynafeigh, Ireland. It has been erected at a cost of 8,000*l*.

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CATHEDRAL SERIES.—SOUTHWELL: VIEW FROM SOUTH-EAST.

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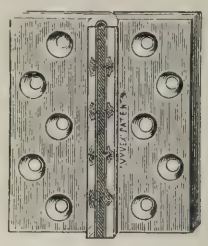
We have received from the "Climax" Ventilating and Heating Company, of Hope Street, Glasgow, an up-to-date illustrated price list relating to their "Climax" ventilators, of which they manufacture a variety suited to all purposes and positions. Their designs for louvre and turret ventilators are of excellent architectural effect. The Cousland "Improved Climax" direct-acting invisible roof ventilator is a special improvement upon the former "Climax" patent (now lapsed), giving a more powerful extracting force and larger area of outlet than has hitherto been obtained. It has by exhaustive tests been proved equal in extracting powers to any turret ventilator on ridge of roof from whatever direction the wind currents may blow. In a dead calm the exit area of the Cousland "Improved Climax" direct-acting invisible roof ventilator is double the area of the pipe. It can thus be depended upon for a continuous outlet; while, being fitted with automatic valves, it is thoroughly free from down-draught. It is a simple and inexpensive form of ventilator, and does not interfere with the architectural features of a building.

Messrs. Adshead & Smellie, of Ivanhoe Works, Dudley, send us a capitally brought out catalogue of their "Ivanhoe" metal-work, comprising, copper, brass and ironovermantels, girandoles, standard lamps, coal vases, gas and electric light fittings (some of the designs for which are exceptionally good and novel), grates, fenders and fire implements, fire screens, standard lamps, &c. The range of designs is a very large one, and it is characterised throughout by grace and refinement.

We have received an advance copy of Mr. W. Duncan Tucker's new catalogue of joinery and mouldings, of which there is a very large variety, including some very excellent designs. The list also includes several suggestions for horticultural buildings, from garden frames to winter gardens.

THE "VYVEX" PATENT HINGE.

Messrs. Tonks, Limited, of Birmingham, have just brought out a novel hinge, which is (as the illustration shows) in outward appearance like other double-washered hinges, but has the very important addition of steel columns—to which the washers are securely attached—cast inside the knuckles.



For this patent the following desiderata are claimed:—The working load is more equally distributed over the whole of the knuckles, which in their turn are strengthened and supported; pins and knuckles will wear true to the last, as sagging is impossible; they have three times the durability of ordinary washered butts, and there is no increase in price over other makes.

ELECTRIC NOTES.

The deputy-mayor (Alderman Dr. Thursfield) presided at the meeting of the Leamington Town Council on Tuesday, when it was unanimously decided to apply to the Board of Trade for an electric-lighting provisional order in the next session of Parliament.

The West Bromwich electric-lighting committee have decided to request the Town Council to empower them to employ an expert to advise them as to the best means of carrying out the lighting order, and to authorise them to obtain any requisite information for that purpose.

The electric light failed throughout the Norwich post office on Friday night last. The letter-sorters were unable to read the addresses on the letters, and postage-stamps were sold and telegrams forwarded with the greatest difficulty. Attempts were made to light the building with a number of small candles,

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ABSOLUTELY UNINFLAMMABLE!

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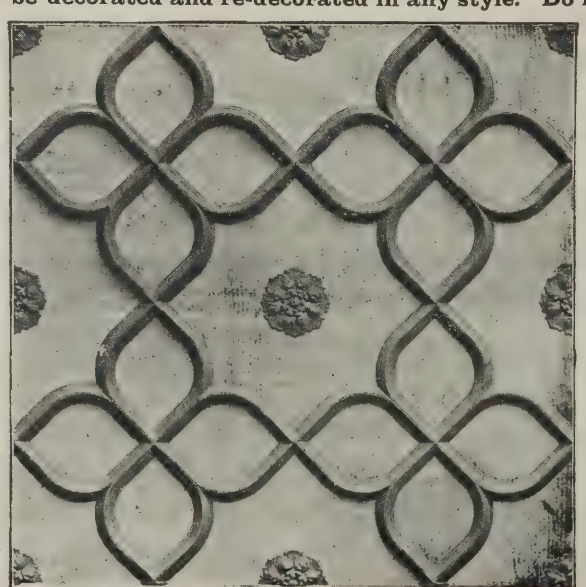
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"SALAMANDER" DECORATIONS

Designs by eminent Artists may be decorated and re-decorated in any style. Do not shrink or open at the Joints.

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WHICH ARE
Greatly in advance of
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IN
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THE RISKS OF FIRE
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STRIKING PLASTER
EFFECTS.
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but these only added to the confusion. The electric light also collapsed in the Royal Hotel, opposite the post office.

A special meeting of the electric-lighting committee of the Middlesbrough Corporation was held on the 5th inst. for the purpose of considering plans and specifications of the proposed scheme for the electric lighting of the borough. It was originally intended to lay down plant estimated to cost 25,000*l.*, but a larger scheme was suggested, and it was unanimously thought that this would prove more advantageous to the town. This scheme was adopted, and it was decided to apply to the Local Government Board for sanction to borrow 36,000*l.* to be repaid in thirty years.

BUILDING AND BUILDERS.

Mr. Peter Jenkins's tender of 17,140*l.* for the construction of two covered reservoirs, &c., at Fairlight, in connection with the distribution of the Brede Valley water, was accepted by the Hastings Town Council at the last meeting.

A plot of land at the entrance of Heysham Road, Morecambe, has been purchased, at a cost of 1,850*l.*, by the trustees of the United Methodist Free Church, Regent Road, who intend to erect there a commodious chapel and Sunday-school.

The Secretary of State for Foreign Affairs has received a despatch from Her Majesty's Consul stating that the municipality of Warsaw have decided to construct market halls at a cost not exceeding 1,092,390 roubles (about 100,000*l.*). Tenders for the construction should be addressed to the president of the town of Warsaw. Details of the buildings, which must be according to plans and estimates already approved by the municipality, can be seen daily in the administrative department of the town hall of that city.

The memorial-stone of the new Welsh church dedicated to St. David, which is in course of erection in Lime Grove, Oxford Street, has been laid. The plans have been prepared by Messrs. Preston & Vaughan, architects, Diocesan Chambers. The style of architecture adopted is Early Perpendicular, and the materials employed are red brick, with Ruabon terra-cotta dressings. The plans include nave and aisles, with chancel and vestries on the south side. Chairs will be provided for the worshippers instead of pews. The church will accommodate some 400 persons. The builder is Mr. R. Carlyle, jun., Ardwick. The work was commenced about three months ago, and it is hoped that the church will be ready for consecration about Easter next.

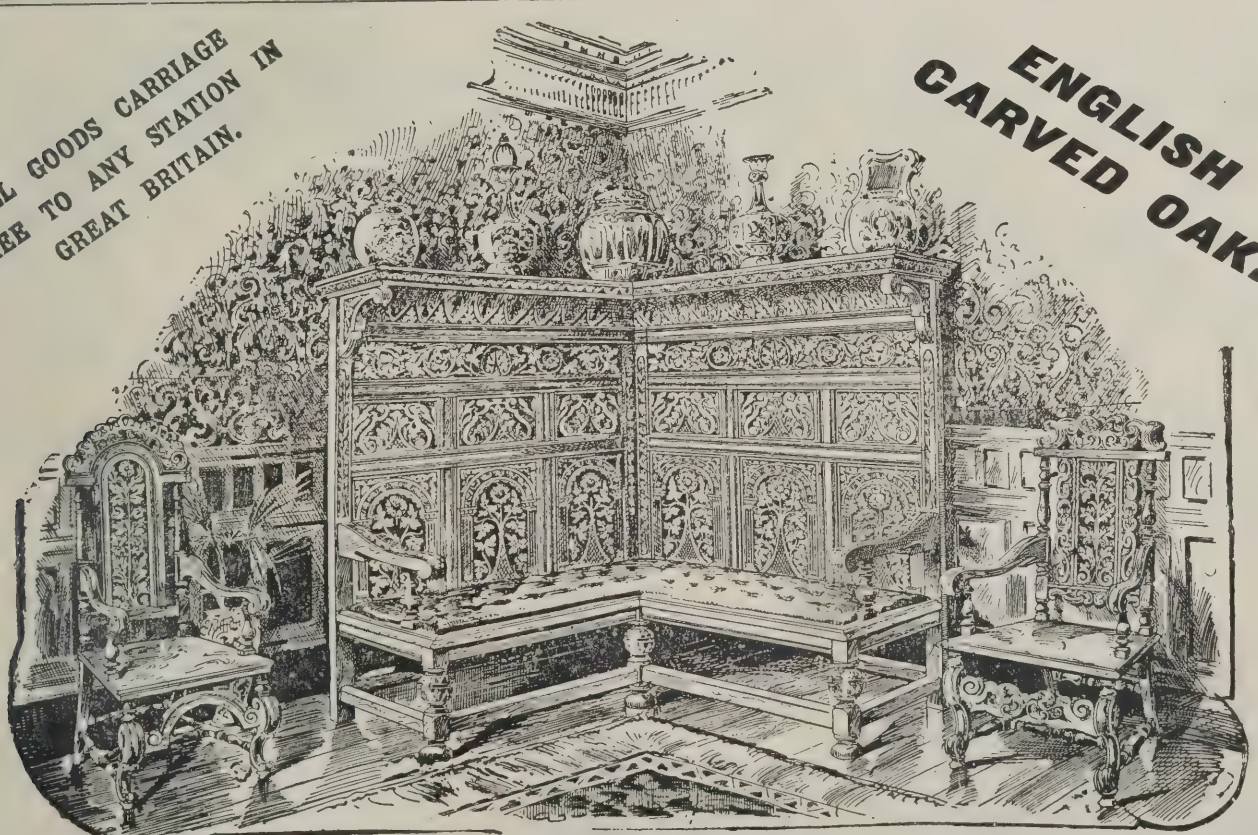
The Loughborough Town Council have decided to construct some important waterworks at Blackbrook, in order to impound the whole of the drainage of this extensive watershed of the Charnwood Forest and satisfy the present considerable and growing demand of the consumers. The principal structure will be a reservoir to contain 506,000,000 gallons, or 253 days' supply at the rate of 2,000,000 gallons a day. The reservoirs will be formed by a dam across the narrowest part of the gorge of the Blackbrook valley, and will form a lake nearly a mile long and 2¾ miles round. The dam will be 85 feet high and 475 feet long. The estimated cost is 65,000*l.*

At a meeting of the Old Kilpatrick School Board on the 6th inst. a report was submitted by a special committee on the proposed extension of Milton school, the present building having been declared by the Department quite inadequate for teaching purposes. The plans provided for an extension of the school and playgrounds, while inquiries were also suggested as to the price of ground in the vicinity in the event of the Board deciding to build a new school. It was left to the clerk to make inquiries of the architect as to the cost of extensions, as suggested by the committee which inspected the school this week, and to ask Mr. Paton, factor on the Auchentorlie estate, as to the price of ground on the west side of the road leading to the village.

The foundation-stone was laid on the 6th inst., at Nailsworth, of a church which will be dedicated to St. George, and will occupy the site of the church which was erected in 1794. It will accommodate when completed about 700 people, and will consist of nave 84 feet by 27 feet, with north and south aisles, each 12 feet wide; tower, which will form south entrance; north porch, chancel 30 feet by 24 feet, vestries and organ chamber. The tower is designed to accommodate a ring of six bells. The present effort contemplates the erection of the nave and aisles, the first stage of the tower and the north porch. The style adopted is Early English, or First Pointed Gothic—a simple and stately effect being aimed at. The walls will be built of local stone, faced externally with shoddies of weather stone, and will have dressings of Hampton Common and Box Ground Bath stone. The roofs will be steep, and covered with stone tiles. The contract for the present undertaking amounts to 4,820*l.* Mr. M. H. Medland, of Gloucester, is the architect, and Mr. Wm. Wiggall, of Bisley, is the clerk of the works. The total cost of erection of the new church

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Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations

is estimated at from 9,000*l.* to 10,000*l.*, but as the work is to be undertaken in sections, the first cost is put at about 6,000*l.*

The tender of Mr. H. Ackroyd, of Calverley, for the extension of the Calverley main sewer from the bottom of Capel Street to near the Hall Gates, has been accepted by the District Council.

The trustees and building committee of the Farsley New Liberal Club premises met on Tuesday to examine the tenders, and they let the principal contracts.

VARIETIES.

The new dock at Barry, which covers an area of 34 acres and is 3,338 feet long and from 400 to 600 feet wide, has received its first cargo steamer. Extensive provision is being made for incoming and outgoing traffic.

The Bishop of London has consecrated the new parish church of Emmanuel, West End, Hampstead, to meet the wants of the growing population of nearly 10,000 people. The cost of the first portion of the building, including the site, &c., will be 10,000*l.*

It is proposed to establish an Archæological Society for East Herts, and with this view a meeting is to be held on Monday in the council chamber of the Town Hall, Hertford, the Mayor of the town presiding.

The completion of the dock system at Southampton was celebrated on Wednesday by the formal laying of the coping-stone. The spot selected was at the south-west corner of the Prince of Wales's Quays and close by the graving dock, which is the largest of its kind in the world. The foundation-stone of the first Southampton Dock was laid on October 12, 1838, and was, therefore, the sixtieth anniversary of the event, and it is interesting to know that there were several people present who were at the ceremony six decades ago.

The insurance claims on the Colston Hall, Bristol, recently destroyed by fire, have been settled by the various companies. The directors of the Hall Company, who will receive 15,000*l.*, have officially intimated that they will consider their plans for the future with all possible despatch. The large hall was insured for 21,000*l.*, of which the companies will pay 10,500*l.*, as all the walls are intact. They thus pay 50 per cent. of the insurance. They will further pay for the total loss of the organ, 2,500*l.*, and 2,000*l.* for the total loss of the contents of the hall.

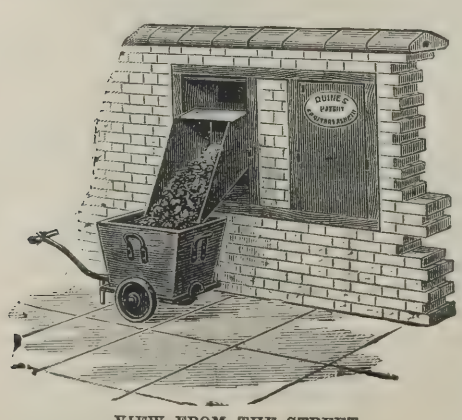
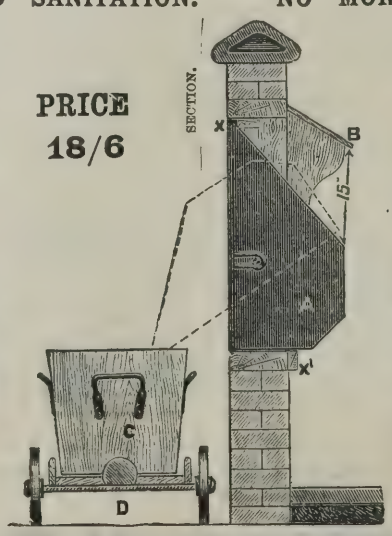
The new church erected at Waverley Road, Small Heath, under the auspices of the Unitarian community, was dedicated on Saturday last. The style of the edifice is simple Gothic, and there is a seating capacity equal to a congregation of 400. The surmounting of the building with a tower and spire, and the erection of schools, are portions of the scheme which for the present are deferred. The structure has involved an outlay of 2,700*l.*, exclusive of the cost of the site. It was designed by Messrs. H. Eachus & J. A. Grew, and the contractor was Mr. B. Whitehouse.

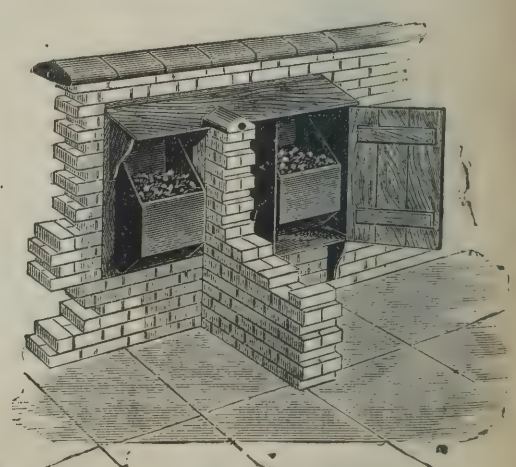
The ancient parish church at Bulmer, whose history reaches far back into the Saxon period, and a portion of which has recently undergone considerable renewal, was reopened on the 6th inst. The south and east walls of the chancel have been rebuilt and a beautiful stained-glass window put in the east end. The window consists of three lights, the central figure representing the Crucifixion, with the walls of Jerusalem in the background and the side lights representing the two Marys at the Master's Cross. A new reredos and altar table has been erected and the choir stalls, &c., are also renewed.

The report and estimate of Messrs. W. Meek & Sons, engineers to the Workington Corporation, show that the building of the new dock on the north side of Workington would cost 350,000*l.*, which is greater than the dock scheme of the south side, which was abandoned. The report shows, however, that a lock and channel could be built for the present Lonsdale Dock at a cost of 220,000*l.*, which would give Workington greater shipping facilities and dock accommodation than Maryport, its seven-miles-distant rival, possesses.

In carrying out the preparatory work in connection with the park which the Earl of Londesborough (lord of the manor) presented to the town of Selby some few months ago, not a few interesting discoveries have from time to time been made. The placing of the main pipes for draining purposes has brought to light some further archæological matters which have occasioned no small amount of conjecture among those who have had them brought under their observation. The most important of these "finds" is that of an old foundation which has been laid bare by the contractor, who expresses a hope that the Urban District Council, in whom the park property is vested, will give instructions for it to remain open permanently. This founda-

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tion is believed to be that of what was formerly associated with Selby Abbey in the monastic period as the refectory. From the information that has been gleaned on the subject, the building would appear to have occupied the exact position assigned to it by the vicar of Selby and rural dean (the Rev. A. G. Tweedie, M.A.), who in a recent publication, of which he is the author, exhibits a plan connecting this structure with the abbey in the same vicinity now unearthed.

NEW GREYFRIARS CHURCH, Edinburgh, was reopened for worship on the 9th inst., after having been closed for more than two months for painting and other improvements. Called the New Greyfriars when the building was divided and made into two places of worship in 1722, it still retains, with its massive pillars, arcades and aisles, the principal features of the Greyfriars Church of 1620, which was built on the site of the Franciscan Convent Church about 1430. During the incumbency of the Rev. Dr. Henry Cowan, modern seating was introduced and other improvements made in 1883, and shortly afterwards an organ was placed in the east gallery. For some years past it was becoming evidence that a thorough cleaning and painting of the interior was necessary, and the Rev. Dr. Stewart's appeal to the congregation for funds was so cordially responded to that it has been found possible to carry out also an extensive scheme of decoration as well as to introduce electric lighting. The side windows of the west gable have been filled in with stained-glass in geometric patterns, and a member of the congregation, Mr. John Pillans, has undertaken to fill the great west window also with stained-glass, having Scripture figure subjects in each division. This work is in preparation, but it will be some weeks yet before it is completed. The principal feature of the electric lighting is two large brass coronæ suspended from the ceiling, diffusing a fine light throughout the building. Ceiling lights are placed under the galleries, and the galleries themselves are lighted by standards of brass and iron, with foliated heads.

ANOTHER important piece of work in connection with the restoration of Crowland Abbey has become urgently necessary, owing to the movement of the north wall of the eastern chapel, which will have to be taken down and rebuilt. The work was originally divided into ten sections, and eight of these have now been completed, at a cost of upwards of 3,000*l.* Much, however, still remains to be accomplished. The entire roof of the north aisle must be removed, as the oaken beams are rotten, and some have nearly left the south wall. The porch ceiling, finial, &c., are in need of repair, and these, with the other work referred to, will involve an estimated outlay of 1,000*l.* before the fabric of this historical landmark can be pronounced secure.

THE stones which formed the central portion of the old Netherbow Port of the city of Edinburgh have lately been brought to light through the care of a gentleman much interested in the antiquities of the town. One of these stones is of especial interest, because upon it was placed the head of the famous Marquis of Montrose after his execution. In this case, therefore, the historic associations with old Edinburgh are of the highest value. This portion of the Netherbow Port seems to have been erected for the provost and bailies in 1606 by John Mylne, master mason to the king of Scotland.

THE new King Henry VIII. Grammar School and the County Intermediate School for Girls at Abergavenny were opened last week. The County Intermediate School for Girls is situated on a site in Stanhope Park given by the late Mr. William Jenkins, and has been erected at a cost of about 1,700*l.*, 300*l.* of which were contributed locally by voluntary subscriptions. Accommodation is provided for about seventy scholars, but the buildings were planned in view of future extension. The school was opened in January last with sixty-three scholars, which has been increased to seventy-two. The design is a simple type of Renaissance treatment, and the materials and workmanship throughout are of a substantial and high-class character. Mr. E. A. Johnson, of Abergavenny and Merthyr, was the architect, his design being selected out of fifteen others submitted in open competition. The work was satisfactorily carried out under his supervision by Messrs. Morgan & Evans, Pontypool. The Grammar School occupies a pleasant site conveniently near the town and railway stations. The original school was founded in 1543 by King Henry VIII., who, on the dissolution of the local priory, gave the parish church of St. John's for the school, with an endowment of tithe from other parishes, the priory church (St. Mary's) being given to the parish. The school has been held in the buildings of St. John's till now. The new buildings have been erected at an outlay of about 5,000*l.* The style is Gothic Tudor, having an imposing elevation. The buildings erected will accommodate about 130 scholars, and consist of a large lecture-hall and four class-rooms in connection therewith, one being fitted up as a chemical laboratory. Future extension is provided in the plan for about 100 more scholars and a master's house. Mr. Johnson and Messrs. Morgan & Evans also carried out this work.

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THE GOVAN BUILDING DISASTER.

An official investigation, under the Fatal Accidents Inquiry (Scotland) Act, was held on the 6th inst. in the Justiciary Buildings, Jail Square, with regard to the accident at an uncompleted building in Govan Road and Napier Street on the 19th of last month, by which five men lost their lives. It will be remembered that the top floor of the building collapsed, when five men were killed and three persons injured. Sheriff Fyfe presided and Mr. Hart led the evidence for the Crown.

Mr. William Orr, the proprietor of the building, testified that he was a builder and lived at Moss Cottage, Dumbreck. The building in which the accident took place was at the corner of Govan Road, Napier Street, and it consisted of five storeys, including a semi-basement. Part of it was to be used as a lodging-house, and there were also shops on the ground floor. All the floors were of concrete, and wire was embedded in the concrete in a barbed form. On the day of the disaster the third and fourth floors seemed to be in good condition and to have consolidated, and there was no appearance of insecurity about them. These floors had been completed, and the fifth was just being done in the same fashion as the others. He heard of the accident by telephone about half an hour after it occurred, and when he arrived at the scene he found that all the floors had been carried down to the basement, and that five workmen had been buried in the débris.

When you were at the building shortly before the accident, did you observe what material there was on the fifth floor?—There was nothing except the stuff they were using for the floor—soft plaster concrete and a rubble box.

Can you give an opinion as to how the accident took place?—It is not possible to say what the cause of the accident was. It must have been one or other of two things. It is possible that something happened to a temporary timber support. A temporary floor was built, consisting of boards laid upon the top of joists, which were only temporarily fastened, because the wet concrete kept them in position. The concrete was laid upon the platform, which was removed when the material hardened. At the time of the accident the concrete was being put on the arrangement of boards and joists. They were bound to believe that something gave way, but what it actually was there was no evidence of a conclusive nature to show. Either part of the timber which acted as a temporary support to the concrete gave way or the concrete floor below, on which the runners and verticals were supported on one side, gave way.

By Mr. Newlands: At the time of the accident the boards had been removed from the floor below and the fifth floor was being filled in, like the others, in sections.

Was the putting in of this concrete under a separate contract?—It was done by myself, under the supervision of my own foreman. There was a master of works at the building; he was Mr. Kerr. The building was nearly completed, and as Mr. Kerr thought his services were no longer necessary, he began to discontinue his visits about a week before the occurrence.

By Mr. Shaw: He was interested in concrete as a special material for building, and he had used it to some considerable extent.

You are not a skilled builder or joiner?—No.

Do you maintain that the full responsibility for the building rests upon the architect?—The usual responsibility.

What do you mean by that?—I cannot define it.

Did you accept any responsibility in the way of giving orders in regard to the erection itself?—I did not accept responsibility unless in consultation with my men. I was responsible as regarded the mason and joiner-work, but not being a practical man that was in the hands of Andrew Davidson and John Simpson. They had enough experience and training to see that the work was being carried out in a proper and tradesmanlike manner. The section which was being concreted on the fifth floor was 32 feet by 11 feet, and the thickness of the concrete was 6 inches. The weight, he estimated, of the concrete in a wet condition would be something like 8 tons. There were four sections of the same dimensions on the floor and only one collapsed. They were erected separately. He could not say how many vertical supports there were to support the runner, there might be six or seven or eight. He did not know of any other person who used barbed wire. He claimed it as a novelty of his own, and his idea was that the resistance was very materially increased by its presence. Barbed wire was thoroughly desirable in a fireproof building. The floor would have been completed on the day of the accident if nothing had occurred. He had not heard of an accident in England shortly before in connection with a building. The wire he used was the ordinary kind such as was used in fields, and it was four-bar thick-set wire netting.

Supposing there had been no wire, what would you have used in place of it?—Light tubes, for example.

Is it not the case that steel girders are used in all concrete work, and that you substituted this wire in place of them?—

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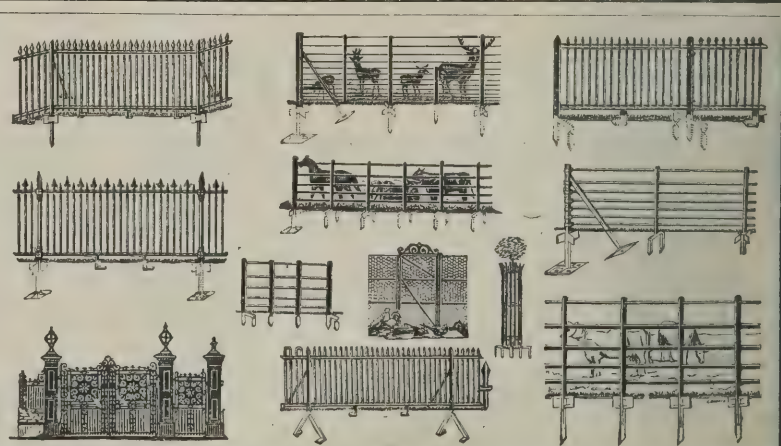
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The common system of doing these floors is to use cross joists, but instead of that I had the arrangement of the netting.

Before doing so were you satisfied that it would be as good and as strong as ordinary supports used in concrete floors?—Yes. I had experience of it in a building at the head of Buchanan Street. Examined further, witness said that as regarded cost he did not think there was much difference between using the wire and a number of small joists. As one floor was completed the wood was taken out and used for the next floor.

By Sheriff Fyfe: For the most part the concrete which was used consisted of broken bricks and other suitable materials and cement. The proportion was three or four bags of cement to a cubic yard of broken bricks. He paid very particular attention to the material, and he was satisfied that it was broken to the requisite size, and that the mixing was properly done. The mixing was a specialty, and Davidson, like all foreman masons, knew how to do it. He had some knowledge of the use of this concrete in combination with steel, although he was not a practical man himself. Davidson knew what the mixture should be, and it was a very simple matter for the masons or labourers to carry it out under his supervision. The concrete was spread on the floor as soon as it was made. The floor below the fifth, and upon which the uprights rested, had been laid about ten weeks previously, and in his opinion it had thoroughly set, but it had not been tested by weights. It was not customary to test by weight the floors of a completed building; they relied upon them being right when the proper materials had been used and sufficient time given for hardening. His opinion was that the fourth floor should have been able to bear twice the weight of the one above it, or about 16 tons.

In the course of further cross-examination, Mr. Orr said that the architect, Mr. Anderson, did not take anything to do with the building beyond drawing up the plans. The two foremen had entire charge.

Mr. Charles P. Hogg, C.E., said that he had examined the building, and so far as he could see the material used was good. He formed the opinion that the accident happened owing to the temporary support of the ceiling of the fourth floor giving way. It either occurred that way or through the collapse of the fourth floor, which had been finished previously. On inquiry he found that the temporary timber supports were resting on the one side on a steel girder which was still intact, and on the other side it was so close up to the wall as to bring very little weight on to the fourth floor. He did not think there was anything unusual in not using steel joists; it depended upon what the floor was to be used for.

Mr. William James Anderson, architect, 95 Bath Street, said he drew up plans for the building, and they passed the Govan Dean of Guild Court. He did not superintend actually the erection of the building, but paid visits to it about once a fortnight. He was at the building about a week before the accident, and at that time the fourth floor was completed with concrete, and seemed to be hard. He did not see the fifth floor completed. When he heard of the accident he went to the scene immediately, and found that all the floors of that section had fallen. His opinion was that the accident was due to the collapse of the wooden centres beneath the fifth floor. There probably were contributing causes, but if the centre collapsed that was sufficient to account for the accident.

By Mr. Shaw: It was clearly shown on the plans which passed the Dean of Guild Court that the floors were to be of concrete. He did not prepare specifications for the work, because Mr. Orr was doing the work himself. In some respects the construction of the building was a novelty in Glasgow, partly because of the width of the spans in each section of the floors and partly because of the fireproof principle in a building to be used for this purpose.

Does it come to this, that the building was left to two working men, who were called foremen?—Well, that is not quite the way I would put it. The plans were drawn up in collaboration with Mr. Orr and approved by the authorities. Mr. Orr was the builder, and it was his judgment that carried through the business. Witness did not prepare plans to show the support that would be necessary for the concrete floors. It was not an architect's duty, but in many circumstances an architect would do it.

Is there anything in your plans to show that the intention either of you or the builder was to complete the building in the way in which it was being done?—Certainly. It did not occur to him that there should be some further support between the spans of 11 feet, because he saw no necessity. Roughly speaking, he calculated that one of these floors would bear a weight of 30 tons, including its own weight. The use of barbed wire was a novelty to him. There were perhaps elements of risk in the construction of the floors with this wire, but if they were properly constructed with proper material and workmanship there should be no ultimate risk. So far as he could remember, he never discussed with Mr. Orr as to the

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prudence of using barbed wire netting, but he believed that at the time he said to Mr. Orr that it would be rather a risky thing to use this kind of wire. That was because it was new to him, but he had now the greatest faith in it. He had not changed his mind since the accident. He had seen what the floors in another building could carry.

Is it the case that there was an accident in this building some time before the five men were killed?—There was a small one.

The collapse of a roof?—Of a floor, and one or two were slightly hurt.

By Sheriff Fyfe: He merely acted as architect to the extent of drawing the plans; the building was erected under the direction of Mr. Orr.

Mr. John Stewart, builder, who, along with Mr. Alexander Muir, made an examination of the building, gave in a report in which he stated that, in their opinion, the root of the matter had been a weakness in the uppermost floor.

Alexander Muir concurred in the evidence of the last witness.

John Simpson, foreman joiner with Mr. Orr, said he was in charge of the joiner-work done on the building, and Davidson had charge of the mason-work. He gave his impressions of the accident. He heard a crash, and on turning round saw that several floors had collapsed. He assisted in the work of rescue until he was instructed to help to do the shoring.

John Rankine, labourer, 21 Crown Street, who was at work in one of the sections, stated that both floors gave way at once.

John Wilson, a member of the Govan Fire Brigade, described the recovery of the bodies of the five men from the débris.

John Kerr deposed that he was a building inspector. He called once a day at the building in question, and asked whether Davidson or Rankine wanted instructions.

By Mr. Shaw: He was not consulted as to the method of laying the supports, and he was of opinion that it was possible the accident was due to the props being taken away too soon.

By Sheriff Fyfe: His duties were principally to carry drawings or instructions to the tradesmen. If he saw anybody doing anything which should not be done he would have spoken about it. Mr. Orr was the responsible man in the first instance in the erection of the building, and those who were also responsible were Davidson and Rankine.

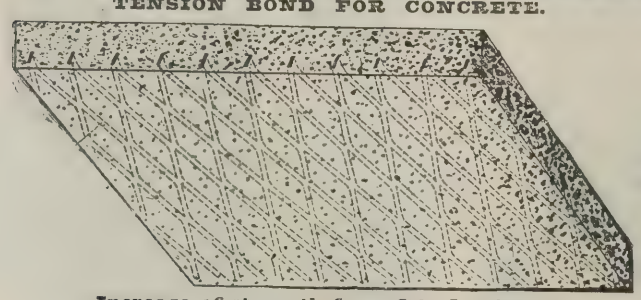
This was all the evidence.

The jury, after retiring for about half an hour, found that the five men met their death owing to the collapse of the flooring of the building, and that this was caused by deficient construction of the concrete and insufficient steel beams. They were of opinion that there was no properly qualified and responsible person inspecting the work, and regret was expressed that no tests were made of the quality of the concrete taken from the wreck.

A correspondent of the *Glasgow Herald*, from which the report is taken, writes:—The verdict of the jury at the inquiry into the lamentable building accident at Govan seems to be that the accident resulted through the failure of the floor supporting the centres, and that the strength of this floor was insufficient because it had not a sufficient number of steel beams crossing the span. Were this to be accepted as an intelligent verdict, the mature result of experience and practical knowledge (which, of course, it was not) concrete construction would be under a cloud. The experience of those who have worked in concrete goes to show that a floor divided by steel beams is less homogeneous than one which is not so divided, and which becomes (first-class materials and workmanship being assumed) a floor possessing all the qualities of a slab of solid rock. Some exception seemed to have been taken to the way in which the work was carried on, as if it would have been better to have kept in all the centres till the last, and then to have removed them together, but it needs little knowledge to see that in this way the considerable weight of all the concrete floors is thrown right from the centres on to the walls at once, giving the walls a sudden strain to meet. Hence the method by which the concrete floors are put in with the building is better as throwing a gradual stress on the walls, and allows also of better lying into them.

As regards the successful use of concrete there is a very large mass of data, almost from prehistoric times. Its modern use is more a revival than a discovery. It is the distinguishing feature of late Roman architecture, all the decorative part of which was applique to the concrete core. The Pantheon dome, about 140 feet diameter, with its famous "eye" or aperture, 27 feet diameter in the centre, is of concrete, and of course without any assistance from iron. There are also the vaults and floors of such buildings as the Baths of Caracalla and Diocletian, and many others which could be mentioned. There is an enormous wall veil at Rome suspended from one of these vaulted concrete ceilings, and originally supported by two marble columns. The columns have been removed for the

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sake of their material, but the wall remains, being part and parcel of the side walls and the vault itself, and to all intents as if cut out of the living rock. There is also a concrete floor at Rome of the days of the emperors, about 30 feet by 30 feet by 14 inches thick, in one slab without any iron. This remains to this day. The cementitious materials were much inferior to those which can now be got, such as Portland cement. An Edinburgh constructor advertises warehouse floors of 14 feet span and 32 feet long which are 3 inches thick in the middle, and in which there is no iron; also slabs 3 inches thick, of the same size, stiffened only by two thin concrete projections in the middle. A North of England contractor of floors has built them on similar principles to those followed at Govan, and of the same thickness of 7 inches, in spaces 34 feet long by 18 feet wide, without any cross-beams, and only stiffening rods scientifically placed in the lower side of the concrete; also slabs of at least 12 feet by 8 feet, without any iron whatever, and 4 inches thick. The risks of this construction, as of all fireproof construction, are, of course, greater than with wood floors. In attempting to render a building fireproof, and so to avoid the disasters to which a fire may give rise in such a building, new dangers are created. But every advance in construction, in machinery, or science brings with it certain pitfalls. The lesson of this disaster seems to be chiefly one of attention to the temporary centreing or supporting, for had the under floors been supported they might have taken the temporary strain thrown on them by the collapse of the roof. Good concrete takes a considerable time to harden, and is always hardening. Its full maturity is only attained after years, although the first few days are all important. The proprietor and builder of the Govan building should at least have the credit of attempting to erect at a much increased outlay to himself a thoroughly fireproof and solid structure, whatever laxity or want of care may have taken place in its execution.

PROTECTIVE METALLIC COATINGS.

(Concluded from last week.)

HAVING briefly pointed out the importance of galvanising and explained the nature of the results obtained, the author will now endeavour to give some idea of the process itself, more especially of electro-zincing, and a description of the plant employed.

The first care in electro-zincing is to have a properly prepared surface; all traces of grease and rust must be removed. Machined work, which is usually very greasy, should be immersed for about half an hour before pickling in a hot solution of caustic soda, about ½ lb. to the gallon of water. The work should then be placed in a hot pickle containing about 1 per cent. of commercial sulphuric acid. The author has found that a considerable saving of acid can be effected by placing a false bottom in the pickling tank so as to catch the heavier portion of scale as detached, the tray being removed after the day's work and the scale collected. About 50 tons of acid are required for every 1,000 tons of sheets such as are used for roofing purposes. The articles to be cleaned are made alternately cathode and anode in the bath, the pickling solution being heated by means of lead steam pipes. A tray adapted to normally float on the liquid is fitted in the bath and provided with a perforated bottom and extensions marked, by which it may be depressed and raised. The scale as it falls from the articles under treatment is caught on the tray, and can be removed from time to time. The same object can be attained by placing an electro-magnet behind a lead plate, the pickling solution being caused to circulate over the plate so that the scale may be attracted to the poles of the magnet and removed from time to time. After pickling, the work should be allowed to stand as long as possible in a bath of lime-water.

The Admiralty specify that all steel steam pipes, boiler and collector tubes, and all plates for boilers are to be pickled in a liquid consisting of nineteen parts of water and one of hydrochloric acid, until the black oxide or scale formed during the manufacture is completely removed. Plates should be placed in the bath on edge, and not laid flat. When taken out of this dilute acid all the surfaces are to be well brushed and washed to clean off the loose scale. They should then be placed in a bath filled and kept well supplied with fresh water, or be thoroughly washed with a hose as may be found necessary and then placed on end to dry.

The effect of pickling and rusting on the strength of iron and steel has been shown by Herr A. Ledebur, of Berlin. Rails, joists and bars were subjected to various conditions:—(1) in the condition as delivered; (2) after exposure for purposes of rusting; (3) zinc (galvanised) and tested at once; (4) galvanised and exposed for a time; (5) pickled in acid and immediately tested; (6) pickled and kept for a time in a dry place. The pickling was done in sulphuric acid diluted with water in the proportion of 1 to 100. The samples were tested for transverse, tensile and compressive strains, and under a

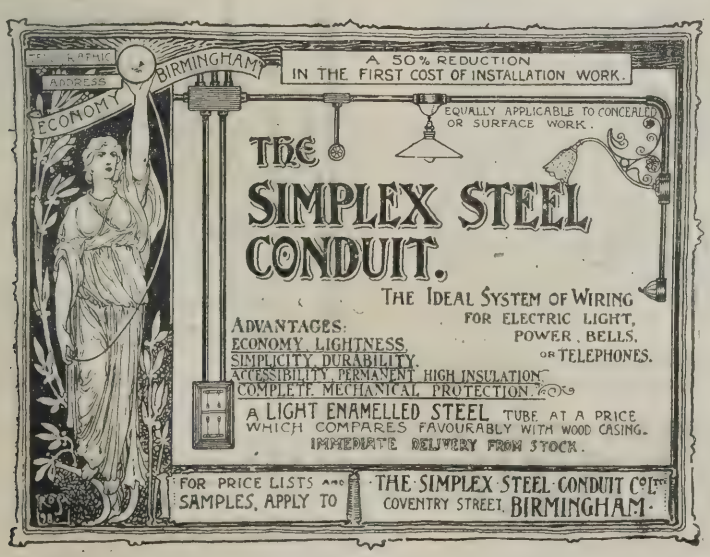
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falling weight, these experiments being made on the same sample for each of the six conditions. The bending tests with wrought-iron joists showed substantially the same for all the conditions; the maximum loads carried showed differences, being highest in the natural condition and lowest when freshly pickled. Rusting also produces a diminution of strength more apparent in the galvanised articles than in those not galvanised. In those instances where the specimens were broken, the diminution in strength is said to be very decided in the pickled, and perceptible in the rusted specimens. The figures are :— Breaking strain under condition 1, 35 tons ; under condition 2, 33·9 tons ; under condition 4, 32·7 tons ; under condition 5, 29·6 tons ; under condition 6, 30 tons. The steel specimens showed results which follow the same law.

Mr. W. Thompson, in a paper read before the Manchester Association of Engineers, states that "When iron is placed in acid some of it is dissolved and hydrogen liberated. The gas is supposed to be of the nature of a metal, and as such it combines with and forms an alloy with the iron, which becomes quite brittle until the iron is heated and the hydrogen liberated, when it regains its tenacity. If a piece of wire be broken when it has thus become alloyed with hydrogen, and the end wetted, the bubbles of gas may be seen passing rapidly through the water." This condition of things was observed and investigated by Mr. W. Johnson, B.Sc., of Manchester, and afterwards by Professor Osborne Reynolds, F.R.S. The latter showed that if an iron tube be closed at one end and filled with oil and placed in an acid solution, hydrogen is liberated from the outside, which passes through the wall of the tube, displacing the oil, so that the gas may be thus easily collected from the inside of the tube. There is a possibility, therefore, that when iron is rusting, the hydrogen liberated may similarly combine with the iron and render it brittle or reduce its strength, and this is a question of much importance to engineers.

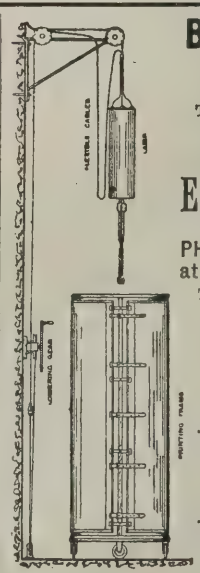
Some interesting experiments in regard to the decrease in the strength of iron after being pickled and galvanised have recently been reported. A dozen eye-bolts, all precisely alike as far as could be perceived by external inspection, were carefully selected. Six of these eye-bolts were laid on one side, and the other six sent away to be galvanised. A testing machine was at hand, but six bolts were connected together, one galvanised bolt being connected to each of the ungalvanised ones. Then they were placed between two pieces of iron and the nuts screwed up until the eye-bolts broke. Invariably it was found that the galvanised eye-bolts were the ones to break ; not in any instance did the ungalvanised ones give way. Boat builders also state that galvanised iron is "rotten." They say that when great strength is required, they select the iron and have the fittings forged by a good smith, but do not have them galvanised. Galvanised iron is frequently used in places where little strength is required, but where rust would be objectionable. For this purpose, galvanised iron leaves nothing to be desired, but where the full strength of the material is required and rust stains are objectionable, the object may be obtained by cleaning them by the sand blast process, and afterwards coating them by the cold galvanising process ; both of which methods are becoming well known and largely used for the above purposes.

Sand blasting is often used instead of pickling, and for many purposes it is found to give better results, especially for cast-iron work, from which it is very difficult to remove the last traces of acid. The cost of sand blasting per square foot, under the most favourable conditions, including the cost of labour, sand and power, is one-tenth of a penny, but the actual cost varies considerably with the nature of the work. When using quartz sand of the best quality the loss is about 10 per cent. each time it is passed through the machine ; the loss when using chilled iron sand is very small, the waste of the material replacing more than nine-tenths of the apparent loss.

In Government shipyards where most of the iron has to be freed from scale, a small addition to the staff is sufficient to enable the same amount of work to be galvanised. Hitherto the great difficulty experienced in electro-depositing zinc has been to keep the electrolyte in working order, as zinc anodes, whether cast, rolled, amalgamated or in the form of granulated zinc, fail to keep the solution up to its normal strength. The addition of zinc oxide has been suggested, but the cost is found to be too great, and at present a pure oxide cannot be attained at a reasonable price. The author has found the addition of zinc dust to the electrolyte to be the only practical method of accomplishing this end. The zinc dust, which contains about 75·5 per cent. of metallic zinc and usually a trace of cadmium, is

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cheaper in the first cost than virgin spelter; the use of it also considerably reduces the waste of zinc, as practically the whole of it is consumed. Zinc dust or tultz is a greyish amorphous substance, and must not be confused with zinc oxide; it is obtained as a sublimal product in the flues of the zinc-smelting furnaces. Small quantities of zinc dust are placed from time to time in the regenerating tanks, which are connected to the depositing vats by a system of piping, the electrolyte flowing into the bottom of the depositing tanks by gravity, the lighter liquid being drawn off over a sill at the end or in the corner of the vat.

It is found very advantageous to mix the zinc dust with sand or coke and thus form a filter-bed; if the zinc dust is allowed to get into the electrolyte it is found to increase the electrical resistance. A zinc sulphate solution containing 12·59 free acid, after passing through a filter-bed containing 10 per cent. zinc dust, was found to contain only 0·68 per cent. free sulphuric acid. To obtain good bright deposits of zinc it is necessary to keep the solution as free as possible from impurities; if the electrolyte is allowed to get too acid the zinc will be dark in colour and rough.

The work to be zinced is secured to dogs fitted to crossbars which rest on copper strips attached to girders carrying the anodes. This arrangement effects a considerable economy in the first cost of the plant. It has also the advantage of allowing the electrodes to be brought much nearer together than would otherwise be the case. In the plant the baths are capable of dealing with plates 6 feet by 5 feet, the tanks having a capacity of 900 gallons. The heavier classes of work are transferred from the vats by an overhead carrier, the lighter by a trolly running on rails.

A special feature of the electrical process is that plates of very large dimensions can be speedily zinced on one or both sides, which is a matter of some importance now that plates of great length are being put in the straight run of steamers' hulls. The frames of such craft as torpedo-boat destroyers can also be galvanised after rivetting up.

The first cost of a galvanising plant having a capacity of 6,700 gallons (30 feet by 6 feet by 3 feet) is about 600*l.*, which is but little more than that of a hot galvanising plant having a bath capacity of only 10 feet by 4 feet by 4 feet 6 inches outside dimensions. Such a hot bath would hold 28 tons of zinc, which, at 15*l.* a ton, amounts to 420*l.* To keep this large quantity of zinc in a molten condition entails a heavy expenditure in fuel, the thickness of the iron bath averaging more than 1 inch. Moreover, the iron baths are a constant source of annoyance and expense, as the iron is dissolved by the zinc, resulting in the ultimate destruction of the tank.

The cost of electro-zincing varies with the nature of the work to be zinced. The following is an estimate of cost of zincing 20 tons of plate in a working week of fifty-two hours, the average thickness of plates being five-sixteenths of an inch, and the thickness of zinc coating 1 oz. per square foot:—

	£	s.	d.
Labour, piecework, at 1*s.* per cwt.	20	0	0
Incidental expenses, 15 per cent. on labour	3	0	0
Yard labour, 10 per cent. on labour	2	0	0
Zinc, 448 lbs. at 17*l.* per ton	3	8	0
Royalty	3	9	8
Electrical energy, at 1*d.* per E.M.F.	2	18	0
Pickling, at 5*s.* per ton	5	0	0
Rent of building, at 2*l.* per week	2	0	0
Interest on capital	2	17	8
Depreciation of plant	3	17	0
	£48	10	4

Cost per ton . 2*l.* 8*s.* 6*d.*

Both pickling and hot galvanising have the disadvantage of reducing the strength of wires, and of distorting and rendering brittle iron and steel of small section. By exposure to the lowest working temperature of the hot galvanising bath (which averages some 1,000 deg. Fahr., the fusing point of zinc being 775 deg. Fahr.), steel wire of high breaking strain has its hardness, and consequently its ultimate tensile strength and elongational efficiency, reduced by as much as from 5 to 10 per cent. by the drawing of the temper and the formation of an iron zinc alloy on the surface of the steel. It is the practice, when coating steel wire, to keep the bath of molten zinc at as low a temperature as possible, and to run the wire through at a high rate of speed. But these combined causes lead to a considerable waste of zinc by reason of the rapid solidification of the metal on a comparatively cold wire, and they also conduce to the ready breaking or cracking off of the covering metal on bending or twisting, owing to the difficulty with which molten zinc of low temperature adheres to the steel except after prolonged contact. In some cases the wire on leaving the bath is wiped between asbestos rubbers, but steel thus treated is found to resist corrosion only for a short period. The process of hot galvanising is necessarily slow, because the time of passing the wire through the bath is fixed by the fact that the temperature of



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the iron must be raised to or approximately to that of the spelter. The speed at which a No. 12 wire generally travels is from 50 to 60 feet per minute. Experiments are now being made with dipping the coils or bundles of wire in a bath of molten zinc and then placing the coil in a centrifugal machine to remove the excess of metal. Many attempts have been made to electro-zinc wire, but until recently it has not been found practicable to produce a wire capable of withstanding more than one immersion in a copper sulphate solution. Most manufacturers have ceased to galvanise the best classes of steel wire (which cost some 35*l.* per ton) on account of the great risk there is of rendering it worthless. This is unfortunate, for corrosion is found to be very marked on the inner strands of wire rope, and the advisability of protecting the steel is unquestionable.

Electro-zincing does not reduce the tensile strength or increase the elastic fatigue of steel wire, even in wires having a tensile strength of 170 tons or more per square inch, such as are used in the manufacture of pianos. The zinc coating put on by the hot process is also uneven, and the increased weight is often a matter of consideration. The thickness of the coating can only be varied within narrow limits, the minimum weight of zinc being about 1½ oz. per square foot, the maximum 3 oz., except when the molten zinc is raised many degrees above the most economical working temperature, and the articles are removed gradually from the bath, so as to give the zinc time to drain off before getting chilled, or in the case of thin sheets and wires which are capable of having some of the zinc being squeezed or wiped off by rollers or other suitable mechanical means to reduce the amount of zinc to about ½ oz. per square foot. A galvanised sheet of about 24 gauge was found to have a coating of zinc amounting to 8 per cent., the weight of zinc per square foot being 1·04 oz. Excess of zinc has, as already observed, been removed from galvanised wire by passing it through asbestos rubbers, but wire thus treated soon rusts, as it is found in practice impossible to regulate the thickness of the zinc, the result being that an iron zinc alloy is formed on the surface of the iron and no true coating of zinc. The weight of metal on galvanised sheets or terne plates is usually ¾ oz. per square foot. Wires can be coated with zinc by electro-deposition to a thickness of 3-1000 of an inch, or an increased diameter of 6-1000 of an inch, capable of withstanding eight one-minute immersions in a saturated solution of copper sulphate. A wire 69-1000 of an inch in diameter, with a total thickness of 3-1000 of an inch of zinc applied by the electro process, will stand repeated bending round a bar 1 inch in diameter without exhibiting any signs of peeling or cracking.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

20313. Albert Edward Pullen and Cecil James Cooper, for "An improved fitting for entirely concealing from view ceiling or other blocks (or other preparations for receiving roses) and roses for electric-light pendants or fittings, without recourse to screws or the like fastenings in ceilings, walls or other contiguous surfaces."

20381. Arthur Rickards, for "An improved chimney-pot to prevent smoky chimneys."

20565. William Furness, for "Furness patent window-fastener."

20568. William Marshall, for "Improvement in grids and hoppers for stone gauging and the like."

20629. Bernel Butcher Storey, for "Improvements in dust, rain and draught excluders for doors, French windows and the like."

20679. Preston Davies, for "Improvements in and relating to the manufacture of Portland cement."

20758. Emile Royer, for "Improvements in heating apparatus for buildings and the like."

Specifications Published.

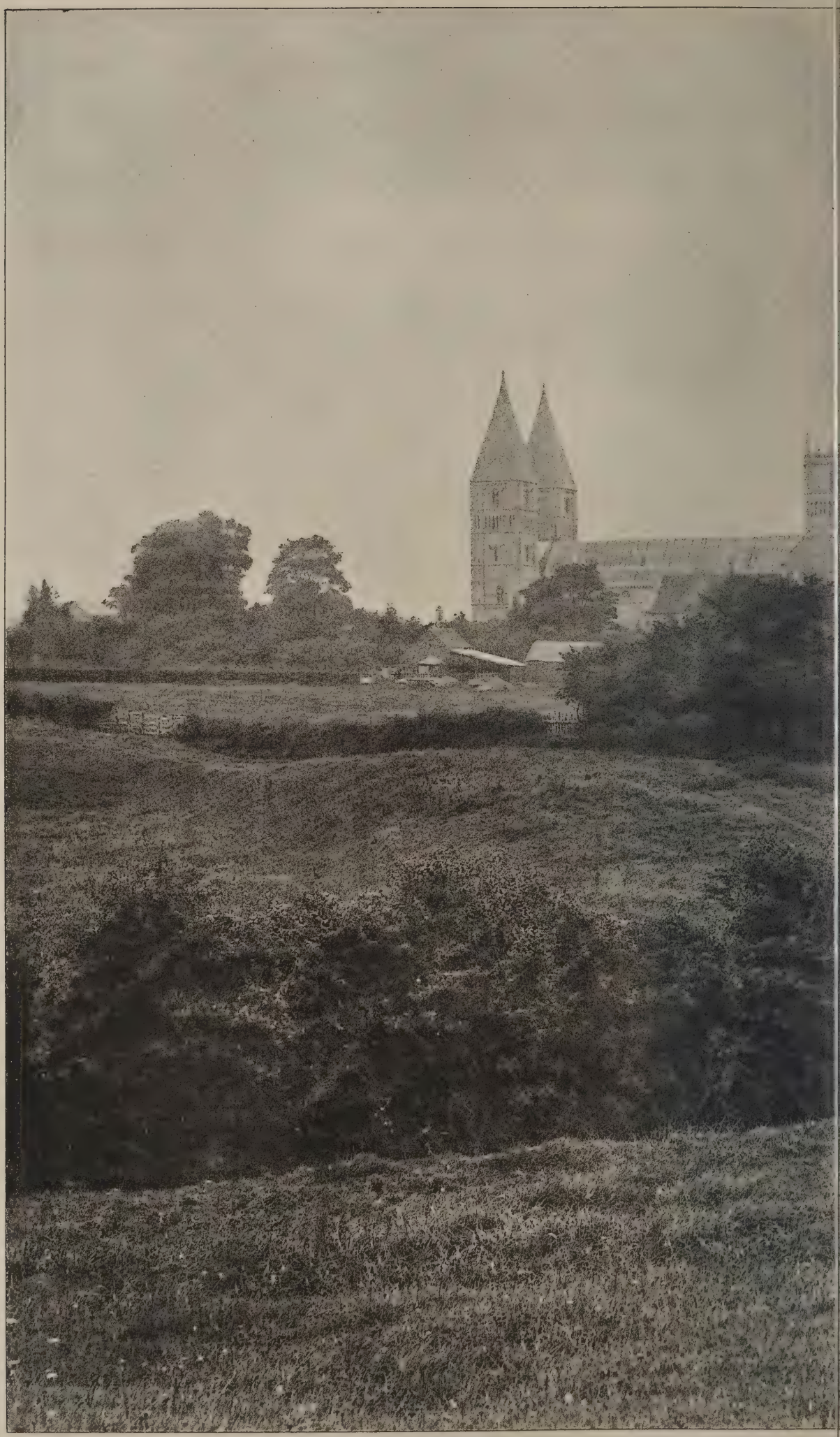
23993. Frosell, for "Composition applicable for cement, artificial stone and the like."

25108. Collier, for "Means applicable for use in connection with brick-cutting tables."

25802. Place, for "Means for connecting sanitary pipes."

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The Architect.

THE WEEK.

Many of the frequenters of racecourses and other lovers of sport were likely to be surprised when they discovered that the late John Francis Clark, who for nearly forty years officiated as judge at Newmarket, Epsom and elsewhere, was a practising architect. Mr. Clark was born in Norwich in 1816, and in his eighteenth year he came to London to study architecture. After four years he returned to his native city and commenced practice as an architect and surveyor. He quickly found clients and gained an extensive practice. Mr. Clark designed several residences, stables and other works. Stands were a specialty with him, and the majority of those in use at the principal racecourses in the country were erected from his plans. He succeeded his father as judge, and the office was also held by his grandfather. Mr. J. F. Clark was as upright and indifferent to external influences as the historic Judge Gascoigne, and amidst many temptations to the contrary, his life offered some compensation for the loose morality of the Turf. Architects need not be ashamed that John Francis Clark belonged to the profession.

An article by Herr Von Abramson in one of the Austrian journals gives an account of what is required from any man who in Russia professes to be an architect or engineer. In the first place, nobody can assume either title unless he possesses a Government diploma, which latter can be granted only by certain designated technical high schools. This diploma confers also upon the recipient the power to superintend, with full responsibility, construction work anywhere within the limits of the empire, and places him in the tenth rank of the Government service, corresponding to that of lieutenant in the army, this being indicated by a special badge worn upon the right breast. Anyone not possessing such a diploma, who nevertheless may be a skilled practitioner, or may possess a diploma from some foreign institution, may indicate his profession by the title "techniker," and, in order to have the privilege of assuming sole responsible charge of constructive work in the empire, such an individual must pass an examination before a Government board, although this does not permit him to call himself either engineer or architect. If a practical or technical man, educated in some other country and probably fully qualified by attainments, desires to obtain the title "engineer" or "architect," with all that these imply in Russia, he must enter one of the designated State high schools, as a native student would. This not only involves the passing of a five-years' course of study, but also necessitates the brilliant passing of a severe entrance examination, based especially upon a full proficiency in mathematics and in the Russian language.

Buildings ought to be cheaply constructed in Mexico, for in addition to stone there is a curious material available for walling which is known as "tepelate." A correspondent of *Architecture and Building* says that in appearance it bears some resemblance to ordinary concrete, but it is inferior in strength. Tepelate is of a very soft nature, full of pebbles about as large as a pea, held together by a yellowish cement, and is very light in weight. It is cut out of the ground with spades like peat or turf, and in blocks which in general measure 14 inches by 10 inches by 8 inches. The blocks are laid in the wall without any more mortar than is absolutely required, and very frequently without enough. The courses are six or seven blocks in height when a string-course of four or five courses of bricks is laid, and the wall is continued in this manner until the cornice line is reached. The corners and the window jambs are built of brick, and at intervals of about 8 feet are intermediate piers of brick of the full depth of the wall. The object of these string-courses and piers is to give the strength and solidity which tepelate does not possess. The outer joints of the blocks are filled with a cement mortar into which are placed small sharp edged stones. It is difficult to conceive what these are for, as the outside cementing adheres very strongly to the blocks. After the stonework is all done the walls are given a heavy coat of plaster, which, when dry, is of a dirty greyish colour, which is sometimes remedied by an application of a water paint. Owing to its inexpensiveness tepelate is used extensively in buildings and in walls enclosing yards and gardens.

The following is the official statement upon the results of the competition for the California University :—The jury for the international competition for the Phebe Hearst architectural plan for the University of California, composed of Messrs. J. L. Pascal, president, representing France ; Paul Wallot, vice-president, representing Germany ; R. Norman Shaw, representing England ; Walter Cook representing the United States ; J. B. Reinstein, representing the University of California, closed its sessions at Antwerp on October 4. The following is a list of the authors of the plans admitted to participate in the final competition :—Messrs. Barbaud & E. Bauhain, Paris ; E. Bénard, Paris ; Professor F. Bluntschli, Zurich ; D. Despradelles & Stephen Codman, Boston ; R. Dick, Vienna ; J. H. Freedlander, New York ; G. Héraud & W. C. Eickmuller, Paris ; Howard & Cauldwell, New York ; Howells, Stokes & Hornbostel, New York ; Lord, Hewlett & Hull, New York ; Whitney Warren, New York. The vote of the jury upon each of the plans selected was absolutely unanimous ; some of the jury also recommended that four plans, besides those admitted to the final competition, should be purchased for the University of California. The names of the authors of these plans are as follows:—Messrs. Joanny Bernard & Robert, Paris; Charles des Anges, Paris; Ernest Flagg, New York; Fred. Skjold Neckelmann, Stuttgart. The members of the jury, together with the architects invited to participate in the final competition, will go to California, and in June 1899 the jury will there decide the final *concours* and select the plan, which must be approved by the regents of the University of California, and thereupon the buildings will be erected with the utmost rapidity. It is expected that all the buildings will be completed within the next twenty-five years.

Professor Lodge has appealed to the wealthy people of Liverpool for the erection of a physical laboratory in the University College of that city. When he commenced his work eighteen years ago his first practical class for five students was conducted in an upper room with the apparatus mostly on the floor. Subsequently he was able to obtain the rooms discarded by other professors, and if it were cleaner and healthier, he would not object to his laboratory. Every cellar has a function, and every lobby, passage and cranny is devoted to something. But the accommodation is insufficient for the number of students who are disposed to study physics under the Professor. The electro-technical branch is located in the old iron vegetarian restaurant-room of the Liverpool exhibition of 1887, bought at its demolition and presented by him to the college at a time of extreme striction. It was never expected to last so long, but there it stands, and is splendidly useful. The old college building is as permanent as anyone can wish; its walls are 2½ feet thick, and may perhaps long serve for either zoology or botany; but the electro-technical adjunct is not permanent at all, and in places its iron roof is little thicker than paper. What Professor Lodge desires is a laboratory in which a piece of apparatus, arranged for or by a student, can remain in position ready for next time, and not have to be dismantled and replaced by something else, quickly, for the next man; when all the junior students can get through their work together, and not in relays ; when advanced men can each have a room of his own, and carry on his investigations continuously for months or even years ; when the best-designed fittings and appliances make easy a number of researches which now are difficult ; when good apparatus can be erected and properly treated in position, ready for easy employment or demonstration, instead of, as now, having their parts stowed away in cupboards so as to be out of the way of other things except when they are actually wanted for immediate use. Not much generosity has been displayed of late in providing accommodation for technical instruction in Liverpool ; the Professor's appeal will not fall on deaf ears.

ST. ALBANS CATHEDRAL.

ST. ALBANS CATHEDRAL has a right to be placed near Southwell in any description of English cathedrals. Both are ancient buildings designed for another use, which were elevated to the rank of cathedrals a few years ago owing to the increase of population. Over both was a contest which was aroused by the character of the restoration. As a work of architecture Southwell Minster obtained more interest, although the building is one of smaller area. St. Albans has had the advantage of being near London, and it is bigger than any of the cathedrals, but from its vast size and neglected condition it did not appeal in modern times to the popular mind. There was a general indifference to the abbey, one effect of which is seen in Mr. FERGUSSON'S "History of Architecture," where it is only once incidentally mentioned, and then on account of a tomb.

And yet the history of the abbey is of a character that entitles the building to be reverenced. Nearly sixteen hundred years have elapsed since the Roman ALBAN was scourged and beheaded on or near the spot on which the abbey stands. His crime was the affording of shelter to a priest, or, as WORDSWORTH says:—

> Thus was Alban tried,
> England's first martyr, whom no threats could shake;
> Self-offered victim, for his friend he died,
> And for the faith; nor shall his name forsake
> That hill, whose flowery platform seems to rise
> By nature decked for holiest sacrifice.

The persecution of Christians having ended in England, a church was likely to have been erected in commemoration of our Protomartyr. One was still standing there in BEDE'S time, and it is allowable to suppose that fragments of the Romano-British church may still be found among the conglomeration forming the walls of the present building. In the year 790 King OFFA, who was suffering remorse for the murder of ETHELBERT, resolved to erect a new church and an abbey for one hundred monks as an atonement. The buildings were dedicated to St. ALBAN, and were largely endowed in order that hospitality should be rendered to the wayfarers who passed to and from London. The importance of the abbey increased, and in course of time the town near became known as St. Albans instead of Verulam or Watlingceaster.

It was the opinion of Sir GILBERT SCOTT that many of the shafts of the small columns of the triforium of the transepts are survivals of OFFA'S church. Norman capitals and bases were added to bring them into keeping with the style that followed the Anglo-Saxon. In addition to the erection of a church, King OFFA also sought out the body of St. ALBAN, and had constructed a shrine or châsse to contain it. This work was enriched with golden and silver plates, and a sort of diadem bearing the saint's name was made to encircle the skull.

From its position and wealth the abbey was liable to attacks from marauders. It was not long founded when a host of Danes seized the buildings. They carried off the treasures, including the greatest of all—the martyr's remains. In those days relics had a commercial value, for wherever any belonging to a famous saint were found crowds of votaries attended, and consequently they were worth purchasing at a high price. St. ALBAN'S bones were stolen in 930, and found their way to a monastery at Owensee, in Denmark. But ERGWIN, the sacrist at St. Albans, went there in the hope of rescuing them. He offered himself as a postulant and was allowed to join the community. In course of time the treasure was placed in his charge. He contrived to remove the relics and to despatch them to England. As soon as he could escape in safety ERGWIN followed them. It is needless to say he was received with joy at St. Albans. The monks at Owensee were officially informed that they no longer were possessed of the bones of St. ALBAN, and of course declined to admit the loss of what imparted to them a valuable privilege. But the relics were not allowed to remain at rest at St. Albans. The Danes in their periodical visitations would naturally wish to seize objects which were coveted by their countrymen. The relics were concealed within the walls of the church, but as it was feared their whereabouts had become known they were afterwards sent to the monks of Ely, who were supposed to be in favour with the invaders. When the Danes departed the relics were applied for by the monks of St. Albans, but, as was not uncommon, less sanctified bones were foisted on them. A long period of contests and appeals to Rome followed. Eventually the monks of Ely confessed they were in error, and that St. Albans was possessed of the genuine remains of its Protomartyr. It is now supposed by some that the saint's relics are to be found in a church at Cologne. There was reason, therefore, for JOHN MILTON to say that the story of the martyrdom of ALBAN of Verulam was "soil'd, and worse martyr'd with the fabling zeal of some idle fancies, more fond of miracles than apprehensive of truth."

The possession of the relics was enough to give importance to the abbey. Long before the Norman arrival St. Albans was among the institutions which wealthy Saxons were proud to enrich. It was, therefore, inevitable that when ecclesiastical offices were handed over as part of the spoil of the conquest, an influential Norman should be selected to fill the abbot's chair. PAUL OF CAEN, who was appointed in 1077, was not satisfied with the buildings which then existed. Some of his predecessors had collected materials which he resolved to utilise. From his connection with the king's court it was easy to obtain money and to command labour. In the course of eleven years he was enabled to erect one of the finest churches in the country. His relative, Archbishop LANFRANC, had erected a cathedral at Canterbury which was a copy of the abbey church of St. Stephen, Caen. Abbot PAUL wished to surpass the cathedral. His ambition was expressed in the increased dimensions he adopted. Instead of a nave of nine bays as at Canterbury there were thirteen bays at St. Albans. There were two bays in the cathedral choir and five in the St. Albans choir. Each transept of Canterbury contained two bays with one apsidal chapel, while in St. Albans each transept had three bays and two chapels. The cathedral was 290 feet in length, the abbey church 460 feet. The western façade at Canterbury was 90 feet in width, while at St. Albans the façade was over 150 feet.

So large a building could not be erected in so short a time if the ancient Roman materials were not available. According to MATTHEW PARIS, the Abbot PAUL built his church of the stones and tiles of the old city of Verulamium. That statement appears to be only partially true. Roman materials were used by the Norman builders, but as the Normans endeavoured to imitate Roman methods, it is not always easy to determine what is ancient. It can, however, be taken for granted that there is more of Roman work at St. Albans Abbey than in any other Norman building which exists. With such materials smoothness of surface was impossible, and the work which survives has a ruggedness which places the abbey out of relation with Classic buildings and with those of later Mediæval times. But the exterior presented originally a more even surface, for it was covered with plaster. The abbey was the white sepulchre of St. ALBAN.

The parts which remain of Abbot PAUL'S work are supposed to be three entire bays of the nave, six bays on its northern side, one transept, one bay of the choir aisles and the central tower. The style of those parts is extremely severe, and rather expressive of the Roman character.

In the course of a century the style was, however, considered to be old-fashioned, and JOHN DE CELLA, at the end of the twelfth century, resolved on rebuilding the west end towers of the church in the Early English style. He appears to have been one of those sanguine men who were so often found among ecclesiastics. He was indifferent to contingencies, one of them being a lack of money. Apparently he possessed only a hundred marks. That sum was soon expended. Winter came, and the incomplete walls suffered. He was compelled to desist and undertake a more modest work, viz. the improvement of the monastic dwellings. JOHN DE CELLA'S work is believed to consist in three portals. Yet who does not sympathise with him in his failure to realise his dreams? It is easy to advocate prudence and, like MATTHEW PARIS, to give a homily on the duty of following the Gospel advice on the necessity of computing the cost before projecting a building, but the history of the Church is full of examples of men who set about great things in heroic hope with no more certainty of success than inspired JOHN DE CELLA. The late Sir GILBERT SCOTT, who was not adventurous in spirit, in speaking of the incomplete fragments which represent the abbot's dreams, said:—"I doubt whether there exists in

England a work so perfect in art as the half-ruined western portals of St. Albans. I venerate the architect who designed them, who, I believe, was Abbot John de Cella's second architect, Gilbert de Eversholt. His work is contemporary with two others, which are as fine as almost any in existence—the western porch at Ely and the choir of St. Hugh at Lincoln. All of them were the works of the earliest perfected 'Early English' after it had thrown off the square form of the Romanesque capital; and I believe it to be also contemporary with another of the finest English works—the sanctuary of the dependent monastery of Tynemouth, which, however, retains the square capital."

Abbot William of Trumpington succeeded where John de Cella failed. He completed the west front, as well as five bays on the south side and four on the north side of the nave. Sir Gilbert Scott was struck by the remorselessness of William's dealings with the work of his predecessor, such as "columns with bases for eight shafts reduced at the capitals to four; the marble bandings prepared for the larger number, but roughly altered to suit the reduction, while the marble largely used or contemplated by the one is almost wholly omitted by the other."

William of Trumpington's work was so effective, there was no need for any great change until twenty years had passed. Then in 1256 the eastern arm of the cross had to be rebuilt. John of Hertford was abbot, and the works executed were worthy of so matured a period. He did not restrict himself to operations in the church. Remembering the caravanserai character of the original abbey, he erected a guest hall and increased the accommodation for visitors. The large scale on which hospitality was dispensed is suggested by the stables he built for 300 horses. His successors were no less desirous to have new works in the best style attainable. The lady chapel is to be credited to Abbot Hugh de Eversden, who also renewed the substructure of the shrine of the patron saint. The latter work, which was about 9 feet high, was found in fragments. They were put together while Sir Gilbert Scott had charge of the restoration by Mr. Jackson, a mason who exercised the most extraordinary patience and insight in the task. From its character we can infer the beauty of the shrine, which attracted pilgrims from all parts of the country, and for whose reception the church was not too extensive. In 1323 a part of the Norman nave on the south collapsed. Abbot de Eversden began a restoration in the style of his own time, but the work was not completed until twenty years afterwards, during the abbacy of Michael of Mentmore.

A period of two hundred years follows, in which no extensive additions were introduced. The west window, with others in the north aisle, were credited to John of Whethampstead, who also erected a chantry. Another chantry is a memorial of Abbot Ramryge's time. Cardinal Wolsey succeeded Ramryge, but he was not more zealous at St. Albans than in other places where he enjoyed the income of ecclesiastical offices. In 1539 the abbey was surrendered to the king's visitors by Richard Boreman, the last abbot. The revenue was then estimated at 2,500*l.* Sir Richard Lee obtained the abbey from Henry VIII. The inhabitants during the short reign of Edward VI. purchased the church for 400*l.* and a fee farm rent of 10*l.*, which was subsequently redeemed.

From its vast size the conservation of the church was beyond the resources of one parish, and it is no wonder it was so often neglected. A public footpath ran across the church. The lady chapel was employed for a school. Several arches were walled up. Arcading was removed. The windows were left unglazed. Chapels were used as playgrounds. Reparation was somehow always enormously costly, for every accident appeared to resemble the building and to be on a colossal scale. Thus in 1832 a wall fell on the south-west side, and it was then estimated that the injury would cost 15,000*l.* But so large a sum was not obtainable. As we have said, the interest in the building was restricted, and whatever may be thought of Lord Grimthorpe's restoration with its innovations, it must in justice be allowed that if he had not assumed responsibility the abbey would now be an immense ruin, and a discredit to all lovers of antiquity.

MARDEN PARK AND GODSTONE.*

MARDEN Park is in the parish of Godstone—a fact which seems somewhat singular; but the singularity disappears when it is known that the parish is thirteen miles long and not more than one mile in breadth. In 1589 the manors of Marden and Wolkampstead (Godstone) were purchased by George Evelyn, of Wooton, a gentleman who had sixteen sons and was the founder of the various Evelyn families scattered over the county of Surrey.

John Evelyn, the diarist, writes on October 12, 1677:—"With Sir R. Clayton to Marden, an estate he had bought lately of my kinsman, Sir John Evelyn, of Godstone, in Surrey, which from a despicable farmhouse Sir Robert had created into a seat with extraordinary expense. It is in such a solitude among hills as, being not above sixteen miles from London, seems almost incredible, the ways up to it are so winding and intricate. The gardens are large and well walled, and the husbandry part made very convenient and perfectly understood. The barns, the stacks of corn, the stalls for cattle, pigeon-house, &c., of most laudable example. Innumerable are the plantation of trees, especially walnuts. The orangery and gardens are very curious. In the house are large and noble rooms. . . . This place is exceedingly sharp in winter by reason of the serpentining of the hills, and it wants running water; but the solitude much pleased me. All the ground is so full of wild thyme, marjoram and other sweet plants that it cannot be overstocked with bees. I think he had near forty hives of that industrious insect." Evelyn again visited it three years later. On July 13, 1700, he writes:—"I went to Marden Park, which was originally a barren warren, bought by Sir Robert Clayton, who built there a pretty house and made such alterations by planting not only an infinite store of the best fruit, but so changed the natural situation of the hills, valleys and solitary mountains about it, that it rather represented some foreign country which could produce spontaneously pines, fir, cypress, yew, holly and juniper; they were come to their perfect growth, with walks, mazes, &c., amongst them, and were preserved with the utmost care, so that I who had seen it some years before in its naked and barren condition was in admiration of it. The land was bought of Sir John Evelyn, of Godstone, and was thus improved for pleasure and retirement by the vast charge and industry of this opulent citizen." Milton's often quoted lines seem very applicable to the park:—

> And overhead upgrew
> Insuperable height of loftiest shade,
> Cedar and pine, and fir, and branching palm,
> A sylvan scene, and as the ranks ascend,
> Shade above shade, a woody theatre
> Of stateliest view.

Unfortunately for us, the "pretty house" mentioned by Evelyn has been destroyed by fire. The present building, I am told by the occupier, contains nothing that would interest the Society. Such was Marden Park in its grandest days; its natural beauty has not yet been obliterated, but alas! all that depended on art has faded and gone. At the end of the park is an old building, called Marden Castle, commanding extensive and beautiful views over a large extent of the country.

It may be as well at this point to say something of Sir Robert Clayton. In Macaulay's "History" it is stated:—"Sir Robert Clayton, the wealthiest merchant of London, whose palace in the Old Jewry surpassed in splendour the aristocratical mansions of Lincoln's Inn Fields and Covent Garden, whose villa among the Surrey hills was described as a Garden of Eden, whose banquets vied with those of kings, and whose judicious munificence, still attested by numerous public monuments, had obtained for him in the annals of the City a place second only to that of Gresham." He was the Parliamentary member for the City during seven Parliaments, being often elected by acclamation. He was the alderman of the Ward of Cheap for more than thirty years, and was Lord Mayor in 1679, the year in which the City was so much excited by the Popish Plot. Evelyn says that he had been apprenticed to a scrivener, and having afterwards succeeded to the business made a very large fortune. His reputation stood high not only as a citizen, but also as a patriot and a statesman. He was the mover in Parliament of the Exclusion Bill—the Bill intended to prevent the Duke of York (afterwards James II.) from ascending the throne. He was also a great benefactor to Christ's Hospital and St. Thomas's Hospital. In 1701 the Governors of St. Thomas's Hospital erected a statue of him in his Lord Mayor's robes. When the new hospital was built on the Embankment the statue was removed, and can now be seen in the quadrangle near the Medical School; a copy of it with the same inscription stands on the slope facing the house in Marden Park. The inscription is in Latin and in English:—

"To Sir Robert Clayton, Knt., born in Northamptonshire, citizen and Lord Mayor of London, President of this Hospital,

* A paper by Mr. W. H. Bolt, read at the visit of members of the Upper Norwood Athenæum.

and Vice-President of the new Workhouse, and a beneficial benefactor to it; a just magistrate and brave Defender of the Liberty and Religion of his country; who (besides many other instances of his charity to the poor) built a Girls' Ward at Christ's Hospital; gave first towards the rebuilding of this house 600*l.*, and left by his will 2,300*l.* to the poor of it. This statue was erected in his lifetime by the Governors, Anno Domini MDCCI. as a monument of their esteem of so much worth; and to preserve his memory after his death was by hem beautified Anno Domini MDCCXIV."

During his lifetime he erected his own memorial monument in the church of Bletchingley, about 1½ miles from Godstone. He there appears under a canopy in his Lord Mayor's robes and his wife beside him, on either side of them cherubs shedding tears. An inscription (but not by himself) says:—

"By the justest methods and skill in business he acquired an ample fortune and more than once ventured it all for his country. He fixed the seat of his family at Marden, where he hath left a remarkable instance of the politeness of his genius, and how far nature may be improved by art. His relations, his friends, the hospital of St. Thomas in Southwark (of which he was President), Christ Church Hospital, and the Workhouse in London were large sharers of his bounty. He lived in the communion of the Church of England, and in the most perfect charity with all good men, however divided amongst themselves in opinions. The welfare of his country was the only aim of his public actions, and in all the various efforts that were made in his time for preserving its constitution, he bore a great share, and acted therein with a constancy of mind which no prospect of danger could ever shake. It is but just that the memory of so good and great a man should be transmitted to after ages, since in all the private and public transactions of his life he has left so bright a pattern to imitate, but hardly to be outdone."

These tributes to his memory are very great, but his popularity brought him also many detractors. Let us for a moment look at the other side of the picture, and see what the celebrated satirist of the time says of him:—

'Mongst these extorting Ishban first appears,
Pursued by a meagre troop of bankrupt heirs,
Blest times, when Ishban, he whose occupation
So long has been to cheat, reforms the nation.
Ishban, of conscience suited to his trade,
As good a saint as usurer ever made.
Yet Mammon has not so engrost him quite,
But Belial lays as large a claim of spite;
Who for those pardons from his prince he draws,
Returns reproaches, and cries up the cause.
That year in which the city he did sway,
He left rebellion in a hopeful way;
Yet his ambition once was found so bold,
To offer talents of extorted gold;
Could David's wants have been so brib'd, to shame
And scandalise our peerage with his name;
For which, his dear sedition he'd forswear,
And ev'n turn loyal to be made a peer.

The origin of the name Godstone is altogether veiled in obscurity; no one seems to give a satisfactory explanation to it. Our old friend, Domesday Book, will not help us, for there it is called Wachelstede, and in another old book Wolcnestede, and later still Wolkampstead. Some authorities suppose that at one time there might have been a cross or stone which was much venerated. Others think that the proper name is Gatesdean, that is a pass through a hill or cliff. Whatever may have given rise to its present name, there is no doubt that the village is certainly very picturesque, and on all sides of it there are many charming walks.

The church has undergone a thorough restoration under the direction of Sir Gilbert Scott. Doorways on the west and south sides of a Norman character have been inserted; that on the west side preserves one stone of the original. The church is principally noted for the costly and beautifully executed monument of Sir John Evelyn and his wife. Sir John is represented in armour, while his wife, Dame Thomasine, has a loose robe. Against their feet are the crests of their families, his a griffin, hers a bird with its wings displayed. Sir John erected this monument in his lifetime, and the date of his death has not been inserted. The diary of date October 14, 1677, says:—"I went to church at Godstone and to see old Sir John Evelyn's dormitory joining to the church, paved with marble, where he and his lady lie on a very stately monument at length, he in armour of white marble. The inscription is only an account of his particular branch of the family in black marble." This Sir John Evelyn outlived his family and settled his estate on his mistress, Mary Gittings, who sold it to Sir R. Clayton. There is another fine monument, the recumbent effigy of Mrs. Macleay, in the mortuary chapel beneath the tower of the church. The almshouses beside the church were also built under the direction of Sir G. Scott, at the cost of Mrs. Hunt, in memory of her daughter.

The inn claims to be of very old date. The author of "Coaching Days and Coaching Ways" says "it is stated that the inn was established in the reign of Richard II. and was called the White Hart. Certain portions of the inn were added in Elizabeth's time. In the absence of documentary evidence it requires but a small stretch of the imagination to picture the long crowd of all ranks, kings, queens, soldiers, statesmen, conspirators, coachmen and highwaymen who must have passed the portals of so venerable a place of entertainment as this in the lapse of six centuries. . . . It is stated that in 1815 the Regent, the Czar of Russia and many royal visitors stayed at the inn on their way to Blindley Heath to be present at the fight for the championship of England." In conclusion, let us hope that the meeting of the Upper Norwood Athenæum in this inn will not be of less importance in its future history than that of the many crowned and uncrowned heads that have preceded us here.

THE FRASER BEQUESTS.

THE late Sir William Fraser has bequeathed his collection of costumes, in a volume bound in green morocco, to the Princess of Wales during her life, and after her death to the successive Princesses of Wales; but an assurance is to be obtained that his coat of arms shall not be removed from the book. He bequeathed his collection of Gilliray's caricatures, in eleven folio volumes in red morocco, to the Lord Chancellor and the Chairman of Committees of the House of Lords, in trust, to place the same in the library of the House of Lords for the use of the peers. Sir William Fraser bequeathed his collection of "H.B.'s" political caricatures to the Speaker and the Chairman of Committees for the time being of the House of Commons, upon trust, to place the same in the library of the House of Commons for the use of the members. He bequeathed to them also his collection, which he believed to be unique, of portraits of Speakers, and these are to be framed and glazed in a style which he specified, with an inscription painted in black letters on each frame inside the glass. The testator bequeathed Thackeray's chair to the Travellers' Club, Dickens's chair to the Athenæum Club, Nelson's sword to the Senior United Service Club—on condition that it be placed under Nelson's portrait, and Lord Byron's sofa to the Garrick Club, together with C. B. Smith's letters and the autographs of dramatic persons and Lacy's acting plans. He bequeathed the manuscript of Gray's "Elegy," given by the poet to his biographer Mason, to be placed in the boys' library at Eton or in the museum, if established, and it was Sir William's express direction that no facsimile shall, in any circumstances, be permitted to be made of the manuscript. He left the sword of the first Duke of Marlborough, bearing the inscription, "Presented by her most sacred Majesty the Queen, 1702," and a portrait of the duke in armour, wearing the sword, to the three colonels-in-chief for the time being of the three regiments of Scots Guards, to be placed in the officers' principal guard-room at St. James's Palace; and he bequeathed Holland's "Caricatures," in twelve volumes, for the use of the officers of the Queen's infantry guard in London, but these books are in no circumstances to be lent or removed. Sir William bequeathed the manuscript of Sir Walter Scott's "Marmion" to the Advocates' Library in Edinburgh, and his large folio edition of "The Words of Wellington" to the Senior United Service Club. He bequeathed 1,100*l.* to be applied, as to 200*l.* in printing, illustrating and publishing (including advertising) not less than seventy-five copies, in the best manner as to printing, paper and binding, of which twenty-five copies at least shall be in leather, in one volume, of his work, "Coila's Whispers," of which a specimen copy is deposited at the Bank of England, and including the expenses of the illustrations by Gustave Doré, George Cruikshank, the Marchioness of Waterford and W. M. Thackeray, and for their trouble the trustees are to receive 100*l.*; and they are to invest the residue of the fund in order to publish further editions, the profits from which, if any, are to be given to the Royal Literary Fund.

THE CATALOGUE OF PORTRAITS AT SOUTH KENSINGTON.

IN reply to the statement of Mr. Marshall, of which we published a copy last week, Lord Balcarres, a member of the committee, writes to the *Times*:—

Mr. Marshall only quotes one paragraph of the report made by the select committee. I think it would make the matter more clear if I supply the remainder:—

". . . It is difficult to believe that the compiler was paid two guineas a day for correcting his proofs. In some cases the 'national' prints represent personages of whom no particulars can be given, simply because they were not of national moment. Mr. West, for instance, wax-chandler and oilman of Soho. Such prints are useless to an art library, and there is no need to spend large sums in describing them. The catalogue of the National Portrait Gallery, accurate, indexed and scholarly, costs

6*d.* unbound. Nothing was paid for its compilation, the work being done by the keeper and his staff. But this catalogue, bound in cheap cloth, though not more bulky than the other, has 5*s.* 3*d.* as the price on its title-page. This is erased at South Kensington, where a stamp is affixed worded 'Reduced to 3*s.* 6*d.*,' or 'Price at the museum 3*s.* 6*d.*' The publishers sell the book for 5*s.* 3*d.*, or 3*s.* 11¼*d.* These various prices are somewhat confusing.

"It is not possible to say how much each slip in the catalogue cost. Compilation of titles for descriptive catalogues should cost from 1*d.* to 6*d.* per title, according to the character of the work (Evid. I. 1,340). Miss Ffoulkes, an expert employed to make descriptive catalogues, was paid up to 4*d.* a slip. The slips in this catalogue of portraits must have cost considerably more. For cataloguing 1,071 foreign portraits 174*l.* was paid—about 3*s.* 2*d.* each—an abnormally high price even if these slips are more accurate than those in the published volume.

"As to the price of compilation, &c., it was officially stated in Parliament that the cost was about 499*l.* (June 25, 1896). This answer was not made without very careful inquiry (Evid. I. 7,457). Mr. Weale, who had to certify the attendances of the compiler, said that the catalogue cost upwards of 880*l.* Further inquiries were then made at the request of the committee. It then transpired that the original statement made by the Department was entirely wrong; but attention having been drawn to the mistake, it was still impossible to state the exact cost, which is alleged to be either 619*l.* or 675*l.* We observe that Mr. Weale, nevertheless, contended that the cost was 880*l.* But it is immaterial which estimate is accepted. In any case the cost was quite excessive, and the laxity in the financial department is reprehensible" (p. xxv).

In another part of the report the committee point out that the sum spent upon this catalogue "would have secured the services of an extra assistant museum keeper for five or six years, and he would have done this particular catalogue in eighteen months at the most" (p. xviii). This presents the controversy in all its aspects; but may I make one or two further comments?

1. Mr. Marshall is under a misapprehension in arguing that the committee did not give due consideration to the passages about the catalogue. The draft report which contained the censure had been before the committee a month before it was discussed, and then the committee made certain amendments (p. ci); and then Parliament did not rise until a fortnight later. Moreover, the catalogue had been in the library of the House for a year, and conveniently close to the "Dictionary of National Biography."

2. Mr. Marshall suggests that the errors in his catalogue are few and far between. I can only say that in my own copy I have noted several hundreds more. Whether the technical descriptions of the prints are accurate I offer no opinion of my own, but I imagine that not fewer misprints and errors have been made in this section than in the simple work of compiling biographical notices.

3. It must not be supposed that the criticism of the committee is personally directed against Mr. Marshall; it was against the whole system responsible for this and similar productions that members of the select committee thought it their duty to protest.

Mr. W. H. James Weale writes:—

The letter from Mr. Julian Marshall relating to the report of the committee on the museums under the Department of Science and Art in your issue of to-day contains certain statements as to myself to which I trust you will allow me reply by the insertion of the following statement, which, had I been again called before the committee, I should have handed in. It would perhaps have been better if I had done so at first, but I wished as far as possible to avoid personalities.

Previously to my appointment as Keeper of the Art Library, Mr. Marshall had been employed to compile a catalogue of the prints of ornament then in the library. In February 1892 Sir Philip Cunliffe Owen asked me to recommend his employment on a supplement to this. I looked through the catalogue, and did not form a very high opinion of it, but as some years had elapsed since it had been written, and as, on inquiry at the British Museum, I learned that he had devoted a good deal of time to the study of that class of prints, I recommended his being employed to draw up a supplement, and asked that he should be authorised to devote thirty days to the work.

In December 1892 Sir P. Owen asked me on several occasions to recommend Mr. Marshall for further employment, and finally to catalogue the prints of portraits, but I declined. On one of the last days of that month he sent for me and urged me again to do so, telling me that I was very foolish to refuse, and implying that if I complied with his request I should make an influential friend of Sir John Donnelly. This made me determined not to recommend Mr. Marshall. I at once consulted a friend—an experienced officer of the Department—who strongly advised me not to take any action in the matter, but to wait until I had a written request. Some days after I received from Sir Philip a slip of paper with these words, "When is the recommendation for Mr. Julian Marshall you promised me coming?" I then wrote the protest of January 2 quoted by Mr. Marshall, wording it in such a manner as not to give offence to Sir John Donnelly. I did not wish to make an enemy of my official superior.

On February 3, 1893, Sir P. Owen took upon himself to recommend Mr. Marshall, who, he stated, I know not on what authority, was recognised at the British Museum as an expert and specialist. On May 16, 1894, when the manuscript of the catalogue of national portraits was sent to the Stationery Office, I related the whole history of Mr. Marshall's appointment to Dr. Middleton. He said it would never do for him to put Sir John Donnelly's back up, and notwithstanding my protest, recommended that Mr. Marshall should go on with the cataloguing of the foreign portraits and also see through the press the catalogue of the national portraits.

I have not examined Mr. Marshall's technical descriptions, and therefore will not say anything about them, but, judging from the inaccuracies which crowd his biographical notices, I have no reason to assume that he has read the proofs of that portion of his work with greater care than the rest. In my opinion the plan of the book is inherently wrong, and the fact that it contains no index of either painters or engravers deprives it of nearly the whole of its usefulness to students.

As to Mr. Marshall's complaints with regard to the action of the committee I, of course, have nothing to say.

Mr. Julian Marshall in a second letter writes:—

The object of my former letter was to defend myself against certain charges of a very injurious character, which had been made by the select committee in their recent report, in reference to the catalogue compiled by me. I pointed out that the evidence before the committee in no way justified the charges in question, and that in any case they ought not to have been made without hearing what I could say by way of defence.

Lord Balcarres, in writing to defend the report, makes no reply whatever on the matters of which I have complained. He contents himself with citing passages from the report directed to showing that persons might have been found to compile a catalogue at a cheaper rate. This point might be well worthy of discussion at a suitable time, but it has absolutely no bearing on my complaint against the committee, and I therefore pass it by without further remark.

Lord Balcarres states that I am under a misapprehension in arguing that the committee did not give due consideration to the passages about the catalogue, and he mentions that a draft report, containing the "censure," had been before the committee a month before it was discussed. It is true that on June 24 Lord Balcarres proposed a draft report containing the "censure" in question, which draft was then read a first time. It did not, however, get beyond that stage, as the committee decided to work on another draft, namely, the one proposed by the chairman. Nothing further was heard of the "censure" until it was moved by Lord Balcarres on July 26 by way of amendment to the draft report. It is therefore strictly accurate to say, as I said before, that it did not come before the committee for discussion until that day.

As evidence that the "censure" received due consideration at the hands of the committee, Lord Balcarres mentions that certain amendments were made to it. My answer is that no amendments whatever were made to the paragraphs of which I complain; they were adopted, as I have said, *en bloc*, and apparently without question. Two verbal amendments were made in the latter part of the paragraphs quoted by Lord Balcarres in his letter, but, as I have already pointed out, these paragraphs have nothing to do with the subject of my complaint.

In reference to the alleged errors in the catalogue, Lord Balcarres states that in his copy he has noted "several hundreds more," meaning, I suppose, over and above the five instances selected by him as typical, and recorded in the "censure." I have dealt, in my former letter, with the five typical instances, and have shown by my examination of them how utterly feeble and flimsy is the foundation on which the charges against me have been rested. Lord Balcarres does not attempt to answer my criticisms, and he is probably wise in abstaining from doing so. As to the "several hundreds more" I can, of course, say nothing; but I cannot help having a suspicion that if they were critically examined a large proportion of these would prove to possess no better claim to serious consideration than the five typical instances above mentioned.

Lord Balcarres suggests that the catalogue may be conveniently tested by reference to the "Dictionary of National Biography." But he omits to mention that the later volumes of that work, which contains numerous corrections of the older authorities, especially in the matter of dates, had not been issued when I wrote. Would it not have been fairer if Lord Balcarres had tested the catalogue by reference to the authori-

ties which were accessible when it was compiled? Had he done this he would have had to make a notable deduction from the "several hundreds" of errors for which he holds me responsible.

In answer to my complaint that the committee condemned my entire work as worthless without any examination of that portion of it for which I was specially engaged—namely, the technical description of the prints—Lord Balcarres "imagines" that this portion would be found not less faulty than the rest. Can there be a plainer admission of the extreme precipitancy and want of caution with which he proceeded to pronounce judgment against the catalogue? Lord Balcarres did not think it needful to seek for evidence as to the value of the most important part of it. As to this he was content to rely on his imagination.

Lord Balcarres is good enough to say that the criticism of the committee was not directed against me personally. I must confess that I am unable to follow him in this. He has held up my work in contempt and ridicule, and has hinted, not obscurely, that my appointment was a job. I should have thought that this constituted personal criticism of the plainest possible kind. It is, indeed, small comfort to be told that the criticism was not aimed at me, but was merely intended to expose a system.

In conclusion I must express my regret that Lord Balcarres has not seen fit to grapple with the substance of my former letter. In particular, I should have been glad to learn his attitude on the following points:—

(1) Will he still, in the face of the evidence to which I have called attention, maintain that my appointment was a job?

(2) Will he maintain that it was right to condemn my work whole without any examination of the most important part of it?

(3) Does he hold that the committee acted rightly in condemning the catalogue, in language of extreme severity, without hearing what I had to say in defence of it?

(4) Does he think that the committee were justified in stating, on the evidence of a cutting from a newspaper, that the biographical notes were adapted by me from previous catalogues (a statement which I have shown to be untrue)?

(5) Will he affirm that the paragraphs of the report of which I have complained (as distinguished from the irrelevant paragraphs which he quotes), received any discussion at all in committee?

TESSERÆ.

Rules of Art.

THOSE who are terrified at the idea of established principles of art have not, perhaps, considered duly their real nature. They imagine, probably, that they comprise nothing but insignificant precepts, dictated by the fashion of the time. In this point of view they are deserving certainly of nothing but neglect; but the fact is that the true rules of art should be founded upon a theory deduced from the very essence and nature of the arts themselves, and not from any extraneous or arbitrary circumstances; and, thus considered, they start at once into importance. But the word theory is indignantly rejected by these objectors to rule. "It is precisely this theory," say they, "which is destructive to the genuine exertions, and to the unsophisticated talent of the artist; it binds down the imagination, produces works cold and formal, insipid, and destitute at once of freedom, power, or grace." All this would be true if, through ignorance or error, the word were applied to a false meaning. But it is in art as in all other things dependent on design and construction; there are certain essential principles inherent in the nature of the several pursuits which cannot be overlooked or violated without risking utterly the agreeableness of the result. At the same time, we are quite ready to admit that these should be as few and as simple as possible. Those rules of art which are of real service to the student teach him to distinguish between what is necessary to the perfection of his work and what is useful only. They are calculated to direct and suggest, not to enslave. They cannot bestow the power of genius on those who have it not, neither need they for one instant to repress originality, since there is abundant room within their limits for its exercise. They may, in short, be compared to sign-posts, which are only useful to such as possess the power of proceeding by them, which power they are entirely destitute of means either to increase or diminish.

Triple Windows.

The kind most usually practised is that familiarly known by the name of Venetian windows—although there are very few instances of it in Venice itself—and divided by columns into three openings, the centre one of which is both considerably wider and loftier than the other two, because, being arched, it has, in addition to the arch itself, the depth of the horizontal entablature over the columns and lateral openings, and from which the arch springs. When well composed windows of this kind have a particular rich and elegant appearance, besides the importance they acquire from their greater size, but all depends upon the taste shown in the particular design. If the lateral openings are too wide—that is, half the width of the centre one, the composition becomes sprawling and poor. On the contrary, if those openings or side intercolumns be kept narrow, not much wider than the diameter of the columns themselves, the whole has with greater compactness greater richness also. Kent has given us some good examples of this kind, as in the Park front of the Horse Guards; and so also has Sir Robert Taylor in a court within the Bank of England, where he introduced an entire series of such windows—a very unusual circumstance, and one which has in that instance a pleasing effect; but in general windows of the kind require to be placed singly, and in a break either in the centre or ends of a façade. They are, besides, fitted only for astylar composition, as they require greater space than accords with the proper intercolumniation of an order. When triple windows are introduced in elevations professing to be more in the Grecian than Italian style, it is now the practice to omit the arch and continue the entablature over all the three openings, at the same time making the latter nearly alike as to width, and substituting pilasters for columns. But nearly all examples of the kind have hitherto been either very poor in themselves or unfortunately applied.

Painters and Poets.

However admirable his taste may be, he is but half a painter who can only conceive his subject, and is without knowledge of the mechanical part of his art; as on the other hand his skill may be said to be thrown away who has employed his colours on subjects that create no interest from their beauty, their character, or expression. One part often absorbs the whole mind to the neglect of the rest: the young students, whilst at Rome, studying the works of Michel Angelo and Raphael are apt to lose all relish for any kind of excellence, except what is found in their works. Perhaps going afterwards to Venice they may be induced to think there are other things required, and that nothing but the most superlative excellence in design, character and dignity of style, can atone for a deficiency in the ornamental graces of the art. Excellence must of course be rare, and one of the causes of its rarity is the necessity of uniting qualities which in their nature are contrary to each other, and yet no approaches can be made towards perfection without it. Every art or profession requires this union of contrary qualities, like the harmony of colouring, which is produced by an opposition of hot and cold hues. The poet and the painter must unite to the warmth that accompanies a poetical imagination patience and perseverance—the one in counting syllables and toiling for a rhyme, and the other in labouring the minute parts and finishing the detail of his works in order to produce the great effect he desires. They must both possess a comprehensive mind that takes in the whole at one view, and at the same time an accuracy of eye or mind that distinguishes between two things that, to an ordinary spectator, appear the same, whether this consists in tints or words, or the nice discrimination on which expression and elegance depend.

"Mr. Richardson, sen. and jun."

One of the best painters of the head that appeared in this country was Jonathan Richardson—strength, roundness and boldness are in his colouring, but his men want dignity and his women grace. The good sense of the nation is characterised in his portraits. He lived in an age when neither enthusiasm nor fertility was predominant. Yet with a pencil so firm, possessed of a numerous and excellent collection of drawings, full of the theory and profound in reflections on his art, he drew nothing well below the head and was void of imagination. His attitudes, draperies and backgrounds are totally insipid and unmeaning, so ill did he apply to his own practice the sagacious rules and hints he bestowed on others. Though he wrote with fire and judgment his paintings owed little to either. No man dived deeper into the inexhaustible stores of Raphael or was more smitten with the native lustre of Vandyke. Yet though capable of tasting the elevation of the one and the elegance of the other, he could never contrive to see with their eyes when he was to copy nature himself. One wonders that he could comment on their works so well and imitate them so little. Richardson was born about the year 1665, and against his inclination was bound apprentice to a scrivener, with whom he lived six years; when obtaining his freedom by the death of his master he followed the bent of his disposition—at twenty years old became the disciple of Riley, with whom he lived four years, whose niece he married, and of whose manner he acquired enough to maintain a solid and lasting reputation, even during the lives of Kneller and Dahl, and to remain at the head of the profession when they went off the stage. He quitted business himself some years before his death, but his temperance and virtue contributed to protract his

life to a great length in the full enjoyment of his understanding and in the felicity of domestic friendship. He had a paralytic stroke that affected his arm, yet never disabled him from his customary walks and exercise. He had been in St. James's Park, and died suddenly at his house in Queen Square on his return home, May 28, 1745, when he had passed the eightieth year of his age. He left a son and four daughters, one of whom was married to his disciple Hudson. The taste and learning of the son, and the harmony in which he lived with his father, are visible in the joint works they composed. The father in 1719 published two discourses—1. An essay on the whole art of criticism as it relates to painting; 2, an argument in behalf of the science of a connoisseur, bound in one volume octavo. In 1722 came forth "An account of some of the statues, bas-reliefs, drawings and pictures in Italy, &c., with remarks by Mr. Richardson, sen. and jun." The son made the journey, and from his notes, letters and observations they both at his return compiled this valuable work. As the father was a formal man, with a slow but loud and sonorous voice, and in truth with some affectation in his manner, and as there is much singularity in his style and expression, those peculiarities, for they were scarce foibles, struck superficial readers, and between the laughers and the envious the book was much ridiculed. Yet both this and the former are full of matter, good sense and instruction, and the very quaintness of some expressions and their laboured novelty show the difficulty the author had to convey visible ideas through the medium of language.

Arches on Columns.

The practice by means of which the arch and column became amalgamated as integral parts of the same ordinance, viz. that of supporting arches upon columns, making them spring either directly from their capitals or from an entablature-shaped block over them, is almost uniformly condemned as barbarous and absurd. That it was introduced during the decline of the art and that it was an innovation subversive of former principles is not to be denied. Yet if it must be reprobated it ought to be so for its own demerits, not as an innovation, for all invention is such. It appears a very poor argument against it to say that columns were originally designed to support horizontal architraves; we do not see how that circumstance, of necessity, renders every other application inadmissible. At that rate we must censure as vicious a great deal of both Roman and modern architecture, where attached columns are employed merely as ornaments, yet as frequently as not in such manner as to produce a character of littleness and poverty, they being so small in proportion to the rest as to appear insignificant, and at such intervals from each other that all the beauty and harmony of a columnar ordinance is lost. Where columns are employed to support it certainly cannot be alleged that they are idle unmeaning expletives, nor that they are mutilated by being apparently partly embedded in the wall behind them. "A pier," it has been remarked, "is but a differently shaped and more massive column," which being granted, what impropriety can there be in employing the latter as a substitute for the other, provided it be done with judgment and discretion, and where upon the whole it will prove an advantageous mode of treatment? It certainly is a barbarous mode to turn small arches upon columns which are not more than between two and three diameters apart, of which we have examples in the basilica of S. Paolo, and Santa Agnese fuor delle Mura at Rome. The intercolumns are such that they might easily have been closed horizontally; indeed the openings between the columns have scarcely the appearance of being arches, but the whole looks as if the wall resting upon the columns was scooped out into diminutive arches over the intercolumns. In those instances, too, the arches themselves are quite plain, without archivolt or mouldings of any kind, and consequently all keeping is destroyed; the architectural embellishment terminates with the capitals of the columns, and so far the effect is similar to what would be produced by placing a plain horizontal mass upon a range of columns instead of a moulded entablature. Although one of an opposite kind, it is equally a fault to make the arches spring not immediately from the capitals of the columns, but from square fragments of entablature over them (as, for example, in the interior of St. Martin's; London), not only because such fragments are unmeaning in themselves and suggest the idea of the columns having been found too short for their intended purpose, but because they remind us quite unnecessarily of the original application of the column to the horizontal entablature. If entablature be admissible at all it is when the columns are coupled, for then some kind of architrave at least becomes requisite in order to connect the two capitals, as it were, together.

Polychrome Bronze.

Plutarch says that the sculptor Silanion made a statue of Jocasta, the wife of Laius, king of Thebes, in which she was represented dying. To increase the intensity of the expression of the countenance, the artist, by an ingenious mixture of the metals of which the statue was composed, had produced a pallid appearance. This, he says, was effected by the addition of silver. Callistratus admires a bronze statue of Cupid, by Praxiteles, for its elegant position, for the arrangement of the hair, its smile, the fire in its eyes, and, he adds, there was in its countenance a vivid blush. He observes the same thing, and with equal admiration and astonishment, of a statue by Lysippus. After describing the work generally, he says the cheeks were coloured like the rose, and those who saw it were struck with surprise at seeing the bronze imitate the appearance of nature. The same remarkable effect is noticed in a bronze statue of Bacchus by Praxiteles. To these may be added a statute of Athamas at Delphi, mentioned by Pliny. He was represented sitting after the murder of his son Learchus, whom he had precipitated from a rock. This work, he says, was not entirely of iron, for the artist Aristonidas, wishing to express the effect of confusion and remorse in the countenance of the king, used a mixture of iron and bronze, which should imitate in some measure the blush of shame. Other notices might be quoted of this practice of the ancients. The writers who refer to these effects describe them as the result of study and intention on the part of the artists, and do not allow us to suppose that the mere accident of oxidation and decomposition produced them. The art seems to be quite distinct from that called toreutic; the latter being the union of distinct materials, easily removable, while the former is described as effecting an amalgamation which produced shades or tints. The few writers who speak of it are certainly general in their observations, and give no technical details of the manner of effecting these combinations; but this hardly justifies the entire rejection of their testimony as to what they saw. It is most probable that they coloured the statues after they were cast, as Pliny says was done in Egypt. The different compartments and objects in the shield of Achilles are described as exhibiting different colours. This, however, whether the passage be Homeric and genuine, or interpolated at a later though ancient period, may have been a specimen of toreutic art. That the ancient sculptors increased, or imagined they increased, the effect of their productions in marble by adding colour, not only tradition but existing monuments testify. It is therefore not only possible but highly probable that they had some process with which we are unacquainted, by which they were able to produce some similar effects in their metal works.

Castle Howard.

The first notice we have of Vanbrugh as an architect is in 1702, when he furnished the design for Castle Howard for the Earl of Carlisle. Why he should have been selected for such an important work cannot be divined. There was no lack of architects in those days. Wren, though seventy years of age, was in his full vigour. Talman had finished Chatsworth, Thorsley and Dyrham. Wynn was engaged on Buckingham House, and Gunnersbury, Marlborough House, Roehampton, Cliefden, were all built within a few years of this period. Be this as it may, Vanbrugh here gave the first proof of his architectural genius. In endeavouring to avoid the rudeness of Gothic "magnificence," the "flutter of flying buttresses," "the uselessness of pinnacles," "the discord of oblique lines," our architects, with the exception of Wren, had fallen into a cold, tame, flat style, making square blocks of their buildings, without decided masses which cast bold shadows and give so much breadth. They affected horizontality, and strove as much as they could to get all the various departments of the house into one solid block. Such, too, was the passion for uniformity, that all sorts of expedients were resorted to to make one-half of the building exactly like the other, and false windows and doors, screen walls and parapets and all sorts of shams, were used to "balance" the points of the design. We seem now to run into the opposite extreme, and to go out of our way to make things irregular. Windows are made of various heights, and oriels are stuck here and there without meaning or any use, except for the studied purpose of making the building irregular, or, to use a common phrase, lop-sided. Vanbrugh avoided both errors. At Castle Howard he separated the subordinate buildings, and arranged them round the principal structure in a series of regular but picturesque groups. Even the laundries and breweries were not concealed, and were surmounted by domes, which served at once for ornament and the purposes of ventilation. Instead of striving to hide his chimneys, he clusters them together, and makes them, as well as his roofs, the means of breaking and enriching the sky-line. The main building is entered by a lofty portico, from which we pass into a noble hall lighted by a cupola 100 feet in height, and from which lengthened corridors extend, leading to numerous suites of fine apartments. Our limits will not permit a further description. Suffice it to say, that this picturesque but at the same time symmetrical building presents a frontage of 660 feet, or 130 feet more than the entire length of Westminster Abbey, and, with the exception of Blenheim, is the noblest palace in the kingdom.

NOTES AND COMMENTS.

Among the candidates for the membership of the Académie des Beaux-Arts, which is now vacant through the death of M. Charles Garnier, are the following architects:—M. Charles Girault, who designed the memorial chapel of Pasteur in the Rue Dutot, and is entrusted with the "Petit Palais" of the International Exhibition of 1900 in the Champs Elysées; M. Guadet, the architect of the General Post Office in the Rue des Louvre; M. Laloux, who is the architect for the new railway terminus which is in course of erection on the site of the Cour des Comptes, Quai d'Orsay; M. Moyaux, the architect for the new Cour des Comptes to be erected in the Rue Cambon; M. Paulin, architect to the Ministry of Public Works; M. Rouyer, architect of the Prefecture at Lille, the Hôtel-Dieu of Château-Thierry and the mairie of the tenth arrondissement, Paris; and M. Scellier de Gisors, who has charge of the Luxembourg Palace. The election will take place to-morrow.

It is astonishing what pains the world takes to keep the names of architects in obscurity. Very rarely are their names allowed to be inscribed on the buildings designed by them, and a statue of an architect is so novel as to become phenomenal. How many porcelain tablets recording the connection of architects with houses have been set up by the Society of Arts? The indifference to the reputation of architects, however, becomes more remarkable in Paris than in London, for in the French capital it is as easy to obtain a statue as a ribbon of the Legion of Honour. The great men are countless. But it is difficult to find room for an architect among them. The official spirit in dealing with architects was lately exhibited in a curious way. The Société du Vieux-Paris asked permission to set up tablets on two houses which were associated with two famous architects. One of them was François Blondel, known as "Le Grand" in the seventeenth century, who was entrusted with the general direction of the public buildings to be erected in Paris. Among his works is the Porte Saint Denis, the triumphal arch which is familiar to all visitors to Paris. He was "Royal Professor of Mathematics and Architecture," and his lectures at the Académie Royale d'Architecture can still be studied with profit. The second architect was Charles Garnier, a truly representative Parisian. The permission has not been given in either case. The endeavour to ignore Blondel and Garnier cannot succeed, for they will not be forgotten while the gate on the boulevard and the Opera House remain.

Any work which Mr. J. P. Seddon produces can command interest from its intrinsic value. But there are other reasons which will secure attention for his "King René's Honeymoon Cabinet," of which an illustrated monograph has been published by Mr. Batsford. It was designed in 1861 to hold architectural drawings. At that time there were some architects in London, Mr. Seddon being one of them, who were full of enthusiasm, for they believed that a new era for their art had opened. One of its characteristics was to be a co-operation of artists, and as the simplest works were to gain importance in that way, Mr. Seddon sought the aid of Dante Rossetti, Burne-Jones, Madox-Brown, Val Prinsep and others to adorn his cabinet with paintings. Naturally any designer would consider that the subjects should relate to architecture and the subsidiary arts, but an inspiration of Madox-Brown's, while recognising the suitability of such subjects, elevated them to a higher and more poetic plane. King René was to one class of artists and poets what the King of Yvetot was to Béranger and the two kings of Brentford to Thackeray. What was more reasonable than to suppose that René practised as well as patronised the arts, especially during his honeymoon? Accordingly he was painted as an architect by Madox-Brown, as a painter and sculptor by Burne-Jones, and as a lover of music by Rossetti. There were smaller panels which were representative of other arts. The cabinet itself appears to have too much notching and chamfering, but that arises from the prejudice which exaggerations of the treatment raised. The majority of the artists who co-operated in the cabinet have passed away, but Mr. Seddon is as enthusiastic, as competent and, we may add, as young as ever. His monograph will give pleasure to his numerous friends, and it deserves to be known far and wide in order to suggest what a simple piece of furniture can become in competent hands.

The importance which is attached to the teaching of the Ecole des Beaux-Arts in Paris is seen in the remarkable fact that all the architects who succeeded in the first competition for the Phœbe Hearst University of California, and are to take part in the final competition, were students of the famous school. Americans, Swiss, Austrians, as well as Frenchmen are in this case living evidence of the value of the instruction. France has reason to be proud of such a triumph, which is of more importance to the world than any *éclat* gained by planting the tricolor at Fashoda, or on the highest peak of the Mountains of the Moon. When it is remembered that the average number of students attending the school is over 1,000, of whom a large proportion are strangers, the importance of such a power for diffusing a knowledge of art becomes evident. No other institution has a similar attraction for people at a distance, and in comparison with it all English schools of art unfortunately appear to be only parochial institutions.

It is an advantage to belong to the public works committee of the New South Wales Legislature. In three years the last Parliament expended the large sum of 22,000*l.* among the members for fees and travelling expenses. The largest sum received by one member was 2,469*l.* during the three years and the lowest was 1,174*l.* Henceforth there will be more economy exercised, for by the Public Works Amendment Act of 1897 there are to be only seven members on the committee instead of thirteen, four being selected by the Assembly and three by the Council. It also provides that instead of receiving four guineas a sitting the chairman is only to receive three guineas, and instead of the members of the committee receiving three guineas they are to receive two guineas.

The third and concluding volume of Mr. Edwin O. Sachs's work, entitled "Modern Opera Houses and Theatres," will be published next month by Mr. B. T. Batsford. It comprises a treatise on theatre planning, with various supplements. This volume, as the others, will be grand folio size, and will comprise over 300 pages, with some 900 illustrations on plates and in the text. A feature of the third volume will be the particulars given in the introduction regarding the finance, staffing and management of the subsidised or endowed theatres of the Continent, which should be of some value at the moment when the proposal for a municipal theatre for London is under consideration. The main chapter of Mr. Sachs's treatise is devoted to the general arrangement of the playhouse, and the chapter next in importance deals with the auditorium. Among other chapters there is one dealing with safety of life, and another with service arrangements. The three supplements treat respectively of stage mechanism, theatre fires, and protective legislation. With the completion of the work every class of playhouse in Europe will be referred to, from Madame Patti's miniature auditorium at Craig-y-nos, or the casino theatre at Monte Carlo by Charles Garnier, to the most important opera houses of Paris and Vienna or the distant establishments in the Russian Caucasus. The international character of the work is suggested by all the references on the plates being in three languages. Volume I. was issued in 1896, and Volume II. last year, whilst the preparations for the work reach as far back as 1890. The subscription list closes on completion, and the price will be raised to fifteen guineas.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: FROM SOUTH-WEST.

ST. GEORGE'S CHURCH, STOCKPORT.

THE BALL-ROOM, THE PALACE, AMSTERDAM.

ST. MARY REDCLIFFE, BRISTOL.

IT has been usual to ascribe the foundation of the splendid church of St. Mary Redcliffe solely to Simon de Burton; its completion to William Canynges, the first of that name; and its reconstruction at a subsequent period to the grandson of the latter, who is always denominated William Canynges junior. John Britton, in "An Appeal for the Restoration of St. Mary Redcliffe," says:—"The church of Redcliffe is not only popularly called Canynges' work, but the topographers of the city also ascribe it to a person of this name. Hence much error and much confusion have prevailed. There were several persons named Canynges, two of whom appear to have been rich merchants, mayors and liberal benefactors to the poor and to the religious fraternities of Bristol. Barrett, Seyer, Evans, Dallaway and other antiquaries have failed to identify the works and deeds of the senior and junior members of that family; Seyer and Evans have not made out the true history of the edifice, nor was my former essay at all successful."

The Rev. James Dallaway, in his "Essay on the Life and Times of William Canynge," expresses an opinion that the first structure erected upon the site of St. Mary's "was not built before the reign of Henry III." and that "it was founded by contribution, oblations for indulgences, and legacies of those who had newly inhabited Redcliffe Street as the feudal tenants of the Lords Berkeley, in right of their great manor of Bedminster." But this opinion is opposed to that of all other writers upon the subject, for gifts towards the repair of a previous structure appear to have been made so early as 1207, 1229 and 1230. Various indulgences were also granted between the years 1232 and 1287, to all who should "devoutly visit the church of the Blessed Mary of Redcliffe in Bristol, and there charitably contribute towards the repair of the same, and pray for the souls of those there interred" (Barrett's "History of Bristol," p. 567). These indulgences are peculiar to the church mentioned by Mr. Dallaway, but all the former gifts certainly refer to a church constructed here before it is attempted to be shown by any writer that the oldest part of the present fabric was raised, and the documents referring to them are said by Mr. Britton "to have been found in Canynges' chests, and notwithstanding they were the gift of Chatterton to Barrett, their number, the difficulties that would have prevented their execution by the want of specific evidence to their fabrication and their coincidence with other documents, to which it does not appear that Chatterton had access, are in favour of their reception as genuine authorities."

The principal documentary evidence upon which it has been attempted to show that Simon de Burton was the founder of the church of St. Mary Redcliffe is recorded in Barrett, where is an account of this circumstance, which is said to have been "transcribed from a parchment manuscript of Rowley's communicated by Chatterton." Another authority is that noted by the Rev. Samuel Seyer in his "Memoirs of Bristol," vol. ii. p. 77; and a third is by Robert Ricaut, who was appointed town clerk of Bristol in the year 1479. An examination of the claims of these documents to credibility will necessarily first occupy a brief space before proceeding to ascertain how far the church itself verifies the truth of the statements contained in them.

With regard to the first of these authorities little need be said in the present day to convince the intelligent reader that small indeed is the amount of confidence to be placed in the writings of Chatterton, nor is it necessary to enter into a discussion in this place to disprove their authenticity. It will suffice to remark that the grave references to his forgeries by Mr. Barrett in many parts of his work are "indicative," says a recent writer, "not only of the profoundest architectural ignorance, but of a natural incapacity to imbibe any knowledge from observation." It is a subject of deep regret that this unfortunate youth should have palmed off so many writings upon that author as the productions of Rowley which are now rejected as spurious; and equally to be lamented that a writer should have received them from a mere boy with so little caution, and incorporated with his history so many documents of a dubious character. We are not surprised that the result of this culpable inattention should have cast a considerable amount of doubt over many portions of the narrative of that writer, and that perplexity should frequently embarrass the inquirer in his endeavour to separate truth from error and fact from fiction.

A few observations may now be offered on the statement of the Rev. Samuel Seyer and that of Robert Ricaut, the town clerk. The former says, "It was about the year 1293 or 1294 that Simon de Burton, a person of wealth and consequence who was mayor of Bristol in that year, and bore the same office six times, built the church of St. Mary Redcliffe, where the eastern end now is." The above is given by Mr. Seyer on the authority of manuscript calendars, the writer of which is not named; but as so many forgeries have been perpetrated in connection with the chronicles of ancient Bristol, we shall do well to withhold our assent from the correctness of this assertion until the genuine character of the document has been established beyond dispute; for it is a well-authenticated historical fact that all the calendars of acknowledged authority relating to the old town, and the validity of which was undoubted, were destroyed by an accidental fire in 1466, and in the same disaster perished also the valuable library of the Society of Kalendaries (who kept these records), said to have been rich in Saxon and later chronicles. These calendars were monthly registers of all public acts, including deeds, rolls, &c., which it was the business of this brotherhood to preserve, and the loss of which was irreparable. Of this fraternity Robert Ricaut was a member, and his chronicle (still in the custody of the Corporation) is a valuable register of all public transactions relating to Bristol from the year of his appointment as town clerk in 1479; and passing events are prefaced, as it would seem, with such notes of bygone incidents as either himself or his brethren could remember to have been preserved in the records which had been so unfortunately destroyed. On referring to this calendar it reads thus:—"1293. Thys yere the above sayd Simon de Burton (then mayor) began to builde Redclyf Churche;" no mention whatever being made of any particular part of the structure, as in Seyer's record, nor is another word added in registering the event to which the entry in the calendar has reference. Barrett, upon the authority of the parchment presented him by Chatterton, says that "Inne M.CC.LXXXXI. hee (Simon de Burton) ybuylden a godelye chyrch from a patterne of St. Oswaldes Abbyes Chyrche." Seyer and Robert Ricaut place the date of this event two years later, and the former of these two writers states that the structure was commenced "where the eastern end now is." That no such church was founded by Simon de Burton at the point indicated by Seyer will be clearly made out as we proceed to examine the fabric, and that both Barrett and himself were deceived by fictitious documents can scarcely be doubted, since the latter gives no authority for his statement, and the former relies on the testimony of a parchment coming through the hands of Chatterton. The record of Robert Ricaut also with regard to this circumstance would be entitled to much more respect could it be shown that he derived his information otherwise than from memory, thirteen years having elapsed between the destruction of all the authentic calendars of the city upon which alone any reliance could be placed and the time of his elevation to the office of town clerk.

Before quitting this part of the subject it may be mentioned that another manuscript (entitled "Hobson's") says, "Simon de Burton, mayor in 1294, had two years before began to build Redcliffe Church, but he lived not to finish it, which afterwards William Canynges did." This document, it will be seen, differs in point of date from either of the three before quoted; and the finishing of the church by William Canynge, as there stated, will be sufficiently shown to be incorrect as we proceed in our examination of the edifice.

Very little is known of Simon de Burton beyond the fact that he was an opulent merchant, and that he filled the highest civic dignity in old Bristol no less than six times; his last year of office being 1305, soon after which date he is believed to have died. His birth is stated in the parchment manuscript ascribed to Rowley and presented by Chatterton to Barrett to have taken place "on the eve of the Annunciation M CC.XXXXXXV.;" if so, he must have been steward or seneschal of the city at the age of twenty-five, and mayor when he had attained his twenty-sixth year only. This I regard as not merely incredible, but going very far to vitiate the validity of the document in its entirety. At twenty, according to the same manuscript (six years before he was first mayor), he engages in a tournament in the presence of "Kynge Edwarde," who "kepte hys Chrystmasse at Bryghtstowe," with "Syrre Ferrars Nevylle," who had already overthrown two knights in the rencontre, and "then dyd Syrre Symonne de Byrtonne avow that if he overthrowen Syrre Ferrars Nevylle, he woulde there erecte and buylde a chyrche to owre Ladye" on the spot where the struggle for the mastery took place, which was "on Sayncte Maryes Hylle." Having "encountered vygorously, and bore Syrre Ferrars horse and man to the grounde, remaynynge konynge, victore knyght of the jouste, ande settynge atte the ryght honde of K. Edwarde," he proceeded to fulfil his vow in the "ybulden a godelye chyrch," after the pattern before stated, and which on "the day of our Lordes natyvyty M.CCC.I. Gylbert de Sante Leonfardoe, Byshope of Chychestre, dyd dedicate it to the Holie Vyrgynne Mary, Moder of Godde."

From the foregoing remarks it is certain that little reliance can be placed upon the documents adduced to prove that Simon de Burton founded Redcliffe Church. Barrett's authority is a manifest forgery, those of Seyer and Hobson may be classed in the same category, and the most respectable of all is deprived of much of its credibility from the fact that it must have been recorded through the aid of memory alone. None of them agree in the particulars they have stated, either as to date or circumstances; hence they are all alike open to suspicion, and until some more positive and trustworthy evidence is brought to light, proving beyond dispute that Simon de Burton at his

own sole cost founded any particular portion of the church, we are bound to discard the vague and uncertain testimony contained in the documents above cited, as altogether, in this matter at least, unworthy our regard.

From these unsatisfactory sources of intelligence let us proceed to the structure itself, in examining which a very careful investigation of its many parts, as well as a cautious consideration of the various styles of architecture observable in the building, is necessary before we can arrive at anything like a safe conclusion regarding the date at which the several beautiful portions of which it consists were erected.

In prosecuting these inquiries, it will be obvious that the oldest parts of the edifice have a primary claim upon our attention, for with them our examination will, as a matter of course, have its commencement. An attentive inspection of this church will show that the first erections of the present structure were the lower stage of the tower, the interior north porch, and the most westerly arch at the end of the north aisle of the nave. All these portions are of pure Early English architecture, and the date of their construction not later than the year 1250—that is, upwards of forty years before it is stated in either of the calendars quoted that "Simon de Burton began to builde Redclyf Churche." It is clear therefore that of these parts of the structure he was not the founder, and we must look to some other portion of the edifice for the work of this wealthy individual.

In addition to the examples of Early English architecture already referred to, it appears extremely probable the first church on this spot was finished in that style; for it is deserving of note here that in the present restoration of the structure it became necessary to remove part of the exterior wall on the north side of the chancel, between the clerestory windows and the parapet; in doing which portions of Early English columns were discovered, the reverse side of which was wrought into Perpendicular English panelling, this part of the church being constructed in that mode of building. The Early English parts of the fabric formed, as it seems portions of the structure founded here, as already mentioned, "by contribution, oblations for indulgences and legacies of those who had newly inhabited Redcliffe Street, as the feudal tenants of the Lords Berkeley, in right of their great manor of Bedminster." Its continuation was effected by means of the indulgences which had been granted between the years 1232 and onward to the close of the period assigned by Mr. Britton to the duration of the Early English style, which terminated about 1272, by the gradual introduction of the Decorated fashion at that time.

Before passing on to notice those parts of the church erected in the latter style, it should be remarked that Leland makes no mention whatever of, nor does he even allude to, Simon de Burton having any connection at all with the building of the church of St. Mary Redcliffe, although he refers to other matters with which his name was undoubtedly associated. His words are ("Itinerary," vol. vii. p. 96):—"The almese howse of Seynt Thomas Churche is called Burton's Almes Howse. Burton, maior of the towne, and founder, is buried in it." He is equally silent also with regard to the existence of any documents relating to the subject; and this fact cannot but be regarded as at least negative evidence that no such writings as those quoted, excepting the calendar of Robert Ricaut, were then known to be in existence. Even this, examined by Leland, would have been rejected as unsatisfactory, because, as he would discover, recorded but a few years before, and then probably only from memory.

Finally on this point, as no reliable testimony has yet been produced to show that Simon de Burton did more with his wealth than found an almshouse in the parish of St. Thomas, and which remains to this day, it is not very likely he began to build a church in that of St. Mary Redcliff, a parish in which he does not appear to have had any greater interest than many other wealthy men of his time; nor does he seem to have even possessed any property whatever in it. That he contributed towards such an erection is highly probable, and perhaps he laid the foundation-stone of some part not yet referred to; and this is likely to be the meaning we are to attach to the calendar of Robert Ricaut. Had he been the founder of the church or begun in reality to build it as the record would seem to intimate, surely he would have been entombed in it rather than in an almshouse. It must be remembered also that many wealthy merchants and opulent families resided in Redcliffe parish in the time of Simon de Burton, whilst the little we know of the latter rather induces the belief that his domicile was situated in the neighbouring parish of St. Thomas.

We may now turn from the Early English portions of the church, and with the erection of which it is evident Simon de Burton was in no way connected, to the next oldest part of the structure, which will be found in an arch opening on the north side of the nave into the space beneath the tower, the mouldings of which connect it with the acutely-pointed lancet arch before mentioned. Above these, the majestic superstructure of the tower rises in all the beautiful proportions and finished excellence of the Decorated style. From the fact that the first-named arch is an early specimen in the latter fashion, we are disposed to believe this was the last built of the four sides which comprise the first stage of the tower, the other three being, as we have seen, constructed in the Early English mode of building, later insertions being excepted. But even in this arch we shall not find anything to connect the building of the church with Simon de Burton, the date of its erection appearing to be not later than 1280; that is to say, it was constructed at a very early period after the discontinuance of the Early English fashion in 1272, and the adoption of the Decorated style which immediately followed.

In the continuance of the superstructure of the tower and the construction of the exterior north porch, both being in the last-mentioned mode, we recognise a new era in relation to the erection of this fine building. As the former parts undoubtedly progressed by means of funds supplied by the wealthy inhabitants of the parish, with the assistance of such non-residents as were friendly to the undertaking, the previously-erected structure—towards the repair of which indulgences had long been granted and gifts had been bestowed—was by degrees removed, to make way for a fabric commensurate with the ideas of those noble-minded men as to what was the befitting house for the worship of God. The result of this benevolence, next to the continuance of the tower, was the erection of an exterior north porch in the same costly style of architecture, which should vie with any known example, and with the construction of which the name of Simon de Burton is imperishably linked, if it be linked with the building of the church at all, as the date of the foundation of this part of the structure is undoubtedly referable to the commencement of the fourteenth century, at which time Simon de Burton was chief magistrate of Bristol.

The construction of a building of such magnitude as the tower of this church was an important undertaking at that time, and must have occupied its projectors for a considerable period. It is customary to regard the first William Canynges as the builder of the entire of this part of the edifice, but this opinion cannot be sustained, for, however we may revere his memory and accord him all due honour in connection with the erection of this church, it must not be forgotten that the Le Fraunceys, De la Rivieres, and many other rich merchants, as already intimated—contemporary both with de Burton and himself—were undoubtedly engaged in the pious undertaking; and the truth in all probability is that, having resolved to rebuild the church on a more extensive scale, they proceeded with the tower, and then, while it was progressing, added the exterior north porch, the foundation-stone of which was most likely laid in due form by Simon de Burton—a compliment paid him by his fellow-townsmen as their chief magistrate. To the church of St. Mary the Le Fraunceys were great benefactors, and in it they had founded chantries in the time of this first William Canynges. Here also they were sepulchred, and it is but reasonable to conclude that they contributed towards the erection of the structure with a liberality equal to that of either Simon de Burton or William Canynges, neither of whom seem to have resided in the parish, and only the latter, as will be shown, had any possession in it whatsoever. The only way in which the name of the latter is mentioned in connection with Redcliffe Church is that at his death he leaves twenty shillings only "as a customary dole to the vicar." "Is it probable," asks Mr. Dallaway, "that if he had built the church he would have so poorly remunerated its minister?"

But there is no doubt that with the erection of the tower and exterior north porch other parts of the church were also at the same time progressing; and, as the whole of the lower stage of the edifice throughout, from east to west, is constructed in the Decorated style, it would appear that with the finishing of the tower and the erection of the exterior north porch, the foundation of the entire church had been laid. As the two portions named may be regarded as examples of rather an earlier date in the style last mentioned, so the whole of the columns throughout the nave, chancel, transept and aisles to the summit of their capitals may be referred to as specimens of the same fashion, but erected at a later period—the tower and exterior north porch progressing in the time of Simon de Burton, who must have laid the foundation of the latter; and the body of the church in the pillars to their capitals from end to end of the building in that of the first William Canynges, who performed the same ceremony in regard to the latter portion of the structure. In the Mayor's Calendar he is said to have "built the body of Redcliffe Church from the cross aisle downwards, and so the church was finished as it is now;" that is, as we should understand it, he laid the foundation of the entire fabric eastward, beyond those parts already commenced, and which were advancing towards completion. On examining the will of this first William Canynges he is found to be described as a "merchant," but we search in vain for any gift or donation

bestowed in any shape whatever to the church of St. Mary Redcliffe; nor is any sum mentioned as being left to any person connected with it, except the pittance to its minister before named; and also "to the vicar of Redcliffe for tithes forgotten, six shillings and eightpence;" which must have remained unpaid for the only solitary small tenement he possessed in the parish. As therefore all the property of this first William Canynges, with the above exception, lay in the parish of St. Thomas, where also he carried on an extensive manufacture in cloths, and in the church of which both himself (says his will), his wife and his son John were buried, surely it is a fair presumption that at most he, like Simon de Burton, merely contributed, with the Le Fraunceys and others who resided in the parish, and who possessed nearly the whole of it, towards the pious work: for that it was constructed by means of donations, legacies, &c., and not by any private individual, is clear from the fact that John Muleward, by will dated in 1388, bequeathed a sum of money "ad opus Beatæ Mariæ de Radcleve," which sufficiently proves that the church was then in process of erection. Barrett observes ("History," p. 569) that "William Canynges was a merchant of great fortune, weight and respect among his fellow-citizens; in a station of life fitted to be a leading man, and to have the character of a founder of such a work, promoted no doubt by donations by will and voluntary contributions of other devout and well-disposed people, as well as by grants and indulgences from the bishops of those days." To this testimony it may be added that no record whatever has yet been brought to light to prove that this first William Canynges was in any way connected with the erection of the structure before us, other than as a contributor, the circumstance of his being the founder of the church, as generally reported, resting entirely upon unconfirmed tradition and some scattered MSS., to which no value is attached, because probably the forgeries of Chatterton.

It is well known that the erection of nearly all our large ecclesiastical structures was uniformly commenced at the east end; but in the building before us it is manifest on examination that this course was departed from, for the only portion of the church which exhibits any Decorated English architecture above the capitals of the columns, rising from the foundation, is the south transept, which throughout may be regarded as a beautiful example of that rich and elaborate mode of building, every column, capital and window, with the tracery which adorns them, being wrought in that elegant style of architecture. It is not improbable this south transept may be regarded as peculiarly that part of the edifice to which the first William Canynges more especially contributed; but its completion was not accomplished until the Decorated English fashion in architecture, which almost imperceptibly glided into the Perpendicular style, had commenced what has been appropriately denominated a "transition style," when it is sometimes extremely difficult to determine by what name to designate particular examples. This remark is peculiarly applicable to the vaulting of the roof and other portions of the upper part of this transept, so nearly allied is it to both the Decorated and the Perpendicular styles of building. The whole interior of this part of the structure may, however, be classed generally under the former fashion, and its completion, both internally and externally, to the moulding which runs round the church beneath the parapet on the outside may be regarded as having been achieved during the lifetime of the first William Canynges. It is worthy of observation that while the entire superstructure of the exterior of the body of the church—the nave, north transept and chancel—except the east end of the latter, is adorned with panelling in the Perpendicular style, this south transept only should be totally devoid of any such adornment, the walls being quite bare.

This transition from the Decorated to the Perpendicular style of English architecture is more observable in the windows of the structure than in any other part of it. The large window in the north transept exactly corresponds with that in the south transept opposite, both being of pure Decorated design. Those also in the aisles of the former part of the building are for the most part Decorated English also, but in some respects they so closely approximate to the Perpendicular style that it is difficult to decide to which fashion they really belong. In the east window of the chancel the resemblance to the Perpendicular style is more decided, the lateral mullions indicating the first approach towards the new fashion by running directly into the head of the arch, while every other feature of the window is Decorated English, a style just discarded when the death of the first William Canynges took place, and the advent of the Perpendicular mode was about to be ushered in by its universal adoption as a national style of architecture. In this new fashion in building the whole of the superstructure of the church is constructed, and to the invention of which the preceding remarks have gradually conducted us.

Mr. Barrett, at p. 570 of his work, says that the first William Canynges "lived to the year 1396, when the church was probably finished;" but this is a great mistake, for, as the Decorated style ceased to be practised about the time that worthy man died, it is obvious that those parts of the church only which have already passed under review could have been erected previously. For the building of the remainder we must undoubtedly proceed to a period subsequent to that event; and to ascertain when those portions of the structure not yet noticed were constructed we must again refer to the church itself as the only sure guide in such an inquiry as the present.

(*To be continued.*)

HISTORICAL EXHIBITION OF DRAWINGS AND PRINTS.

A SPECIAL exhibition of drawings and prints, showing the rise and development of popular illustration from the time of Dürer and the early Italian draughtsmen upon wood to the present day, is now being organised by Mr. Cecil Burns in connection with the South London Art Gallery. Apart from the artistic interest attaching to the drawings, it will, he thinks, prove of educational value to students and of great interest to artists to trace the influence exercised by the method of reproduction upon the style of the draughtsmen at various periods—from the ancient drawings done on the wood planks, through the copper engravings which supplanted them, and again through the boxwood engraving popularised by Bewick, to the modern photo-mechanical process block.

Owing to the fact that the South Kensington Museum can only lend their large exhibition for the short space of two months, Mr. Burns is anxious that students and the public should know of the opportunity afforded them, thanks to the generosity of many well-known collectors, who have placed drawings which may never again be at his disposal.

The exhibition opens on Monday, November 7, and will continue open till early in January. It is open free to the public from 2 P.M. to 10 P.M. Mr. Cecil Burns is at the same time collecting as many pictures as he can by those artists represented by black and white drawings, amongst whom are such masters as Walker, Sandys, Pinwell, Sir J. Gilbert, Houghton, C. Keene, E. A. Abbey and A. Parsons.

THE USHER HALL SITE, EDINBURGH.

ON the 13th inst. a meeting of the Edinburgh Town Council was held to reconsider the reports on the Usher Hall site. The proceedings were mainly transacted in private. It was understood that the members restricted themselves to a large extent to the discussion of the sites in regard to which figures had been supplied by Mr. Hamilton Beattie. Mr. Waterhouse's report on the æsthetics of the question was not referred to, and nothing was said as to the West Meadows or St. Andrew Square being considered as possible sites. There was a strong feeling that it would have been a very suitable thing that the hall should be erected in the High Street, but it was felt that Mr. Hamilton Beattie's figures put that site out of the question. The only two sites that held the field were Chambers Street and Atholl Crescent. The price of these sites was a leading reason why they were supported, and that Atholl Crescent had come out so nearly at the same figure in the two reports was a point made in its favour.

Subsequently the public were admitted to the discussion. A division followed, when thirty-two votes were given for the Atholl Crescent and five for the Chambers Street site.

Mr. Hamilton Beattie, in his report on the various sites, referred to Atholl Crescent as follows:—"I have gone over the property on this site, and have also looked into the rentals and information which you sent me. I find from the plan of this site that the main site is coloured red, but that four outlying blocks to the east in Canning Street Lane are hatched red, and that they are included in the rentals sent me. In my opinion these four outlying blocks are not required for the site, and I valued the site on the footing that they are excluded. On this basis I find that the total rental of the property, as appearing in the assessor's roll, is 2,190*l.*, and that the total feu duty is 224*l.* 6*s.* If the Corporation decide to acquire the three outlying lots to the east (excepting the part of Messrs. Mackay & Co.'s factory), the additional cost for the three properties, feu-duties, compensation to occupiers and expenses will be 5,500*l.* sterling."

Mr. Waterhouse, in his report on the same site, said:—"Atholl Crescent presents, in some respects, an attractive site. The building there would have but one front, and that facing north-west. I think I need hardly point out that the north is the worst possible aspect for a beautiful work of architecture. Its beauties are, in that aspect, only half appreciated. The new station might prove a noisy neighbour. It would be difficult for the public to approach the hall, except from the Atholl Crescent side, and if the hall is made capable of holding an audience of, say, nearly 4,000 persons, that would be a serious

disadvantage. The two crescents consist of houses modest in height, and though now attractive enough, enclosing, as they do, the central gardens, their effect might be seriously maimed by a great building in their midst."

CAMBRIDGE ENGINEERING SCHOOL.

IN his opening lecture to the engineering students at Cambridge on Friday last Professor Ewing intimated that the crowded state of their lecture-rooms and laboratories would soon be relieved. A gift of 5,000*l.* had just been made for the addition of a new wing to the engineering laboratory in memory of the late Dr. John Hopkinson and of his son, John Gustave Hopkinson, who recently lost their lives in the Alps. Dr. Hopkinson's son was to have begun work at this time as a student of engineering at Cambridge. This splendid and most welcome gift was made by Mrs. Hopkinson jointly with her son Bertram and her surviving daughter. Professor Ewing went on to say :—I feel compelled to add a few words as to the loss which our profession—the profession on which you look forward to entering—has met with in the untimely death of Dr. Hopkinson. If I were to select any name to put before you as that of an engineer whose works and methods you would do well to follow, it would be his. He was a peculiarly conspicuous example of that union of scientific knowledge and genius with practical sagacity which goes to make a great engineer. His work was brilliantly original; in more than one department he led the way where a great host is now following. And his work was as sound as it was brilliant. His opinion was constantly being sought, partly because it was always fair and unbiassed—his character was too fine for anything mean or unworthy to find a place—and partly because his judgment came near to being infallible. You know that he took in Cambridge the most distinguished place that any student can take. He at once plunged into engineering work, and from that time to the end his professional life was an unbroken series of successes. But he made time for much original work of lasting value in science, and the world of pure physics is deploring his loss as much as it is deplored by engineers. Such a man may, I think, be said to live on, not only in the results of his work, but in the force of his example. Dr. Hopkinson took from the first a warm interest in this laboratory and in the establishment of an engineering tripos at Cambridge. It was only a few days before his death that he spoke to me of his intention to promote a subscription for the much-needed extension of the laboratory. It is a peculiar pleasure to me to think that this laboratory will, through the noble gift of Mrs. Hopkinson and of his son and daughter, be henceforth associated with his memory and name.

THE BROOK HOSPITAL.

ON Monday Mr. W. E. Knollys, C.B., chief inspector of the Local Government Board, assisted by Mr. Gordon Smith, architect, opened an inquiry into the circumstances attendant on the erection of Brook Hospital by the Metropolitan Asylums Board in August 1896.

Mr. Knollys said, according to the *Daily Chronicle*, that the inquiry originated on the application of the Asylums Board to borrow 100,000*l.*, in addition to 200,000*l.* already sanctioned for the erection of Brook Hospital. He was instructed to inquire into the circumstances which had led to the large excess of the expenditure over estimates, the responsibility of the architect, and the amount of supervision exercised by the managers of the hospital committee. On February 6, 1894, the proposal for the erection of a hospital at Shooters' Hill, to be called Brook Hospital, came before the Local Government Board. The accommodation was to be for 500 patients, and the cost 194,000*l.* It was stated that the original estimate was for 220,000*l.*, but was reduced by 26,000*l.* After some correspondence, the Local Government Board gave their approval, subject to further consideration by the committee of certain questions of detail which had arisen. The Local Government Board also intimated that they thought the estimated cost still very high. Subsequently an application was made for power to sanction certain expenditure on roads, &c., and the Local Government Board replied asking for details and another estimate of the total cost. The latter was then returned by the Asylums Board at 226,000*l.* In August 1894 an order was made for a loan of 200,000*l.* On October 14, 1896, a report was furnished showing an estimated expenditure of 280,000*l.*, and asking for a further sum of 75,000*l.* The Local Government Board wrote for further information, and on August 5, 1897, it was reported that the architect estimated the total cost of the buildings, &c., at 268,000*l.*, but that the probable total outlay would be 303,000*l.* The committee appeared to have carefully gone into the matter, and he presumed that the report they made might be accepted at this inquiry. What he had to inquire into was the difference between the tenders of 218,000*l.* and the expenditure of 268,000*l.* Then they would further have to inquire into how it was that the total cost for everything would be brought up to 303,000*l.*

Mr. Duncombe Mann, the clerk to the Asylums Board, said that everything paid up to date amounted to 268,168*l.* 6*s.* 4*d.* Mr. Mann proceeded to give formal details of the steps taken by the board for the building of the hospital, their usual custom in such cases, &c. The inspector asked Mr. Brown, ex-chairman of the Brook Hospital committee, whether the committee inspected the site and were satisfied as to the necessity of improving the foundations, and the expenditure.

Mr. Brown : Unfortunately the necessity was not seen until large areas of ground had been opened.

The Inspector : How was that?

Mr. Brown : As the work proceeded it was seen that the clay was full of soapy veins, and that it would be necessary to take it out and have a firmer foundation. It never dawned on any of the committee that the cost would come to 19,000*l.*; but then this work was going on for twelve months.

If you had had any idea that the amount of 5,000*l.* was being so largely exceeded you would have felt it your duty to bring the matter before the managers?—Yes.

Was there any explanation subsequently given by the architect as to why he did not bring it before the committee?—I think, speaking generally, that he considered the committee recognised the necessity of the work being carried out.

Nothing more was said to the committee till the final accounts were presented?—Not as to the expenditure.

Mr. Brown went on to say that the expenditure on drainage was much larger than had been anticipated, and certain things were ordered without the knowledge of the committee, while the latter ordered small alterations without reporting them to the managers. The contracts should have provided for contingencies, but they did not, and his committee only came on the scene when the work was actually in progress.

There was no provision for the heating, and tenders were called for from selected firms, the lowest of 10,900*l.* being accepted.

The Inspector: How was it that these extra expenses were incurred without your pulling up the contractor?—If we had known about them we should have pulled him up, but if you could realise the rush of work which we had to deal with in twelve months you would not be surprised at some matters escaping us.

"At one time," added Mr. Brown, "we were in terror about the hospital," and he went on to explain with regard to certain other items that the committee had "not the remotest idea" that they were not included in the contracts. Nevertheless, the members of the committee were "very interested in the work," and applied their energies to getting the hospital finished in order to accommodate the fever cases in the autumn. The boards of guardians all over London were at that time clamouring for more accommodation for patients.

The Inspector: I am not quite satisfied that the committee were sufficiently on their guard.

Mr. Brown: I thought we were at the time.

Mr. Aldwinckle, the architect, in reply to the inspector, said he considered that in all he did he was justified by the general orders of the committee. With reference to the foundations, they gave him authority to do what was necessary. If he had not done what he did, he would have been failing in his duty. He did not select the site, but he did the best he could with it. The hospital was excellently finished, and no money was wasted.

The Inspector: You reported that the foundations would have to be made secure at a cost of not less than 5,000*l.* Were you aware it would cost more?—I became aware of it as time went on.

Did it not occur to you to bring that before the committee?—I thought they were aware of what was going on. They frequently visited the works, and it was a matter of common conversation that we were expending a lot of money.

The Inspector : Yes, but Mr. Aldwinckle is not the authority to tax the ratepayers, whereas the Asylums Board is. If the board had been aware that there would be such a large expenditure on foundations they might have gone to another site?—Very likely, but I had to prepare the plans in a great hurry, and had not time to go into all the details and examine everything. If I had had the requisite time I might have said, "Gentlemen, you will have to spend so much on this site that you had better go elsewhere."

Mr. White said Mr. Aldwinckle was in no way answerable for the site. He was simply told to build on it. The trouble with the foundations was largely due to the Local Government Board requiring the managers to "set back" the hospital so that, instead of its being on the plateau, it was "pushed down the hill." As it was, Mr. Aldwinckle, in his original estimate, put down 3,500*l.* extra for the foundations.

The inspector then adjourned the inquiry.

On Tuesday the inspector stated that he intended to put

down the details of the expenditure under five heads, viz. necessary expenditure with the consent or knowledge of the committee, similar expenditure on the architect's responsibility or that of the managers, and other expenditure with or without authority.

Resuming his examination of Mr. Aldwinckle, the architect, the inspector asked:—

Do you acknowledge that you were aware that a large extra expenditure was being incurred with regard to making good the foundations?—I was aware that we were spending more than 5,000*l.*, but I did not know that the total would be so much.

Did not the clerk of the works realise that over 19,000*l.* was being spent?—He would only have to do with the accounts. His responsibility would be covered by my own.

Yes, but he might have called your attention to the fact?—There was no necessity for his doing so. I frequently visited the works, and I accept the responsibility of what was done.

Yes, but you reap an advantage from the disbursements?—I did not think any one would suggest that I had this work done for my own benefit.

No one has suggested it; but I say that, for your own protection, when you found the cost running up, and knowing that you would benefit by it, you might have reported it.—I never thought such a suggestion would be made, at all events, by my clients.

The suggestion is not that you encouraged the expenditure, but that you did not report an increase from which you would reap a benefit.—I question the benefit, sir, taking it all round. If you are going to reckon it by pounds, shillings and pence it is one thing, and if you take the *per contra* element into account it is quite another.

Mr. Duncombe Mann (clerk to the board) said that he understood Mr. Aldwinckle to mean that he did that which he thought to be absolutely necessary, and by doing so had incurred a great deal of criticism and done himself more harm than good.

Mr. White observed that Mr. Aldwinckle evidently underestimated the work originally contemplated by about half. He said it would cost not less than 5,000*l.*, and it then represented about 10,000*l.* Speaking from experience he (Mr. White) knew how difficult it was to give a rough estimate of work of this character. It was admitted, however, that Mr. Aldwinckle was in error in not communicating with the board.

In reply to the inspector, Mr. White said that although the managers built on the slope instead of on the plateau, through the action of the Local Government Board, Mr. Aldwinckle knew where the building was to be and prepared his plans accordingly.

Mr. Aldwinckle, replying to the inspector, said considerable alterations were made in the levels, but he did not report them to the committee or managers.

Was there any reason why you should not have reported the alterations?—Only because we were very busy, and I did not wish to cause any delay.

May I take it that 900*l.* was sanctioned on this head by the board, and 2,000*l.* was spent without their knowledge?—Yes, that is so; I thought I had the general authority of the board to do what was necessary.

Mr. White: But not without reporting.

Mr. Aldwinckle: Well, at all events, if I had not done what I did I should have been held to blame in case there was any instability of the building.

The Inspector: That does not answer the question as to your not reporting the work to the committee.

Mr. Aldwinckle: Well, sir, I am getting used to making admissions. Perhaps you won't rub it in too thick.

Mr. Aldwinckle further stated that the estimate for the drainage was 13,326*l.*, and this sum was exceeded, owing to numerous causes, by 4,980*l.*

The plans having been produced, Mr. Brown, looking at the drawing of the water-tank, said he must confess that it did not convey to his mind the size of the enormous tank which had been erected.

Mr. Aldwinckle: It holds 200,000 gallons of water, and is frequently full. It is invaluable for the purposes of storing soft water.

With regard to sundry other items, Mr. Aldwinckle said he really did not know whether he ought to have reported them, but at all events he did not. He added:—There was no provision in these contracts for contingencies, as is the usual practice. If there had been such provision, I should not have got into trouble.

The Inspector: I don't think you can deal with a public building as you would with a private one. You must remember that the committee charged with the erection of a public building are trustees for the money of the ratepayers. They should be more careful of public money than they should be of their own.

Mr. Aldwinckle went on to give details with regard to the construction of a covered way and the substitution of fireproof flooring for wood. The former stood out for notice on account of a technical arrangement, and the latter was sanctioned by the committee, but cost more than was expected.

Improved stoves were obtained for the wards. They were privately ordered because they were required to be of peculiar construction and were really part of the general work. The stoves obtained were of excellent quality and moderate price.

Mr. Gordon Smith (architect to the Local Government Board) said that other institutions had to be content with iron stoves.

The Inspector: You placed the order with a firm of your own selection?—Yes, but I took great care over the matter and got the stoves at a reduced price.

Mr. White: It comes to this; the stoves cost 66*3l.* more than Mr. Aldwinckle originally advised the committee.

Mr. Brown stated that certain alterations to the heating apparatus were known to the committee, but in the hurry were not entered on the minutes. The same remark applied to railings in the interior of the buildings and several other items.

The painting, which cost 1,000*l.*, was omitted from the original contract, because it was understood that the hospital was to be built in a year, and in that case the paint could not have been applied to the wall in safety. The building took two years, and therefore the painting was done.

Mr. White said the committee noticed the painters at work, but supposed it was included in the contract.

Mr. Aldwinckle said the work was so obviously necessary that he did not report it.

After the adjournment, Mr. Abraham Monson, a member of the Asylums Board, made a statement to the effect that he had studied the case, and had come to the conclusion that although the architect was instructed to prepare plans for a hospital on Shooters' Hill, he prepared plans for a hospital on the flat. The site was made to fit the plans, instead of the plans being made to fit the site. As to the nature of the ground, it could easily have been ascertained by sinking "trial holes." Moreover, the work as carried out was not in accordance with the plans approved by the Local Government Board.

Mr. Aldwinckle denied the accuracy of these statements, and produced the plans, which Mr. Knollys inspected.

In every case, Mr. Aldwinckle contended, provision was made for the exigencies of the site. Before making the plans he went carefully over the site and surveyed it. He allowed for the "slope" at Shooters' Hill, but part of the buildings were on the flat.

Mr. Monson said it was impossible for him to follow all the plans, but he contended that the whole of the circumstances in connection with Brook Hospital were disgraceful.

Mr. Brown: These irresponsible statements have been made so often that it is time they came to an end.

Mr. Duncombe Mann submitted to the inspector that Mr. Monson's "reckless allegations" had not been proved. The plans spoke for themselves.

In reply to Mr. Monson, Mr. Aldwinckle emphatically denied that the building was carried up "on piers."

Mr. Monson said the extra cost of the hospital was caused by shifting the earth to make it fit the building.

The inquiry was adjourned, with an intimation from the inspector that if any managers wished to give evidence they would be heard.

The inquiry was resumed on Wednesday, when Mr. Aldwinckle produced a further list of "extras," including an item of 363*l.* for fire insurance. Questioned as to this, he said it was an item in excess, because the work was stopped on account of the severity of the weather, and two instalments of insurance had to be paid instead of one.

The Inspector: I can't understand how it was the sum was paid to the contractors without the Board knowing what it was for. Here is a public body dealing with public money, which they pay over without inquiry, on the production of a certificate by their architect. I particularly require information on this point.

Mr. Duncombe Mann (clerk to the Board): When a public body accepts a contract, they are bound to pay the amounts certified for by the architect.

The Inspector: That does not affect the fact that it is the duty of the Board to inquire of the architect what the sums are for. From time to time the Board should require a financial statement from the architect, showing how the sums he has certified for have been arrived at.

Mr. Mann: That has been done. We have had an inquiry analogous to the one you are holding now. The Board employs competent architects and surveyors.

The Inspector: Therefore they are to accept, without question, everything put before them.

Mr. Mann: We call for explanations of additional expenditure.

The Inspector: Long after it is made, and when it is too late. I suppose I am to take it that no proof of that 363*l.* can be produced. I understand you to say that the Board goes on making payments on account, on the architect's certificate, till

the work is done. No one can justify a public body placing the expenditure of public money in the hands of one individual.

Mr. Mann: The final account is examined.

The Inspector: What percentage of the final account is kept in hand?

Mr. Mann: In this case I think it was as much as 10,000*l.*

The Inspector: Yes, but there is an excess of 100,000*l.*

Mr. Mann: This is an exceptional thing, and the Board began inquiry after they had paid away 150,000*l.*

The Inspector: I can't understand why the architect was not pulled up.

Mr. Mann: Do you mean the work should have been stopped?

The Inspector: No; but he should have been told that he must report extra expenditure to the committee.

Mr. Mann: That was done in pretty continuous fashion.

The Inspector: Then you say that the architect continued ordering these extras notwithstanding continued warnings from the Board?

Mr. Mann: No, I don't. I say the whole of the extras might have been included in the 150,000*l.*, after the payment of which the Board began inquiry. We then knew we were committed to about 220,000*l.* Exhaustive inquiries were made, and a report was sent to the Local Government Board.

The Inspector: Nothing has been sent to the Local Government Board to show that the architect was warned by the Board as to spending money without authority.

Mr. Mann: The enormous excess was not apparent till the whole thing was done and it was too late to warn anybody. I don't want to shield the Board behind its officers, but I do protest against the assumption that the Board has not done its duty.

The Inspector: It is not for me to say that, but I have to elicit the way in which the Board does its business and report to the Local Government Board.

Mr. Brown, ex-chairman of the Brook Hospital committee, tendered some further explanations.

The Inspector: It cannot reasonably be contended that any public body should have the power of spending money with any one man. Mr. Mann's contention is that they have no right to question the architect's certificate. I have never heard of that before in connection with a public body.

Mr. Mann: It is a question of law. The Board is bound to pay its contractors.

The Inspector: Yes, but there is a duty resting with the Board to see what the certificates are granted for.

Mr. Mann: That would imply suspicion of the architect.

The Inspector: Why not? All public bodies should hove such a suspicion. They should not accept anybody's statement without proof.

Mr. Mann: Well, we employ men who would throw up their contract if that was done.

Mr. Monson, a member of the Board (to the Inspector): You have raised one of the most important questions in connection with the proceedings of the Board. Neither on the finance or the works committee can I get any details of the accounts. This is a very serious and a very sore question with many members of the Board.

Subsequently Mr. Brown stated that certain small items were authorised by himself, in company with other members of the committee, in going over the building.

Mr. Mann: I must say that I cannot accept anything as authorised by the committee unless actually ordered by the members in regular meeting. It would be a dangerous principle to admit the right of one member or several members to order work in the name of the whole committee.

Mr. Brown: I quite agree with you, and am ready to accept full responsibility for everything I did.

At a later stage Mr. Mann stated, in reply to Mr. Gordon Smith (architect to the Local Government Board), that the architects of the Asylums Board were not appointed "under the seal of the Board."

Mr. Smith: I always recommend that that should be done, and the Asylums Board should insist on it. In that case you can introduce what terms you like.

Mr. White, chairman of the special committee which inquired into the matter on behalf of the Board, said the whole of the extras, with trifling exceptions, would have been included in the specifications if the Board had not built the hospital in such a hurry.

It was utterly impossible for any public body or committee to watch the details of such an important work like this as it progressed. They must trust to their officers.

The Board should be protected by a clause in the contract to the effect that no extra would be paid for unless countersigned by the clerk, who, of course, would not act without authority. The architect should not have the power of spending the money of the ratepayers without the sanction of those who represented them. In this case the architect "very nearly" had *carte blanche*.

As to the cost of the foundations running up from 5,000*l.* to 19,000*l.*, even if the committee had gone over the site every time they were there, they could not have realised what the ultimate cost would be. Although 19,000*l.* seemed a large figure, it must be remembered that enormous quantities of concrete were used, and some of the blocks were 30 feet by 20 feet.

The hospital as completed was a first-class one, but he agreed that they had touched the "high-water mark" of expenditure on such a building.

Mr. Brown followed in a like strain, urging that the large expenditure was due to the nature of the site and the short space of time allowed for the preparation of the plans.

This practically closed the inquiry, and the Inspector intimated that he would report in due course to the Local Government Board.

VENTILATION AND WARMING.

(Continued from last week.)

IF side openings are satisfactory inlets they may be equally satisfactory outlets, and it is desirable that natural ventilation should be arranged so that it may be reversible—that is, so that the inlets and outlets may interchange their functions without diminishing their efficiency. In fact, attempts to differentiate them often lead to disappointment. The arrangement suggested for dormitories is intended to carry out this view. At the same time it should be remembered that in dealing with dormitories no special account has been taken of the vitiation of air by artificial lighting. As throughout the schools gas is the illuminant used the effect upon the air is serious indeed when full illumination is employed. In the dormitories there is so little gas in any case kept burning through the night that its effect may be overlooked, but in schools if light is required it is full lighting that is wanted. In that case the shafts leading from the ceiling are of great importance and value in leading away the gas fumes.

In schools ventilated by cross ventilation it is desirable to concentrate the heating under the windows where the air comes in. The Hanwell School block seemed to me to afford a successful instance of this plan. The arrangement may involve a loss of heat, and therefore require a greater length of pipe than would be required if it were carried round in uniform rows, but the effect upon the ventilation is worth the sacrifice of heat.

If radiators, whether for steam or hot water, be employed, it is essential that the surfaces exposed to the air should be readily cleaned, and that hot-water pipes and steam pipes should not so block the air bricks or other openings for ventilation that they cannot be cleaned with facility.

Application to Buildings Inspected.

In applying these principles and considerations to the actual cases of rooms which came under my notice it was clear that the requirements for efficient ventilation and warming were beyond what the arrangements of the schoolrooms could be expected to supply.

There is, I think, no doubt that the arrangements for warming and ventilating the schoolrooms require some modification in order to bring them up to a satisfactory state of efficiency. The arrangement suggested for dormitories would afford some improvement, but the amount of heating power would have to be larger, and the amount of open window required would be so large in order to deliver the requisite amount of air that difficulties would probably arise in consequence, and I therefore hesitate to recommend it for the purpose. It seems to me that the mechanical system of ventilation has such great advantages for school purposes that the best way of dealing with the ventilation and warming of the schools would be to supply them with warmed air by means of a fan driven either by gas or water-power; the existing floor ventilators, air-bricks, Tobins and other contrivances would serve very well to let the air out. So many of the schools pump their own water that it is quite likley it might prove most economical and convenient to drive the fan by water-power. In any case the fan need only be driven during school hours, when any necessary attention can easily be obtained. If this were done I should suggest that the existing arrangements for warming, excepting closed stoves, should be continued, in order that an active local circulation of air should be maintained, and the temperature of the air mechanically delivered should be 55 deg. to 57 deg., a few degrees below that at which the rooms should be maintained. The air should be sent in from trunks carried along the side walls below the level of gas burners, and the issuing air should be directed outwards and sufficiently upwards to avoid blowing directly upon the occupants of the rooms.

I need not again repeat the remarks as to the necessity for cleaning of perforated skirting and other air ducts as well as steam or water pipes.

Recommendations.—1. That instructions be issued as to the temperature to be maintained and as to the means of regulat-

ing the appliances for warming and ventilation of the schoolrooms and classrooms.

2. That records of the temperature be obtained from time to time and kept for inspection (see Recommendation 3 for Dining-halls).

3. That the ventilation of the schoolrooms and classrooms be supplemented by apparatus for supplying warmed air mechanically at the rate of 1,500 cubic feet per hour per child during school hours, at a temperature of from 55 deg. to 57 deg., the existing openings for ventilation being retained as outlets for the air.

4. That provision be made for regularly cleaning the air ducts.

Section VI.—Workshops and Workrooms.

I have little to remark about workshops. These are generally occupied by few boys, so that the allowance of cubic space is large. The tailors' shops seemed to require a little consideration. They and the shoemakers' shops are most frequented by the boys. The tailors congregate on a platform close to the windows for the sake of the light. It is a cold position, and naturally exposed to draughts from open windows. They generally use a tailors' stove for warming the room, which is closed, and therefore does not help much with the ventilation. To make sitting in the window tolerable, the room has to be overwarmed and ventilation is more or less suppressed, though the smell of the clothing seems to invite ventilation more urgently than in other rooms. It will be noticed that it is the tailors' shops that are generally marked as warm or close.

The difficulty might be met by having hot-water pipes under the platform near the windows, making ample openings for the supply of fresh air to the space under the platform, and taking the warmed fresh air from a series of holes in the platform close to the windows. Such an arrangement would require the pipes to be regularly cleaned.

The shoemakers' shops, according to my experience, keep their atmosphere in a more satisfactory condition. In all workshops there should be windows on both sides for cross ventilation, with a special view to ventilation in the summer months.

In the laundries the only general point I have noticed is that an ironing stove is usually unprovided with special ventilation. The considerable masses of red-hot iron are not healthy in a closed room, and if they were situated so that the heated air rising from them should assist the ventilation, and not be distributed over the room, it would be advantageous. I think this might easily be arranged when the stove is placed in a recess. A pipe carried up for some distance from a canopy over the ironing stove, through the ceiling of the recess, terminating in a cowl, would be an efficient aid to the ventilation of the room.

Some of the needle-rooms were found to be close. Probably a more judicious use of the windows would have made the rooms fresh enough without discomfort.

I do not desire to make any specific recommendations with regard to workshops. It may be sufficient to call the attention of the authorities of the schools to the necessity for the proper ventilation of the workshops, and of the tailors' shops and needle-rooms in particular, so that any defect may, if possible, be remedied by the more active use of the appliances already provided.

Section VII.—Probation Wards.

The wards of the probation blocks are comparatively small, and may therefore be regarded as coming under the considerations applicable to small dormitories in general. They are, as a rule, fully provided with windows on both sides, so that cross ventilation can be effectively carried out. It is usual to provide one dormitory and one day-room for boys, and another dormitory and day-room of about the same size for girls and infants. The day-rooms are very nearly as large, in some cases quite as large, as the dormitories, so that the allowance of day-room accommodation is much more ample than in the main buildings.

A characteristic feature of all these probation wards is that the number of occupants of the dormitories is liable to variation, so that many of the beds are sometimes unoccupied. Ventilation is, however, none the less necessary when the numbers are somewhat smaller than the maximum. It wants, perhaps, more skilful management than in those wards where the variation in the numbers of occupants does not make an addition to the difficulties presented by the variations of weather, and the ventilation is liable, as in the case of the dormitories, to be too cold under present circumstances.

The variation in the number of occupants is a reason, in addition to those given under the heading of dormitories, for retaining the system of cross ventilation, with modifications to render it more efficient. The modifications suggested for dormitories would be equally applicable in the case of the dormitories and day-rooms of the probation blocks, but considering the comparatively small size of the rooms and the small average number of occupants to be provided for, the system based on supplying fresh air behind the open fires might be adopted as an alternative, provided that arrangements can be made for having the fires kept burning during the night in very cold weather. Unless the fire can be kept burning all night a grate with warm-air supply is apt to be worse than having no artificial warming, for at the commencement of the night there is considerable warmth, which gradually diminishes as the night advances, and is least in the early morning, when most is wanted. With the object in view of keeping the fire burning for a long time without attention, it is desirable that the grates should have close-fitting fronts and ashpans for rendering the combustion slow, and I should wish further to suggest that the supply of air to the back of the stove be much more ample than is usually allowed, and that the flue supplying the air should be arranged so that it can be swept. Also it is desirable that the supply of air be capable of regulation by a door worked from the inside.

It appears to me that in cases such as these we are now considering, where a large quantity of only moderately warmed air is required, it would be practical and convenient to use an open iron stove lined with fireclay, such as usually stands out a foot or more from the wall, and has a horizontal chimney conducting to a vertical flue in the wall; to place the stove on the hearth-stone, leaving about a foot of space between it and the back of the fireplace opening, and make good its chimney with the brick flue. The stove could then be surrounded above and on two sides with iron or other covers (that could be made removable for the purpose of cleaning), leaving a vertical opening of perforated iron in the front above the stove. The arrangement practically amounts to constructing a recess somewhat deeper and broader than that in which an ordinary fire-grate is set, and placing in it a stove with an open front, and covering the space intervening between the stove and the sides of the recess with iron plates, the mantel being of perforated iron. The space behind the stove should have an ample opening, 18 inches by 9 inches, to the outside air. It should be capable of being closed by a door worked by a screw with long handle from the inside of the room. There would, I think, be no danger of smoke fouling the air supply. The passage of the smoke into the air flue is generally caused by the opening for warm air into the room being too high, and the opening to the outside air not being sufficiently large. The little vertical flue intended to deliver the air becomes filled with very hot air, and draws actively, not only from the outside supply, but from any other available opening. A chink between the fire or smoke flue and the fresh air flue becomes one of its feeders. If leakage of smoke is to be avoided, the air flues should be so arranged as to produce no "head" in themselves.

Recommendation as to Probation Wards.

That provision be made for furnishing the dormitories and day-rooms with stoves having ample flues for supplying warmed air to the room in those cases in which the heating is entirely dependent upon open fires.

Section VIII.—Infirmaries.

Allowance of Cubic Space in Wards.

The amount of cubic space per bed varies between 845 cubic feet at Leytonstone and 335 cubic feet at Sutton. Under these circumstances it is not possible to regard the problems of warming and ventilating the several wards as belonging to a single type. If we accept 850 cubic feet per bed as the normal allowance of cubic space for sick children, and provide for the ventilation and warming accordingly, the wards will obviously be inadequately provided for if 170 beds are subsequently crowded into the space assigned to 67.

On reference to the report of the committee on cubic space in metropolitan workhouses (1867) it appears that two general kinds of infirmary wards were considered, besides certain special kinds, with which we are not at present concerned. They were (1) wards occupied by day as well as by night, for which the minimum allowance of cubic space was set at 850 cubic feet per bed, and (2) wards occupied by night and partially by day by the "chronic" and infirm; the patients occupying these wards were to have the use of a dayroom, and on that understanding a minimum allowance of 500 cubic feet per bed was prescribed for them. These two kinds of ward have their counterparts in the infirmaries of the Poor Law schools, and in consequence two cases, widely separate so far as ventilation is concerned, present themselves, namely, first, the case in which there may be only twelve patients in a ward of 10,000 cubic feet (850 cubic feet per bed), and, secondly, the case in which there may be twenty patients in the same cubic space (500 cubic feet per bed).

A third case must also be contemplated, where the cubic space per bed according to the table is only 335 cubic feet. This is probably to be accounted for by the fact that children who do not require special nursing, and who cannot be exactly classed as infirmary patients, are occasionally segregated for observation by the medical officer. They do not require sub-

stantially more cubic space than the corresponding number of children in the main school buildings, and their requirements as regards warming and ventilation are such as have been already considered in dealing with the rooms of the main building. But since any ward of an infirmary may upon occasion be used for this third purpose, the ward of 10,000 cubic feet must be regarded not only from the point of view of its occupation by twelve patients or by twenty patients, as the case may be, but also from the point of view of its being required to accommodate on occasions as many as thirty children, who are merely under observation. It is clear that if a ward may be used for twelve, twenty or thirty inmates, according to circumstances, the arrangements for warming and ventilation require to be correspondingly elastic.

Want of Knowledge of the Use and Capacities of the Apparatus Provided.

One of the most striking points elicited during the inspection was the want of knowledge of the use and capacities of the apparatus displayed by those in charge of the wards.

Somewhat similar remarks apply in the case of many of the grates to which a supply of fresh air has been provided. Those in charge were unaware of its existence. In the course of our visits a large number of previously unknown air channels have been identified (chiefly by the aid of pastilles), and many stoves and radiators have been discovered to have parts removable to facilitate cleaning, that had, up to that time, been supposed to be fixtures of the most permanent description. The method of setting the valves of the Tobin tubes that had been provided was not always understood, and the means of communication between the apparatus inside and the external air had in some cases not even been considered by those from whom I happened to make inquiry.

In making these remarks I have no wish to reflect adversely upon the members of the staff of the infirmaries, or to imply that they are exceptionally ignorant about the working of appliances for ventilation; the matter is general throughout the schools, and is by no means confined to them. The habit of supposing that the ventilation was provided for when the building was erected and need not further be considered is exceedingly widespread. In my experience there are very few persons who know where their ventilators lead to or where their air-inlets lead from; it was to me, therefore, no matter of surprise that the arrangements at the infirmaries should be so little understood. The lack of knowledge was the more conspicuous there than elsewhere because the contrivances in use, or intended for use, in the infirmaries are more numerous and more intricate than those in other parts of the schools, but I only now refer to the matter in order to urge the desirability of having information as to the provision made for warming and ventilating definitely set forth for the use of those in charge, especially where, as in the schools, the personnel of the staff is liable to frequent change.

Special Requirements for Ventilating and Warming Infirmary Wards.

The consideration of the ventilation and warming of the wards of an infirmary presents the following special points:—

1. There should be greater elasticity than is required in dealing exclusively with warming and ventilation for healthy children. The heating appliances should be sufficient to maintain the temperature at from 60 degrees to 65 degrees, even in very cold weather. The amount of air supplied for each inmate should be greater than that allowed for healthy children in a dormitory, and may be put provisionally at 4,000 cubic feet per head per hour for wards occupied by either class of patients referred to above, and at 3,000 cubic feet per head per hour for children isolated for observation.

2. Draughts must be more scrupulously avoided, partly because patients are more sensitive than healthy children, and partly because the larger difference of temperature between the internal and external air makes the draughts much more markedly unpleasant or injurious if they exist at all.

3. Any ward may be occupied day and night; there will thus be no opportunity for thorough airing by opening the windows; the ward must therefore be capable of being fully and continuously warmed and ventilated.

4. Some considerable amount of artificial light must be employed for much longer periods than is necessary in the case of dormitories for healthy children. The artificial light exclusively used in the wards of the school infirmaries is gas.

As regards the allowance of fresh air per inmate per hour, it may be well to add a remark in explanation of the figure assigned. In dealing with dormitories for healthy children, I took 3,000 cubic feet per hour as a liberal allowance for one child. The figure is arrived at by considering the amount of air required to dilute the carbonic acid gas, expired with the breath, to such an extent that the amount when so diluted shall not exceed by more than two parts by volume in 10,000 that to be found in the external air; but it must be understood that it is not the carbonic acid gas in itself that is injurious to health if persistently respired when present in the air to the extent of more than some six parts in 10,000; it is the organic poison which is associated with the carbonic acid in the expired air, and it is only by assuming that the amount of organic poison is proportional to the amount of carbonic acid that the percentage of the latter can be used numerically as an index of the unwholesomeness of the air for respiratory purposes. The assumption may be sufficiently nearly justified as applied on the average in the case of healthy persons, but the amount of organic poison associated with a given amount of carbonic acid must be taken as increased, probably largely increased, in cases of disease. What additional allowance of air should be made for infirmaries on this account has, so far as I know, never been satisfactorily determined. The suggestion of 4,000 instead of 3,000 cubic feet per hour is, according to Dr. Notter (Stevenson & Murphy's "Hygiene," vol. i. p. 20), derived from observations of De Chaumont. It may be acknowledged to be a very rough estimate, and to be subject to correction as the knowledge of the subject becomes more complete. In the case of infectious diseases a much larger allowance of air as of cubic space ought doubtless to be provided, but I am not aware of any specification of the appropriate amount that is based upon such definite data as the original calculation of the 3,000 cubic feet.

(*To be concluded.*)

GENERAL.

A Bronze Statue of Robert Burns, by Mr. D. W. Stevenson, R.S.A., was unveiled in Leith on Saturday. The money for the work was raised by the Leith Burns Club.

The Royal Institute of Painters in Water Colours have elected the following members:—Messrs. Byam Shaw, Robert Meyerheim, Henry Ryland and J. Shaw Crompton.

The Statue of the Rev. Dr. Martineau, by Mr. H. P. Hope-Pinker, which was exhibited this year at the Royal Academy, was unveiled in Manchester College, Oxford, on Tuesday.

The London County Council have agreed to contribute £15,000 towards the outlay of £45,000 required for widening Lothbury to 50 feet.

A Pastel Society is now in course of formation. Mr. Watts, R.A., has accepted the honorary presidency. Messrs. Abbey, R.A., Boughton, R.A., Sir W. B. Richmond, R.A., Walter Crane, W. Rothenstein, C. H. Shannon and Edward Stott are members of the Council. Mr. Melton Fisher is the hon. treasurer and Miss Marion Gemmell the hon. secretary. The first exhibition will probably be held in the galleries of the Royal Institute in February next.

M. Bourgeois, the French Minister of Public Instruction and Fine Arts, has ordered the official inauguration of the new Opéra Comique, Paris, to take place on December 1.

The Improvements Committee of the London County Council have come to the conclusion that they cannot see their way to recommend the Council to adopt the suggestion made by the St. Giles's Board of Works, for the widening of High Holborn from Southampton Row to Southampton Street.

A Machine for testing the wearing power of various kinds of rock and stone, which has been in use for some time by the French Government, has been set up by the Maryland State Geological Survey. It is composed of duplicate revolving cylinders which are hollow, and allow a good-sized piece of stone to be placed inside of each. The rod of the machine is attached to the motor, and the cylinders revolve rapidly several thousand times. They are opened then, and the fine material that has been ground off is gathered up after the stones have been washed and is weighed. In this way the experience of years can be gathered in a few hours. Calculations can be made from the result to just what extent the stones experimented with would wear if used in public buildings or for paving.

Mr. C. McArthur Butler, Member, of Boscombe, has been appointed by the Council of the Society of Architects to be the secretary of the Society in the place of the late Mr. Montagu Baldwin.

The Directors of the London and Lancashire Fire Insurance Company have declared an interim dividend of 4*s.* per share (being at the same rate as the last interim dividend), payable on November 2, 1898.

Messrs. Cassell's new venture, *The New Penny Magazine*, is an excellent example of what can be done nowadays in the direction of cheap literature. It contains no less than sixty pages of well-written, well-printed and abundantly illustrated matter, and as this is of an interesting as well as an instructive and improving nature, there is no doubt the new "Mag." will be warmly welcomed in many households throughout the kingdom.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITION OPEN.

ABERAVON.—Dec. 1.—Plans are invited, with estimated cost, for the extension of the covered market. A premium of twenty guineas will be awarded to the architect whose plans shall be selected. Mr. Jas. Roderick, borough surveyor, Aberavon.

CONTRACTS OPEN.

ABERBEEG.—Oct. 25.—For erection of a new school at Six Bells to accommodate 220 children. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport, Mon.

ABERDEEN.—Oct. 24.—For erection of a house at Torphins. Messrs. Jenkins & Marr, architects, 16 Bridge Street, Aberdeen.

ABERGAVENNY.—Oct. 29.—For erection of a master's house at Longtown, near Abergavenny. Mr. E. A. Johnson, architect, Abergavenny.

BIRMINGHAM.—Oct. 25.—For erection of stabling and offices at Saltley Wharf, corner of Crawford Street and Saltley Viaduct. Mr. John Price, city engineer and surveyor, the Council House, Birmingham.

BIRKENHEAD.—Nov. 14.—For erection of public baths on land of the Corporation adjoining Livingstone Street and Prince Street. Mr. Charles Brownridge, borough engineer, Town Hall, Birkenhead.

BOSTON.—Oct. 25.—For erection of an engine and boiler-house at the slipway now constructing at Boston Dock. Mr. W. H. Wheeler, Market Place, Boston.

BRADFORD.—Oct. 24.—For erection of warehouse in Canal Road. Messrs. Samuel Jackson & Son, architects, Tanfield Chambers, Bradford.

BRADFORD.—Oct. 24.—For erection of six houses and a store in Tempest Street, West Bowling. Mr. H. A. Johnson, architect, 14 The Exchange, Bradford.

BRADFORD.—Nov. 3.—For erection of a bakery, stabling, &c., in Cutler Heights Lane, Dudley Hill. Messrs. Rycroft & Firth, architects, Bank Buildings, Manchester Road, Bradford.

BRIDGEND.—Nov. 24.—For erection of a chapel at Parc Gwyllt asylum. Messrs. Giles, Gough & Trollope, architects, 28 Craven Street, Charing-Cross, London.

CARDIFF.—Oct. 26.—For erection of premises for the Docks Conservative Club, George Street. Mr. E. W. M. Corbett, architect, Castle Street, Cardiff.

CARMARTHEN.—Nov. 18.—For erection of a stone bridge of three arches and approaches thereto over the river Towy at Dryslwyn. Mr. Thomas Codrington, Shire Hall, Carmarthen.

CLATTERBRIDGE.—Oct. 24.—For alterations and additions to the workhouse. Mr. C. O. Francis, architect, Leamington Chambers, 5 Richmond Street, Liverpool.

CORK.—Oct. 24.—For erection of a stationmaster's house at Coachford, for the Cork and Muskerry Light Railway Company. Mr. W. H. Hill, jun., engineer.

CORNWALL.—Nov. 1.—For completion of the restoration of Ludgvan Church tower. Mr. William R. Jones, Ludgvan Church Town.

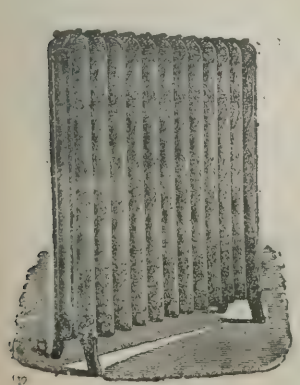
COVENTRY.—Nov. 12.—For erection of buildings at their proposed two new pumping stations on the side of the main road from Coventry to Daventry. Mr. James Mansergh, 5 Victoria Street, Westminster.

CROMER.—Nov. 3.—For erection of public conveniences, comprising accommodation for both sexes, with cloakrooms and adjuncts, on the sea-front. Mr. A. F. Scott, surveyor, Cromer.

CROYDON.—Oct. 25.—For erection of a new wing, &c., at the Croydon General Hospital. Mr. Charles Henman, architect, 64 Cannon Street, E.C.

CUMBERLAND.—Oct. 25.—For concreting and wood-block paving floors of infants' schoolrooms at Lapstone Roa Millom. Mr. W. T. Lawrence, clerk, School Boad Offices, Millom.

DARTFORD.—Nov. 1.—For erection of twenty-six cottages in Gordon Road. Mr. Ernest J. Hammond, architect, 111 High Street, New Brompton.



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DARWEN.—Oct. 26.—For erection of fifteen houses in Devon Street. Mr. John B. Thornley, architect.

DURHAM.—Oct. 29.—For erection of foreman's house, store-houses, cart-sheds, &c., and fence-walls to stoneyard in Hartington Street, Consett. Mr. William S. Shell, surveyor.

EDINBURGH.—Nov. 7.—For erection of an hotel at Princes Street Station. Messrs. Peddie & Washington Browne, architects, 8 Albyn Place, Edinburgh.

ELGIN.—Oct. 26.—For erection of a public hall at Drummuir. Mr. R. B. Pratt, County Bank House, Elgin.

ESSEX.—For erection of five private houses and two shops on the Loxford Hall Estate, Ilford Lane, Ilford. Mr. A. W. Hudson, surveyor, 42 Bishopsgate Street Within.

FLEETWOOD.—Nov. 1.—For construction of an underground convenience, with drain, manhole, &c. Mr. Robert T. Hayes, surveyor, Town Hall, Fleetwood.

GLASGOW.—For erection of small works. Messrs. Wilks, Sloan & Co., engineers, 112 Bath Street.

GLASGOW.—Oct. 26.—For alteration of the lighting department's offices, &c., at Tobago Street. Mr. John Lindsay, interim clerk, City Chambers, Glasgow.

HACKNEY.—Oct. 26.—For construction of a public underground convenience at the north-east corner of the town hall grounds. Mr. James Lovegrove, surveyor, Town Hall, Hackney.

HEREFORD.—Oct. 25.—For taking-down a dilapidated wall and rebuilding same on the side of the main road at Pontrilas. Mr. J. F. Symonds, clerk, Shire Hall, Hereford.

HULL.—Oct. 31.—For erection of a crematorium at the Hedon Road cemetery. Mr. A. E. White, city engineer, Town Hall, Hull.

IRELAND.—Oct. 26.—For repairs of various cottages at Rathkeale. Mr. T. B. Naughton, clerk.

KEIGHLEY.—Oct. 28.—For erection of a Wesleyan mission hall. Messrs. W. & J. B. Bailey, architects, 9 Market Street, Bradford.

KNAPHILL.—Nov. 1.—For alterations, additions, repairs, painting, &c., to the Wesleyan chapel and premises. Mr. J. Weir, architect, 17 Victoria Street, Westminster, S.W.

LEEDS.—For erection of a four-storey warehouse, 44 by 14 yards, in Nelson Street. Mr. T. Dyer, architect, 114 Spencer Place, Leeds.

LONDON.—Oct. 25.—For construction of an underground sanitary convenience in Golden Lane at its junction with Old Street. Mr. H. Williams Mellor, quantity surveyor, Vestry Hall, St. Luke's, E.C.

LONDON.—Oct. 27.—For repairs at the casual wards, Great Guildford Street, S.E. Mr. G. D. Stevenson, architect, 13 and 14 King Street, E.C.

MIRFIELD.—Oct. 25.—For erection of a warehouse, offices, &c., at Mirfield, for the Lancashire and Yorkshire Railway Company. Mr. C. W. Bailey, secretary, Hunt's Bank, Manchester.

MORECAMBE. — For erection of hotel, Regent Road. Messrs Harrison, Hall & Moore, architects, 36 Albert Road, Morecambe.

MORLEY.—Oct. 31.—For paving cart-shed at new stables, Corporation Street (labour only); levelling land at new stables; erection of boundary walls, entrance gates, &c., at new stables; alterations at old town hall, Queen Street; alterations to urinal at rear of town hall; erection of public conveniences in yard at rear of Hobson's Coffee Tavern, Queen Street; erection of public conveniences in Chapel Hill. Mr. W. E. Putman, borough engineer, Town Hall, Morley.

NEWPORT (MON.).—For erection of Congregational church, London Street. Messrs. Habershon & Fawckner, architects, 41 High Street, Newport.

NEWQUAY.—Oct. 29.—For erection of Council buildings and public conveniences, comprising council-room, offices and stores and sanitary conveniences, with cloakrooms, &c. Mr. Thurstan Collins, clerk, Commercial Square, Newquay.

NORTON-UNDER-CANNOCK.—Oct. 24.—For enlargement of the Watling Street schools. Mr. T. H. Fleeming, architect, 102 Darlington Street, Wolverhampton.

PERTH.—For erection of offices at the corner of Tay and High Streets. Mr. George P. K. Young, architect, 42 Tay Street, Perth.

PONTEFRACT.—Oct. 31.—For erection of ten houses in Purston. Messrs. Garside & Keyworth, architects, Pontefract.

PONTEFRACT.—Nov. 1.—For erection of bank buildings, caretaker's house, &c., in Station Road, Featherstone. Messrs. Garside & Keyworth, architects, Pontefract.

PONTYPRIDD.—Oct. 28.—For erection of a chapel, vestry, boiler-house, &c., at Clydach Vale. Mr. Frank B. Smith, architect, Port Talbot.

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PUDSEY.—Oct. 28.—For erection of two semi-detached villas, at South Parade. Mr. Herbert Hodgson, architect, Old Bank Chambers, Bradford.

RATCLIFF.—Oct. 24.—For erection of public slipper baths on vacant site in White Horse Street, at the corner of Ball's Buildings. Mr. G. E. Holman, architect, 6 King's Bench Walk, Temple, E.C.

ROCHESTER.—Oct. 28.—For erection of a drying-room over the present wash-house and ironing-room, for the Rochester and Chatham Joint Hospital Board. Mr. Geo. Bond, architect, Rochester.

SCARBOROUGH.—For (1) unclimbable wrought-iron railing and wrought-iron fence to boundary wall; (2) excavations, concrete foundations and boundary walls, for the Scarborough Burial Board. Messrs. Hall, Cooper & Davis, architects, 24 Westborough, Scarborough.

SCOTLAND.—For alterations at Auchtergaven parish church, Bankfoot. Mr. William Constable, architect, 20 George Street, Edinburgh.

SCOTLAND.—Oct. 26.—For erection of a cottage in Johnshaven. Mr. R. Stewart, Public School, Johnshaven.

SOPHIA (BULGARIA).—Nov. 21.—For erection of eight public offices, viz., a Ministry of Public Works, Ways and Communications, a Ministry of Commerce and Agriculture, a Ministry of the Interior, a Ministry of Public Instruction, a Ministry for Foreign Affairs and Public Worship, a Ministry of Justice, and an Audit Office. Particulars can be obtained at the Commercial Department of the Foreign Office between the hours of 11 and 5.

SOUTHAMPTON.—Oct. 28.—For erection of an omnibus shed at the Corporation stables, Highfield. Mr. George B. Nalder, town clerk, Municipal Offices, Southampton.

SOWERBY BRIDGE.—Nov. 4.—For erection of a football pavilion at the Beech. Mr. H. Hatton, Town Hall Chambers, Sowerby Bridge.

SPILSBY.—Oct. 31.—For erection of headquarters at Spilsby for the F Comp. 1st Vol. Batt. Lincs. Regt., including drill hall, armoury, sergeant-instructor's house, &c. Mr. J. E. Butcher, architect, Spilsby.

SUNDERLAND.—Oct. 29.—For erection of Havelock House, Fawcett Street. Mr. John Eltringham, 62 John Street, Sunderland.

SUNDERLAND.—For erection of 25 cottages, Ryhope Colliery. Engineer, Ryhope Colliery, near Sunderland.

THORNHILL.—Oct. 26.—For erection of a branch store at Lee Moor. Messrs. Holtom & Fox, architects, Westgate, Dewsbury.

TROWBRIDGE.—Oct. 29.—For alterations to the Carpenters' Arms Inn, Hilperton Road. Mr. W. H. Stanley, Market House Chambers, Trowbridge.

WALES.—Nov. 2.—For erection of a school building, boundary walls, cloak-rooms and urinals, for the Glyntawe School Board, and for making a road from the main road to the school site. Mr. Howell Watkins, Ddery Farm, Glyntaws, Ystradgnylais R.S.O.

WALTON-ON-THAMES.—For erection of four cottages and one pair of semi-detached houses. Mr. T. M. Garrood, architect, 172 Fenchurch Street, E.C.

WALSALL.—Nov. 7.—For erection of caretaker's house at the Wolverhampton Road schools. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WANSTEAD.—Oct. 27.—For erection of a school (one storey) and a caretaker's cottage on the Cobbold Road site. Mr. John T. Bressey, architect, 70 and 71 Bishopsgate Street Within, E.C.

WESTON-SUPER-MARE.—Oct. 26.—For erection of a school for 400 children in Locking Road. Mr. S. J. Wilde, architect, Weston-super-Mare.

WHITBY.—Oct. 27.—For alterations and additions to premises in Skinner Street, to convert them into shops. Mr. Edward H. Smales, architect, 5 Flowergate, Whitby.

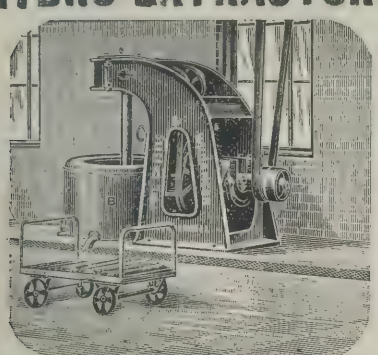
WHITBY.—Oct. 27.—For erection of a wall to enclose the semicircular area of grass, &c., opposite the quadrant forming the Royal Crescent. Mr. Thos. Keat Scott, surveyor.

WIDNES.—Nov. 4.—For erection of administrative and other blocks at the infectious diseases hospital. Mr. F. W. Holme, architect, Westminster Chambers, Dale Street, Liverpool.

YORK.—Oct. 24.—For erection of Sunday school premises, Lawrence Street. Mr. E. Taylor, architect, 7 Stonegate, York.

A NEW school is being erected by the Free Methodists at Grindleton, a moorland village in the Clitheroe circuit, and it is being built largely by the gratuitous labour of the villagers at the close of their regular day's work.

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TENDERS.

ABERDEEN.

For construction of about 195 lineal yards of a brick circular sewer, 3 feet diameter, in St. Swithin Street, and the supplying and laying 9-inch, 12-inch and 18-inch fireclay pipe sewers in Bedford Place, Bon-Accord Terrace, Wallfield Crescent, Albert Street and Walker Road. Mr. William Dyack, burgh surveyor.

Accepted tenders.

R. McKay, Abergeldie Road, £505 19*s.* 9*d.*; Walker Road, £102 19*s.* 11*d.*; Wallfield Crescent and Albert Street, £124 2*s.* 2*d.*

A. McKay, Laurelwood Avenue, £42 1*s.* 10*d.*; Bedford Place, £33 10*s.* 6*d.*

ARDEE.

For erection of labourers' cottages and fencing the plots attached to them. Mr. Louis Turley, architect, Laurence Street, Drogheda.

Accepted tenders.

L. Madden, cottage at Glassallon, £125; cottage at Clontail, £127.

Gogan & Henley, cottage at Newrathby, £124.

ARMLEY.

For painting, papering and decorating board-room, committee-room, offices and dining-hall at the union workhouse, Hill Top.

P. Haley, Bramley (*accepted*).

BARROW-ON-SOAR.

For sewerage works in the parish of Barkby. Messrs. Simpson & Harvey, Alliance Chambers, Horsefair Street, Leicester.

H. H. Barry, Radcliffe-on-Trent (*accepted*) . £3,300 0 0

BISHOP AUCKLAND.

For erection of the No. 1 isolation hospital buildings at Tindale Crescent. Mr. Wm. Perkins, architect, Victoria Street, Bishop Auckland.

Watt Bros.	£7,938 17 4
Marshall	7,783 9 0
Blackett & Son	7,716 7 4
W. Hudson	7,642 0 0
T. Walton	7,550 0 0
G. H. Bell	7,535 0 0
T. Hilton	7,497 0 0
T. Manners, Bishop Auckland (*accepted*)	7,338 0 0

BRISTOL.

For erection of offices, &c., for the Midland Railway Company, Montpelier Station, Bristol.

Wibley, Bath (*accepted*).

BURTON-ON-TRENT.

For sewering, levelling, paving, metalling, &c., Eldon Street and Nelson Street. Mr. George T. Lynam, borough engineer.

Accepted tenders.

Holloway & Son	£424 13 11
G. F. Tomlinson	291 18 7

For erection of nine through beds and retorts.

Leeds Fireclay Co., Limited, Wortley, near Leeds (*accepted*).

CARRICK-ON-SUIR.

For sinking a well at Newtown Village.

Accepted tender.

T. McGrath, New Street, Waterford, 24*s.* to 50*s.* per foot through loose earth, gravel, &c., in first instance, and rock in second.

CHERITON.

For painting at the cottage homes.

J. E. Whitnall, Elham, Canterbury (*accepted*) . £26 10 0

DARTFORD.

For laying a surface-water drain, and for paving the footways, crossing and channelling in Fulwich Road. Mr. W. Harston, surveyor, High Street, Dartford.

Kent Road Co., Gravesend (*accepted*) . £1,044 5 0

DARTMOUTH.

For alterations and additions to the new goal for converting same into strong-rooms. Mr. T. O. Veale, borough surveyor.

Gross	£31 5 0
W. G. Row	27 10 0
J. Back	24 15 0
Anderson, Dartmouth (*accepted*)	21 0 0

DUDLEY.

For construction of a sewer near Tipsiford Bridge, Pedmore Road, with manholes, lampholes, storm overflow, &c. Messrs. E. B. Marten & W. Fiddian, engineers, Church Street Chambers, Stourbridge.

J. Mackay	£827 18 8
T. Vale, Stourport (*accepted*)	697 13 0

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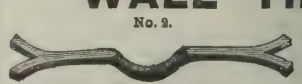
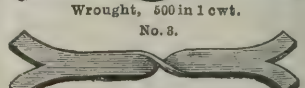
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ECCLES.

For construction of a urinal in Barton Lane.

J. F. MOORE, Chadwick Road (*accepted*)	£84 18 6

HARROW.

For erection of a classroom at the infants' school. Messrs. HOUSTON & HOUSTON, architects, 5 York Buildings, Adelphi, W.C.

W. B. Walker	£495 0 0
H. W. Dunmore	435 0 0
J. C. Rackham	428 0 0
A. Webb	425 0 0
A. J. BATCHELOR (*accepted*)	425 0 0

IRELAND.

For erection of labourers' cottages, out-offices and fencing of plots in Dromore West.

Accepted tenders.

T. Kennedy, two cottages	£179 0 0
P. Cavanagh, two cottages	163 0 0
P. Maughan, one cottage and fencing	90 0 0
P. Mahon	89 0 0
M. Kilworth, one cottage	84 0 0
E. Kennedy	83 0 0
T. Morrison	81 0 0
T. Neary	77 10 0
G. Greer, one cottage	75 0 0

KING'S LYNN.

For works in connection with the electric lighting of the borough :—(1) Buildings, &c. ; (2) gas-producing plant ; (3) gas engines ; (4) dynamos, switchboard, motor-transformer, electrical instruments, fittings, &c. ; (6) armoured cables and other mains, pipes, stoneware culverts, fuse boxes, &c.

Accepted tenders.

No. 1, Merredew & Wort	£2,683 18 1
„ 2, Fielding & Platt, Limited	1,582 16 0
„ 3, „ „ „	3,237 16 0
„ 4, General Electric Co., Limited	2,652 6 7
„ 5, Chloride Electrical Storage Syndicate	846 9 6
„ 6, Siemens Bros. & Co., Limited	8,649 13 11

LEAMINGTON.

For erection of a concrete wall in the river walk, in continuation of the existing wall. Mr. W. DE NORMANVILLE, surveyor, Town Hall, Leamington.

R. BOWEN, Tavistock Street (*accepted*)	£200 0 0

LONDON.

For repairs and new drainage to the Hat and Feathers public-house, Sumner Street, Southwark. Mr. JOSEPH G. NEEDHAM, architect, 18 Lower Clapton Road, N.E.

A. & T. Wilson	£233 0 0
R. RIDGEWAY & SONS, Hackney (*accepted*)	175 0 0

For erection of factory building, Abbey Lane, E. Mr. EUGENE C. BEAUMONT, architect, 78 Fleet Street, E.C.

Pocock	£803 0 0
I. NOAKES, Canning Town (*accepted*)	712 10 0

LONDON SCHOOL BOARD.

For erecting school—boys, 240 ; girls, 240 ; infants, 276 : total, 756—also schoolkeeper's house, with cookery centre and science room under, Blythe Road.

J. Allen & Sons	£22,107 0 0
J. Carmichael	21,511 0 0
J. & M. Patrick	21,499 0 0
J. Grover & Son	21,186 0 0
Leslie & Co., Limited	21,186 0 0
F. & H. F. Higgs	21,071 0 0
Lathey Bros.	20,533 0 0
E. Lawrance & Sons	20,237 0 0
W. King & Son	20,016 0 0
B. E. Nightingale	19,876 0 0
W. Johnson & Co., Limited *	19,850 0 0

For erecting school—boys, 292 ; girls, 292 ; infants, 338 : total, 922—with schoolkeeper's house and manual training centre, Oakfield Road.

Unsigned	£19,308 0 0
J. Carmichael	19,238 0 0
Kirk & Randall	19,072 0 0
Stimpson & Co.	19,000 0 0
F. & H. F. Higgs	18,850 0 0
Treasure & Son	18,608 0 0
E. Lawrance & Sons	18,170 0 0
S. Hart *	18,029 0 0

* Recommended for acceptance.

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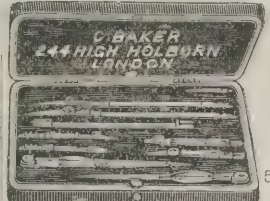
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LONDON SCHOOL BOARD—*continued.*

For new school—boys, 308; girls, 308; infants, 349: total, 965—with schoolkeeper's house, Invicta Road.

Edwards & Medway	£24,696 0 0
J. & M. Patrick	24,624 0 0
Holliday & Greenwood	24,528 0 0
W. Downs	24,449 0 0
J. Carmichael	24,180 0 0
G. E. Wallis & Sons	23,797 0 0
Kirk & Randall	23,442 0 0
E. Lawrance & Sons	23,045 0 0
E. Parsons & Co.	23,013 0 0
W. Johnson & Co., Limited	22,740 0 0
F. & H. F. Higgs	22,641 0 0
J. Marsland	22,365 0 0
Treasure & Son*	22,113 0 0

For providing and fixing auxiliary heating in three new class-rooms and corridors in connection with existing low-pressure steam apparatus, Oldfield Road.

J. Fraser & Son	£182 0 0
J. Esson	163 0 0
J. & F. May	115 0 0
W. G. Cannon & Sons	98 10 0
Wenham & Waters, Limited	96 0 0
G. & E. Bradley	83 10 0
J. Grundy	77 10 0
J. Wontner-Smith, Gray & Co.	71 10 0
J. Defries & Sons, Limited*	60 0 0

For providing and fixing boiler and extending existing low-pressure hot-water apparatus, and providing hot-water radiators in three corridors and coil in cloak-room, Detmold Road.

A. H. Skinner & Co.	£230 0 0
H. C. Price Lea & Co.	205 0 0
Comyn, Ching & Co.	198 5 0
W. G. Cannon & Sons	198 0 0
G. Davis	172 0 0
Vaughan & Brown, Limited	166 0 0
J. Defries & Sons, Limited	159 0 0
Stevens & Sons	147 5 6
Duffield & Co.*	125 0 0

* Recommended for acceptance.

LONDON SCHOOL BOARD—*continued.*

For providing girls' and infants' offices, refitting boys' offices, altering and refitting lavatories and providing new drainage scheme, Hague Street.

G. S. S. Williams & Son	£2,320 0 0
E. Lawrance & Sons	2,170 0 0
Marchant & Hirst	2,157 10 0
T. Cruwys	2,118 0 0
Lathey Bros.	2,047 0 0
Stevens Bros.	2,044 10 0
Johnson & Co.*	2,042 10 0

For providing and fixing steam boiler, &c., Sidney Road.

Dargue, Griffiths & Co., Limited	£583 10 0
J. Fraser & Son	570 0 0
Duffield & Co.	495 0 0
J. Esson	495 0 0
J. & F. May	460 0 0
W. G. Cannon & Sons	455 0 0
J. Defries & Sons, Limited	423 10 0
J. Grundy	390 0 0
Wenham & Waters, Limited*	317 0 0

For providing additional heating to new class-rooms and rearranging apparatus on ground floors, "Ben Jonson."

J. Fraser & Son	£553 0 0
J. Esson	396 0 0
J. Grundy	366 0 0
J. & F. May	365 0 0
Dargue, Griffiths & Co., Limited	351 0 0
W. G. Cannon & Sons	345 0 0
E. Oldroyd & Co., Limited	343 0 0
Wenham & Waters, Limited*	320 0 0

For providing and fixing drying horses, Gordon House, Isleworth.

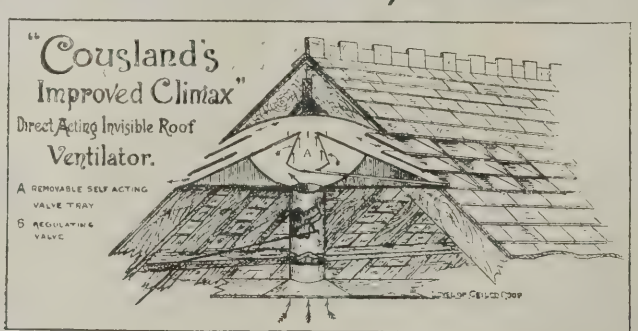
Z. D. Berry & Sons	£298 0 0
J. Fraser & Son	288 0 0
J. & F. May	232 0 0
W. G. Cannon & Sons	180 0 0
J. Wontner-Smith, Gray & Co.	172 0 0
Wenham & Waters, Limited*	154 0 0

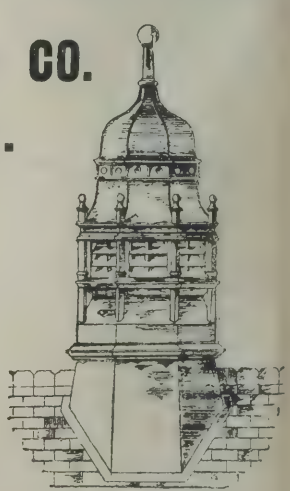
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LONDON SCHOOL BOARD—*continued.*

For exterior painting at the following schools :—

Purrett Road.

Thomas & Edge	£252 0 0
J. H. Hodgin	249 0 0
W. Holding & Son	239 0 0
C. Foreman	238 0 0
W. Hayter & Son	198 0 0
W. Banks	154 17 6
Jones and Groves	154 5 0
E. PROCTOR (*accepted*)	105 0 0

Wolverley Street.

J. F. Holliday	251 0 0
Johnson & Co.	225 0 0
G. Barker	219 10 0
A. W. Derby	215 0 0
J. Kybett	199 0 0
S. H. CORFIELD (*accepted*)	197 0 0

MANCHESTER.

For erection of a new out-patient department and accident-rooms at Ancoats Hospital. Mr. W. CECIL HARDISTY, architect.

WILSON & TOFT, Manchester (*accepted*)	£5,900 0 0

OLD HILL.

For erection of the Wright's Lane Board school for 348 boys and girls mixed, and 340 infants. Messrs. MEREDITH & PRITCHARD, architects, Bank Buildings, Kidderminster.

R. Thompson	£8,977 10 0
J. A. Meredith	8,400 0 0
Guest & Son	8,000 0 0
H. Smith	7,783 0 0
T. Vale	7,745 0 0
W. Willett	7,373 0 0
J. Dallow	7,255 0 0
J. COCKEN & SON, Old Hill (*accepted*)	7,140 0 0
H. Dorse & Co.	6,999 0 0

SCOTLAND.

For erection of freestone or granite boundary walls and iron railings, with gates around land acquired for Nairn Cemetery extension. Mr. JOHN R. DOUGLAS, Nairn.

Excavation and mason-work.

J. E. Gibb	£1,001 18 10
R. Squair	841 0 0
Taylor & Smith	790 0 0
D. Mathieson & Co.	705 3 3
T. McDonald	584 9 0
J. FARQUHARSON, Nairn (*accepted*)	454 12 0

Wrought-iron railing-work.

McDowall, Steven & Co., Limited	431 13 5
McDowall, Steven & Co., Limited, cast-iron	367 13 0
G. & W. Millar	267 10 0
J. Abernethy & Co.	255 0 0
G. B. Smith & Co., Graighall Ironworks, Glasgow (*accepted*)	229 16 11
Inverness Foundry Company, Limited	222 8 3
Cameron & Co.	211 3 0

Engineer's estimate, £370 and £243.

For erection of the new school at Bridge of Weir, Kilbarchan. Mr. JAMES MILLAR, architect, 223 West George Street. Glasgow.

Accepted tenders.

R. Houston, Bridge of Weir, building and mason.
J. Colquhoun, Bridge of Weir, carpenter and joiner.
W. Clark, Bridge of Weir, slater.
G. Thomson & Son, Johnstone, plaster.
J. Crawford, Bridge of Weir, plumber and gasfitting.
Kean & Wardrop, Glasgow, tilework.

SHEFFIELD.

For enlargement of St. John's Church, Chapeltown. Mr. WALTER J. SYKES, architect, Hoyland, near Barnsley.

R. Marsden, mason, &c.	£931 0 0
G. Cook, joiner	296 12 0
J. Snowden & Son, plumber, painter, &c	133 10 0
G. Calvert, slater	77 17 0
J. McPartlain, plasterer	44 0 0

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Also, Testimonials from Dr. Hassall, September 28, 1868; the late Dr. Letheby, February 15 1865, and December 1872.

Price, £1 10s. and upwards. **Portable Filters on this System, £1 5s. to £3.**

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TEWKESBURY.

For erection of a boiler-house at the waterworks.

Malvern & Son	£879	0	0
Collins & Godfrey, Tewkesbury (*accepted*)	847	10	0

WALES.

For erection of retaining walls, wrought-iron railings, excavating and asphalting portion of playground at the Coedfranc schools. Mr. J. Cook Rees, architect, Church Place, Neath.

T. Watkins & Co.	£541	0	0
D. Jenkin	493	0	0
I. Harris	488	0	0
Snow Bros.	455	0	0
E. Morgan, Landore (*accepted*)	420	0	0
M. Lawrence	364	0	0
Architect's estimate	415	0	0

WASHINGTON.

For laying-down 2,750 yards of asphalte footpath. Mr. G. W. Ayton, surveyor, Chester-le-Street.

Asphaltic Limestone Concrete Co.	£275	0	0
J. Brooks	275	0	0
G. E. Simpson	252	1	8
J. Bland	241	12	6
J. J. Ingham	234	17	11
North of England Asphalte Co.	183	6	8
J. Hadfield, Sunderland (*accepted*)	183	6	8

WOOLWICH.

For rebuilding drapery premises, Powis Street.
Chapman (*accepted per schedule*).

WREXHAM.

For erecting boundary walls to separate the fever hospital from the workhouse grounds. Messrs. J. Morison & Son, architects, King Street, Wrexham.

Lewis Bros.	£325	0	0
J. Stephens	298	0	0
Davies & Son, Wrexham (*accepted*)	249	0	0

The opening of the new Crown Theatre, Peckham, has been definitely fixed for the last day of the present month. The theatre, which is a fine brick building in the High Street, will be lighted with electric light throughout, and will have seating accommodation for 4,000 persons.

BUILDING AND BUILDERS.

In the Edinburgh Sheriff Court on the 13th inst., before Sheriff Rutherfurd and a jury, an inquiry was held into the circumstances attending the death of Edward Hanlon, mason's labourer, 9 Ashley Buildings, High Street, lately in the employment of Messrs. Melrose & Thomson, builders, Jameson Place, Leith. The evidence showed that deceased, who was engaged on the 3rd of this month upon a house in the course of erection in Montagu Terrace, was filling a bucket with lime on the ground inside the building. A fellow-workman was in the act of descending a ladder from the top storey carrying a piece of wood, when the latter slipped from his hands and, after striking one or two projections in its progress, fell on Hanlon from a distance of fully 40 feet. The unfortunate man was conveyed to the Royal Infirmary where he succumbed to his injuries about an hour after admission, death being due to fracture of the skull. The jury returned a verdict in accordance with the evidence.

The memorial-stone of a new Free church at Carnock, Fifeshire, was laid on the 12th inst. by the Earl of Moray, in presence of a large assemblage. The church is to provide accommodation for 300 worshippers, and the cost is estimated at about 1,100*l.*

The Lord Mayor of Liverpool, who was accompanied by the Lady Mayoress, laid on the 13th inst. the foundation-stone of the new out-department in connection with the Liverpool Stanley Hospital in Easby Road, which is to be erected at a cost of 2,500*l.*

The foundation-stone of the church of St. Stephen, Bexhill, was laid on the 15th inst. by the Misses Walker, daughters of the donor, Mr. J. Lambert-Walker, who is devoting 10,000*l.* towards the building and endowing the edifice.

The work of excavating for the foundation of the new volunteer drill-hall for Ormskirk is in progress. The building, the site for which has been given by Mr. James Eastham, is expected to cost between 2,000*l.* and 3,000*l.*, and will not merely provide facilities for military training, but for recreation and mental improvement.

A labourer named Pindell, aged eighteen, met with a shocking death last week. He was working on a scaffold at the Vestry Hall, Putney, when a plank on which he was standing gave way, precipitating him into the roadway head foremost, and dashing his brains out. When picked up he was dead, and his body was removed to a mortuary.

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While employed in the erection of a new chimney in connection with the Leeds new abattoir works, New York Street, last Friday afternoon, a bricklayer's labourer named Edward Clarke was killed, and a bricklayer's apprentice, John Greenwood, seriously injured. The chimney is 76 feet high and the men fell inside, a distance of 70 feet. They had probably overbalanced themselves, as the scaffolding remains intact.

At the monthly meeting of the Morecambe School Board a letter was read from the Education Department sanctioning the purchase by the Board of close upon 6,000 yards of land as a site for new schools, and the abandonment of the existing schools. It was decided to ask the consent of the Local Government Board to borrow 5,650*l.* to cover the cost of site and expenses.

The annual dinner of the Northampton Master Builders' Association was held in the assembly-room of the George Hotel, Northampton, last week. Mr. E. D. Sharman (the president of the Association) occupied the chair, supported by the mayor of Northampton (Councillor W. P. Hannen), Alderman George Norman, J.P., Councillor Henry Martin, J.P., Councillor Henry Green, Mr. F. J. Airs (hon. sec.), and Mr. F. H. Mardlin. The vice-chair was occupied by Mr. G. Harris, and the company numbered about a hundred.

The large timber yard and saw mills belonging to Mr. J. Gretnin, builder, Shrewsbury, were destroyed by fire on the morning of the 13th inst., and damage caused to the amount of a thousand pounds. A Wesleyan chapel, a paint warehouse and offices and workshops adjoining had narrow escapes. Troops were called out, and rendered useful help to the firemen. The fire, which was caused by a cinder from an engine falling among some shavings, was extinguished in an hour.

Councillor Green Hirst (chairman of the fire brigade sub-committee of the Leeds City Council) has had an interview with the waterworks committee with reference to the building of a new police-station at the corner of Reservoir Street in place of the present small and inconvenient structure. In connection with the new police station it is intended to erect a branch library and a tramway waiting-room, and Mr. Hirst's object in meeting the waterworks committee was to ask for the necessary land which will be required for the purpose. The committee agreed to the request.

In Liverpool on Monday an inquest was held on the body of Thomas Whittaker, a steeplejack. He had finished repairing a lofty chimney and was removing the ladders when he slipped and fell a distance of 40 feet, sustaining injuries which terminated fatally the same night. The deceased's wife said he was a sober man, but always took a drop when going to a job. The foreman of the jury remarked that it was customary with steeplejacks to do so. Several witnesses deposed that deceased was drunk when he ascended the chimney. The jury found that death was the result of an accident, but that deceased was drunk at the time, and should have been prevented making the ascent.

The north-west gable of the west front of the Peterborough Cathedral has been completed in a most satisfactory manner in accordance with specifications got out as far back as 1896, the estimated cost being 8,659*l.* 5*s.* 4*d.* The centres of the south-west arch of the west front are in position, and the work necessary to remedy the dangerous settlement of the north-east angle of the eastern chapel is approaching completion. The cost of these works has exhausted the funds at the disposal of the committee. The next most important work to be undertaken at the west front is the south-west gable, which it is proposed to treat in the same manner as the north-west gable, so far as may be found necessary.

The famous regatta town of Henley-on-Thames is destined to important developments in the near future. The extensive property known as the Bolney Estate stretches from Henley to Shiplake and Harpsden, with an area of upwards of 1,700 acres, and including the residences of Bolney Court and Harpsden Court has been sold to a London syndicate by Messrs. Simmons & Sons for 50,000*l.* This transaction is likely to have a great effect upon the development of building property in the neighbourhood of Henley, all the land on the north side of the town being practically locked up. The Bolney Estate possesses a frontage to the Thames extending from Marsh Lock to beyond Shiplake station, the Reading and Henley Road intersecting the estate, which is well timbered.

A new adult school has been opened recently at Hockley. The total cost of the school and mission is 4,150*l.* The large hall is a tastefully designed edifice of brick and terra-cotta and has a frontage to Farm Street. The main corridor leads directly from the street into the central hall, which is a compact and spacious room, having a length of 63 feet and a width of 40 feet, capable of seating upwards of 500 persons. The rostrum is fixed at the far end of the hall, and on either side are doors leading into another corridor running transversely. Behind this four classrooms are provided, each

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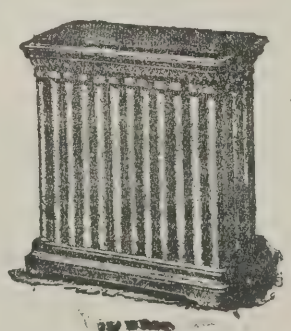
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capable of accommodating fifty persons. Two of these are so arranged as to be used for retiring-rooms, while behind the whole, and abutting almost on Hockley Brook, is another large room, 46 feet by 20 feet. This chamber is to be devoted to purposes of recreation, and will be utilised each evening by the members of the social club. The buildings have been erected by Mr. T. Elvins, of Handsworth.

The new Union Club buildings, which have been erected at the north end of Union Terrace, Aberdeen, for the social and political purposes of the Unionist party in the city, were opened on Tuesday by the Marquis of Lorne. The new club, which is of handsome design by Mr. A. H. L. Mackinnon, architect, commands a view across Union Terrace on the one hand, and Skene Terrace and North Silver Street on the other. It is three storeys, the ground floor of the front being occupied by three large shops, while the floors above are devoted exclusively to the uses of the club. The central portion of the elevation to the level of the base of the flagstaff rises to a height of 64 feet, and terminates in a circular window flanked by pilasters and surmounted by an obelisk. A rich projecting cornice, with balusters above, gives an effective finish to the rest of the elevation. To the club-rooms access is obtained by the vestibules, the one in Union Terrace and the other in Skene Terrace. Each of the entrance doors has an arched head, and is flanked by pilasters, with obelisks above. The length of the hall in which public meetings will be held is about 75 feet, with a breadth of 42 feet. In the south end is a small gallery, which will accommodate about 80 persons. On the same floor there is a commodious kitchen and buffet, from which there is a lift to the refreshment-room above. The first floor contains three well-lighted smoking, reading and refreshment-rooms, all looking to the front, while on the second floor are committee and recreation-rooms, with caretaker's apartments. The billiard-room has been fitted with six tables. Throughout the building is to be heated with steam pipes as well as by open fireplaces, and the electric light will be fitted up. The total cost of the club is between 9,000*l.* and 10,000*l.*, exclusive of furnishings.

The excavators working on the new dock at Llanelly have struck a vein of coal nearly 3 feet thick. The coal is highly bituminous, and of excellent quality. It cut easily and several truck-loads were obtained.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: FROM SOUTH-WEST.

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THE BALL-ROOM, THE PALACE, AMSTERDAM.

TRADE NOTES.

A large clock has just been erected in the parish church of Owslebury, near Winchester, by John Smith & Sons, Midland Clock Works, Derby. It is fitted with all the latest improvements, and is guaranteed to keep time with great accuracy.

The new cottage hospital for the Barnes and Mortlake District Council is being warmed and ventilated by means of Shorland's double-fronted patent Manchester stoves with descending smoke flues.

ELECTRIC NOTES.

At the meeting of the Dorking Rural District Council on the 13th inst., Mr. H. Lee Steere presiding, the surveyor reported as to the electric lighting of the towns of a similar size to Dorking in which works were in operation or about to be constructed, and he was directed to obtain further detailed information.

At the meeting of the Driffield Urban District Council a letter was read from Mr. W. H. Jennings, solicitor, Driffield, stating that he had been instructed by a company to give the Council notice of their intention to apply for a Provisional Order authorising them to construct works and supply the town with the electric light. In a subsequent letter Mr. Jennings said he found that his letter to the Board was too late for this year, the last day for serving such notice on local authorities being July 1. However, the notice would be renewed next year. There was no comment on the matter, but it is unlikely the Council will view the matter with favour, seeing they last year purchased the gasworks at a stiff figure. Doubt is expressed whether the town is sufficiently large to make such a company remunerative.

At the last meeting of Marylebone Vestry there was a considerable discussion on the recommendations of the electric-

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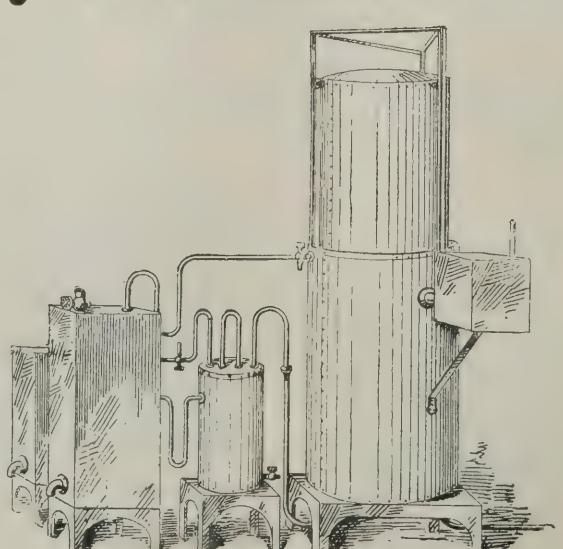
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lighting committee that formal notice be given on or before November 1 to the Metropolitan Electric Supply Company, Limited, of the Vestry's intention to proceed for a Provisional Order for the public and private or public or private lighting of the parish by electricity. Mr. Brooke Hitchings, C.C., in moving the recommendations, thought that notwithstanding the Vestry having failed to obtain Parliamentary powers conferring the Provisional Order granted by the Board of Trade last year, yet it should go on and endeavour again to obtain such powers. Sir E. Galsworthy and Mr. T. White, L.C.C., both opposed, and thought that it would be well that they should wait another year. The recommendation, on the vote being taken, was unanimously agreed to.

THE Ayr electricity lighting works have now been in operation for two years, and extensions on a large scale have recently been made, and are partly in use. The original installation was for 225 kilowatts, giving a total light equal to 7,650 8 candle-power lamps, and the works cost 25,000*l.* The additional plant, which has been laid down at a further cost of 15,000*l.*, nearly trebles the means of production, the amount of light the combined plant is capable of producing being equal to 20,000 8 candle-power lamps. The producing capacity of the works is now such that they are likely to be sufficient to meet the demand for a number of years. Several miles of street have been lighted with arc lamps, and many of the shops are lighted both by arc lamps and incandescent lamps, and many private houses are also lighted on the incandescent system, while all new houses where the cables are available are being fitted up solely with the electric light. The length of cable laid down already extends to eight miles, and the Corporation have entered into a contract to light the harbour and dock with fifteen arc lamps. This will bring up the total arc lamps within the burgh to 105, and it is intended to further increase the number, one of the most important extensions being to the esplanade along the seashore, on which it is proposed to fit up eighteen arc lamps. When the system is fully in operation Ayr will probably be the best lighted town in Scotland.

A LARGE and important power-station is now in course of erection on an extensive plot of ground at Ringsend, Dublin, for the Dublin Electric Tramways Company. The whole of the buildings will be of steel, which is being supplied in immense quantities by Messrs. Ketter & Conoly, of Pittsburg, Pennsylvania, United States, and the works, which were only commenced in March last, are advancing satisfactorily to completion. Two steel chimneys, of noticeable symmetry, and each 200 feet high, form an imposing feature of the works, and these were erected in the short space of seven weeks. The brick lining of these monster chimneys forms a 10-feet circle. The base is 28 feet high, and is built on concrete blocks. The boiler-house and engine-house will be on a large scale, the steel columns of the superstructure being more than 60 feet high, while to the apex of the columns the height is 70 feet. The boiler-room will measure 83 feet from the lowest floor to the apex. As regards the main building it will have a width of 80 feet inside, with a steel roof in a single span and a length of 200 feet. Large quantities of Ruabon and Belfast bricks are on the ground, these being used in various ways. The building contractors are Messrs. H. & J. Martin, of Dublin and Belfast, and the clerk of works is Mr. D. P. Murphy.

VARIETIES.

THE Wesleyan chapel at Welburn was reopened on Tuesday last, after undergoing complete renovation.

AN excursion meeting of the Northern Architectural Association will be held to-morrow (October 22). The President will conduct the party over Messrs. Robinson's new premises, Clavering Place, Newcastle.

THE new central block of college buildings at the Welsh University, Aberystwyth, erected at a cost of 15,000*l.*, is to be opened on Wednesday, the 26th inst., by Sir William V. Harcourt, M.P.

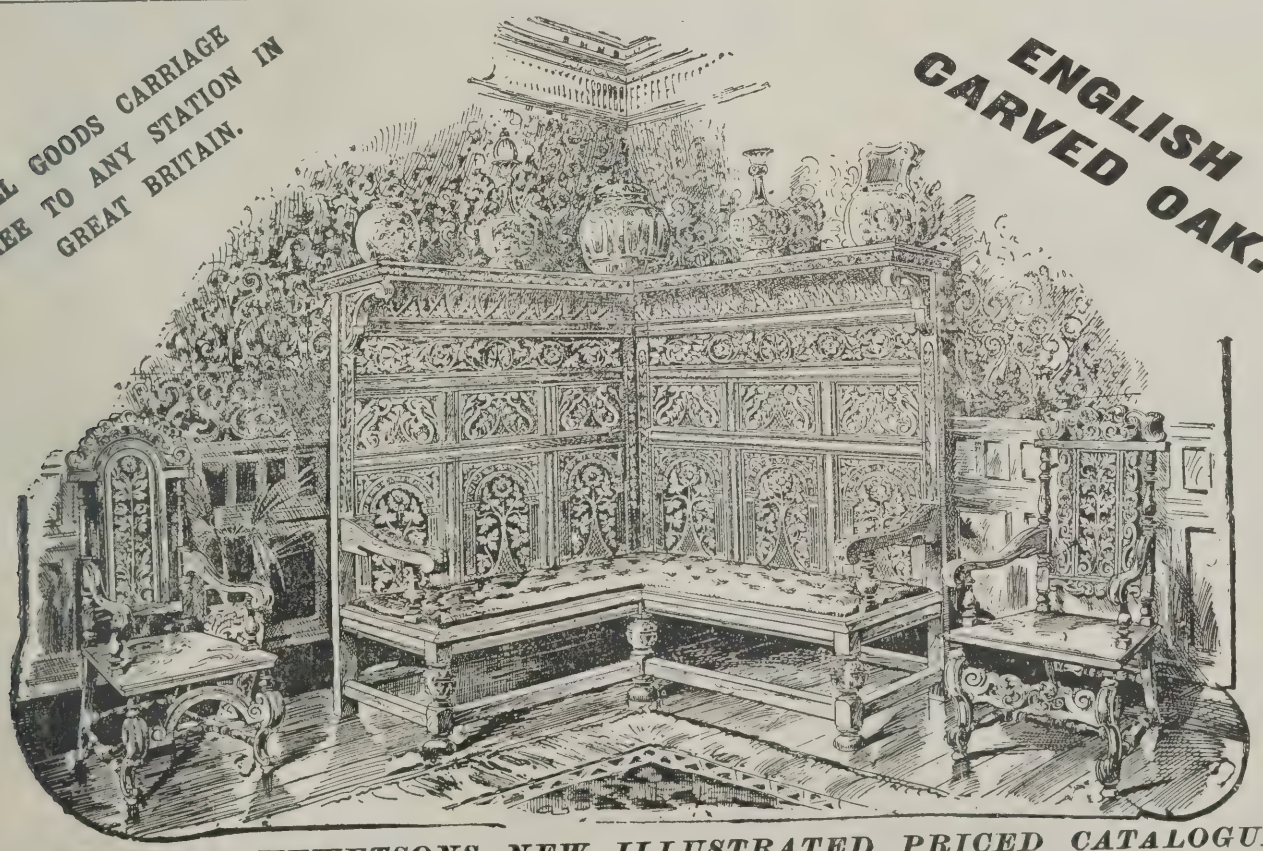
ON Saturday afternoon, in the presence of a large company, the cottage homes which have been erected at Mill Hill, near Hendon, in connection with the Linen and Woollen Drapers' Institution, were opened. They occupy a site of four acres and have been built at a cost of nearly 13,000*l.*

THE cutting of the first sod preliminary to the construction of a new reservoir to supplement the Harrogate water supply took place on the 17th inst. The site is at Scargill, seven miles from the borough, and the reservoir is expected to be completed in three years.

TUDOR HOUSE, Hampstead, which overlooks the ponds on the brow of the Heath, is being adapted by its purchaser, the Baroness Hirsch, for the purposes of a convalescent home for the Jewish community. The dining-room at Tudor House is modelled on that at Hatfield House.

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Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations

THE Queen has had plans prepared for a number of dainty little tea-houses which are to be erected during the coming winter in the grounds and on the more extended drives about Balmoral. Spots with lovely views of the mountains and of the river Dee have been chosen by the Queen herself, and on these they will be built. The cottages will be finished in May.

THE Conference of Municipal officers already announced to be held on Monday, the 31st inst., at Sion College, Victoria Embankment, London, E.C., will be presided over by Mr. C. William Tagg, vestry clerk of Camberwell, and amongst those who have signified their intention of being present are Sir John Blundell Maple, M.P., Major P. H. Dalbiac, M.P., Mr. John Lowles, M.P., and other influential gentlemen.

A FIRE broke out at four o'clock on Tuesday morning at the extensive timber yard of Messrs. Laverack & Goddard, Hull, and a great part of the timber and premises was destroyed. The timber yard is surrounded by tenement property, which at one time was in danger, but the police effectively coped with the flames, although a furious wind made their efforts difficult. Several of the mills were destroyed, and the damage is estimated at 14,000*l.*

THE inaugural meeting in connection with the Bible Training Institute for Scotland was held on the 18th inst. in the newly-completed building in Bothwell Street, Glasgow. The building has been erected from plans by Mr. R. A. Bryden, Bothwell Street, and is designed to harmonise with the Christian Institute, which it adjoins. The total outlay, including the cost of the site and of the furniture, which has been supplied by Messrs. A. Gardner & Son, Jamaica Street, is about 50,000*l.*

THE building of a new bridge across the Thames at Kew seems likely to be delayed. A number of tenders were opened by the joint committee of the Surrey and Middlesex County Councils this week, when it was found that the lowest in amount was about 50,000*l.* beyond the estimate given by Sir James Wolfe Barry, upon which the Act of Parliament was obtained. It will now be necessary to persuade the County Councils to agree to the additional expenditure, and then to obtain further Parliamentary powers.

THE adoption of steam fire-engines in country towns is rapidly increasing, the need for more efficient protection than that provided by the manual-worked engines which have hitherto done duty being recognised by the new District and Parish Councils. The steam fire-engine drills at Blenheim Park and the securing of two challenge shields by the Leyton brigade with Merryweathers' new patent "Greenwich gem" engine have naturally attracted considerable attention, and the result has been that this type, which has the unique advantage that it can be stoked and run entirely by one man, has been adopted by a number of towns. Amongst these may be mentioned Hull, Wolverhampton, Blackpool, Handsworth, Barnes and Esher, while several foreign fire brigades have ordered similar engines.

THE new church of St. John the Evangelist, Wortley-de-Leeds, was consecrated on the 15th inst. by the Lord Bishop of Ripon. Built of stone, the new edifice accommodates about 750 people. There has been no extravagant expenditure and ornamentation. The interior, however, is by no means unattractive. It is much loftier than the old church which it supersedes. The roof is open timbered. Light is admitted by leaded windows filled with tinted cathedral glass. The original designs were prepared by Mr. Swinden Barber, of Halifax. The work, however, has been carried out under the supervision of another Halifax architect, Mr. T. H. Farrer. About 6,500*l.* has already been expended on the church, and the tower will be proceeded with when the necessary funds come to hand.

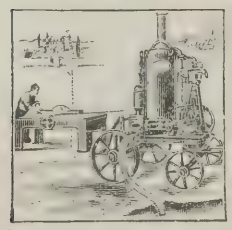
THE opening of the Edinburgh Constitutional Club took place in the lecture hall on Friday last. The new premises, which are situated in Bourtree Place, have been erected at a cost of between 3,000*l.* and 4,000*l.*, from plans by Mr. James P. Alison, Hawick. They are of handsome design and commodious, containing reading-room, lecture-hall, a billiard-room with six tables, card-room and committee-room, all handsomely furnished.

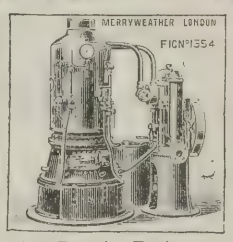
ABBEY MANSIONS, WESTMINSTER.

THE summons against the owner of Abbey Mansions (North Block), instituted by the London County Council under the dangerous structure clauses of the London Building Act, again came before Mr. Marsham on Monday, to whom was presented the award of the arbitrator to whom matters in dispute had been referred.

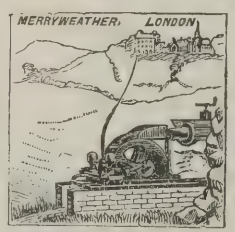
Mr. Dalby, for the London County Council, said that the arbitrator, Mr. Clifton, had decided in their favour. He said that the building ought to be shored up—his worship would recollect that this was a great bone of contention—that the defective stonework should be taken out and replaced, and thirdly, that certain openings on the basement and ground

MERRYWEATHER on WATER SUPPLY TO COUNTRY MANSIONS, &c.

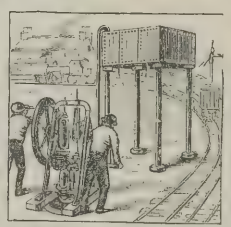

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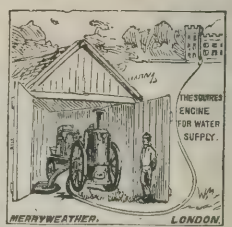


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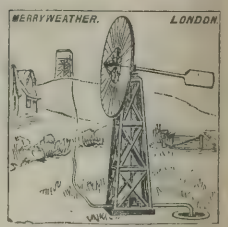


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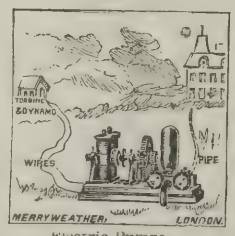
Windmill Pump.



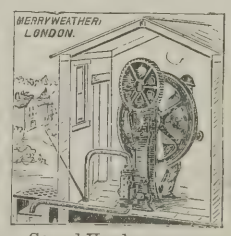
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floors should be filled up solid. A great deal of the work had already been done, and he could not say that the award was not being loyally acted upon. The question now was who was to pay the heavy costs and expenses.

Mr. Pollock, for the owner (Mr. Pawley), said he did not mind paying his own costs, but, inasmuch as he denied the right of the Council to proceed under the Act, he refused to bear the expenses of the complainants.

After a long argument the question of costs was reserved until the decision of the superior Court on the earlier summons (heard last July) as to the building being vested in the Government.

SANITARY INSPECTORS' ASSOCIATION.

THE annual general meeting of this Association was held on Saturday evening at Carpenters' Hall, London Wall, Mr. T. G. Dee (chairman of the Council) presiding. The report stated that sixty-eight new members and four associates had been elected during the past year. The Council regretted that no opportunity occurred during the year for the introduction of their Superannuation Bill in Parliament. They had also to regret that the long-talked-of conjoint board of examiners had at last received definite constitution, and an association had been formed composed of three representatives of the Local Government Board, two of the Sanitary Institute, and one each of the National Health Society, the Plumbers' Company, the Carpenters' Company, the Incorporated Society of Medical Officers of Health, the Royal Institute of British Architects, the Society of Municipal and County Engineers and the Royal Institution of Public Health, who were applying to the Board of Trade for a right to become incorporated on the same lines as this Association. The Council had, in accordance with the terms of the advertisement which appeared in the *Times* on the 14th ult., sent a letter of objection to the Board of Trade, and had also written to each of the bodies having representatives on the new board asking them to give full consideration to the claims of this Association to due representation on such board. The Chairman moved the adoption of the report, which was seconded by Mr. M. Nair. After some discussion, in the course of which it was generally agreed that the Association, while proceeding with their own Superannuation Bill, should lend their support to the Metropolitan Officers' Superannuation Bill, the report was adopted. The financial statement was then submitted by Mr. Nurcombe, one of the auditors, who remarked that something would have to be done to increase the income or decrease the expenditure, otherwise they would soon be in a state of bankruptcy.

NATIONAL REGISTRATION OF PLUMBERS.

THE winter session of the plumbing classes conducted by the National Registration of Plumbers, in conjunction with the Perth School Board, was opened last Saturday night in the Science Room of the Perth Academy, by a lecture by Dr. John S. Lumsden. Mr. James Ramsay, chairman of the evening continuation classes committee, presided, and amongst those present were ex-Bailie M'Neil, Mr. R. H. Miller, solicitor, Mr. Ellison, technical instructor, and Mr. Wm. Watson.

The Chairman, in his opening remarks, said that he saw in this new departure an indication of the progress they were making in their appreciation of the value of science teaching, and especially of technical instruction.

After Dr. Lumsden had delivered his lecture Mr. Wm. Watson, in the course of a few observations, said that the practical classes had for four or five years been conducted with splendid results, and they now had the advantage of a teacher in the science subjects in the person of Dr. Lumsden.

The Chairman then presented the certificates gained last session by John Morton and David Welsh in the examination held under the graded syllabus of the Plumbers' Company.

A NEW AUTOMATIC GAS-LIGHTER.

DURING the past few days the King's Hall of the Holborn Restaurant has been devoted to the purposes of an exposition of the merits of the "Matchless Gas-lighter," which, as its name implies, effectually dispenses with the use of matches and its attendant danger and inconvenience in the lighting of gas, and, which is of perhaps greater importance, supersedes the bye-pass, which must certainly be regarded as an element of risk, especially when used in association with gasaliers of the telescopic kind, not a few explosions having occurred which were directly traceable to the escape of gas from fittings of this description having filled the upper part of the room, and reaching in time the lower level of the bye-pass with the inevitable and lamentable result of a serious "blow up."

The new lighter appears to possess the valuable qualities of simplicity, durability and adaptability. The fundamental principle is platinum wire heated by carburetted hydrogen, and

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the effect is that immediately the gas is turned on either at the burner or the meter it ignites apparently spontaneously. The lighter is practically indestructible, as the portions susceptible to injury by heat are secluded from the action of the flame; but should any portion be at any time accidentally damaged it can be readily and inexpensively replaced, as all parts are interchangeable. It can without any difficulty be applied to any existing burner, whether of the old-fashioned kind or the more modern incandescent description.

NEW CATALOGUE.

We have received from Mr. William Cassels, of Kirkintilloch, a new catalogue of his patent "Clarifont" lavatories, which provide the luxury of washing in water which remains always pure. This desideratum is attained by providing an inner basin with a constant supply welling up from the bottom during the washing, and overflowing all round the rim, thus carrying off at once the soiled and soapy water. The inner basin being large enough to completely immerse the hands, as much water can be lifted from it as from any larger vessel, while the continuous supply keeps the basin always overflowing. The "Clarifont" lavatory is made in various qualities, and either single or in ranges. It is therefore adapted for use in private houses and in hospitals, hotels or factories, where numbers require to wash at the same time.

INSTITUTION OF CIVIL ENGINEERS.

The prize-list of the Institution of Civil Engineers for 1897-98 is as follows. The awards will be presented at the Institution on Tuesday, November 1, 1898, at 8 P.M. Telford medals and premiums: A. H. Preece (London) and H. C. Stanley (Brisbane, Queensland). Watt medals and premiums: H. L. Callendar, M.A., F.R.S. (London) and J. T. Nicolson (Montreal, Canada). George Stephenson medals and premiums: Whately Eliot (Plymouth), W. O. E. Meade-King (London) and W. P. Marshall (Birmingham). The Crampton prize: E. W. Anderson (Erith). Telford premiums: L. B. Atkinson (Cardiff), Henry Fowler (Horwich), W. L. Strange (Bombay), F. J. Waring, C.M.G. (London), D. W. Brunton (Denver, U.S.), Wilfred Airy, M.A. (London), E. M. Bryant, B.Sc. (Newcastle-on-Tyne), D. B. Butler (London) and H. V. Champion (Victoria). The James Forrest medal: W. L. Brown, M.Sc. (London). Miller prizes: C. E. Wolff, B.Sc. (Derby), A. D. Keigwin (Ashford), Harold Williams (Kingston), J. T. Morris (London), H. C. Adams (Birmingham), H. O. Eurich (Bradford), B. K. Adams (Colombo), A. B. E. Blackburn (Wednesbury), Thomas Carter (Newcastle), P. F. Story (Manchester), D. E. Lloyd-Davies (Bewdley) and Wilfred Hall, B.A. (Corbridge-on-Tyne).

MESSRS. CHUBB'S NEW WORKS.

Sir George Hayter Chubb laid, on the 10th inst., the foundation-stone of a new lock manufacturing works which are being erected at Wolverhampton for the firm of Messrs. Chubb & Son, of London. The occasion had the additional interest attached to it that it was also the eightieth anniversary of the founding of the business. The premises will be of a most substantial and durable character. Every precaution has been taken to secure a sound foundation, the Portland cement concrete for this purpose being in many parts carried to a depth of 12 feet below the ground level. The superstructure will be of brickwork with Darley Dale stone dressings, the steps, door sills and stairs being of Portland stone. Tipton bricks are used for the general work, with King's Stourbridge red brick facings to the main buildings; the interior of the vestibule, show-room and offices having a dado of Ruabon glazed bricks, with Stanley's buff brick facings above. The paving of the basement rooms will be of Val de Travers asphalte laid on concrete; the show-room and ground floor offices will be paved with Duffy's pitch-pine blocks; the floors of the workshops will be of deal, 3 inches thick. Every storey will be amply provided with washing and lavatory accommodation, and a large dining-hall or mess-room, with kitchen attached, will afford additional comfort to those employed. In all such details the object has been to render the premises as perfect and convenient as it is possible to make them. Fire-resisting materials are to be used wherever practicable, and hydrants and special exits, with external iron stairs from the upper floors, will be provided. The ventilation, warming and sanitary arrangements have been most carefully studied.

Mr. C. H. M. Mileham, of Lincoln's Inn Fields, is the architect, Mr. E. T. Beck, of Darlington Street, Wolverhampton, acting with him as local superintending architect. Mr. H. Gough, of Dudley Road, Wolverhampton, is the contractor for the building.

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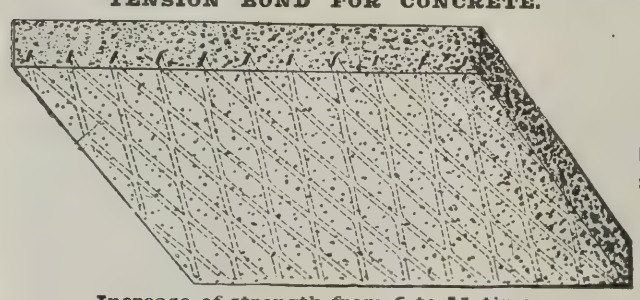
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WORKING-CLASS DWELLINGS.

In connection with the Clare Market rehousing scheme now in progress, and with the proposed new street from Holborn to the Strand, in respect of which application is to be made to Parliament next session, the housing of the working classes and the improvements committee of the London County Council have had under consideration the question of obtaining sites for rehousing purposes in the immediate locality of the two schemes. Learning that land in the neighbourhood of Drury Lane was vacant, they entered into negotiations with the owner, the Duke of Bedford, with the result that he expressed his willingness to sell two sites in Drury Lane, and also a larger site fronting Herbrand Street, near Woburn Place. In their joint report to the Council upon the matter the committees strongly advise the acquisition of these three sites, which, if acquired, will be sufficient for the erection of buildings to accommodate 1,000 persons. By the formation of the new street about 3,030 persons will be displaced. The price asked for the three sites is 118,740*l.*, and, in the opinion of the committees, this is reasonable.

THE SMOKE NUISANCE IN LONDON.

The public control committee of the London County Council have just issued a report in which they give a brief account of the steps taken to put a stop to the serious nuisance from smoke in London. The report states that during the past few months a large number of infringements of the law were reported by the police and also by the Council's own officers, and these were at once communicated to the sanitary authorities for the districts concerned with a view to steps being taken for the suppression of the nuisance. Unfortunately some of the metropolitan police magistrates either dismissed the summonses taken by the sanitary authorities or gave lengthy periods within which the alterations necessary for abating the nuisance could be carried out. The result of those decisions was to discourage sanitary authorities from taking cases into Court, and the committee experienced considerable difficulty in many instances in inducing them to do so; in some few cases it became necessary for them to declare the sanitary authorities in default and to initiate proceedings provided for in the Act, but in none of them was it necessary actually to issue summonses as the nuisance was abated. At two or three premises, however, they regretted to find that quite recently the nuisance had recommenced, and these cases had now been placed in the hands of the Council's solicitor with a view to legal proceedings being immediately taken. The committee regretted the view taken by some of the police magistrates that the difficulty in obtaining smokeless coal was a reason which justified persons in causing serious nuisance, especially as they were firmly convinced that nuisance could be abated to a great extent, if not entirely, even when smokeless coal was unobtainable. At most of the premises at first productive of nuisance a remedy was found by careful stoking, by the more judicious choice of fuel, or by the employment of improved appliances, but at electric light stations, in regard to which the proceedings had either been dismissed or considerable time given within which to provide a remedy, the nuisance not only remained unabated, but continued in an aggravated form, as the companies felt secure from further proceedings. With these exceptions, and the further exception of the steam craft on the Thames and of places over which the Council had no jurisdiction, they believed that the more serious nuisance from black smoke came to an end in July last and had only since recurred from time to time on two or three premises with which they were dealing.

BELFAST NEW ELECTRIC-LIGHTING STATION.

The formal opening on Tuesday last by Earl Cadogan of the extensive range of buildings which the Belfast Corporation have found it necessary to erect, owing to the inadequacy of the original premises in Chapel Lane to supply the increasing demand for electric current, was a ceremonial function which awakened a large amount of interest among the citizens.

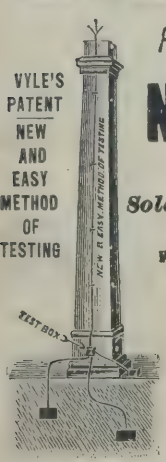
The new station, which occupies a commanding position at the corner of East Bridge Street and Lagan Bank Road, is, not only as regards size, but in the general excellence of its arrangements and equipment, entitled to rank as one of the most important and complete buildings of the kind in Europe. The total space occupied by the building is considerably over half an acre.

The ground floor is occupied by the engine-house, boiler-house, with space for economisers, coal bunkers, pump-house, &c., battery-room, men's mess-room, timekeeper's room and men's lavatory accommodation. The engine-room, a special feature of the establishment, is very spacious and lofty, being 200 feet by 40 feet, and has its walls lined throughout with coloured glazed bricks.

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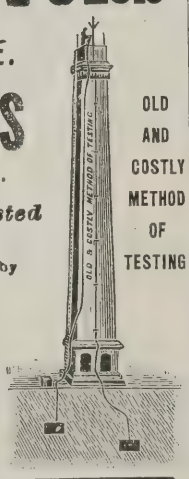


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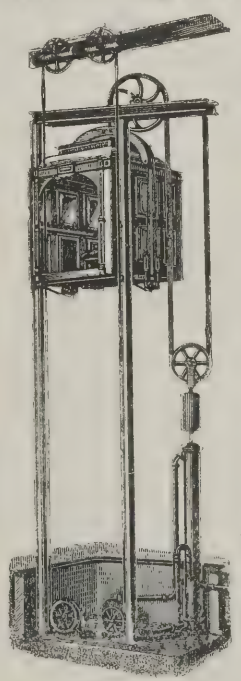
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On the first floor are the drawing, general and private offices for the various officials, with strong-room, engineers'-room, store-room, sample-room, meter-testing and meter store-rooms, superintendent's-room and lavatory accommodation. The second floor is arranged as a residential flat for the engineer-in-charge, consisting of a large suite of bed and sitting-rooms, with bath, lavatory, kitchen, &c. The principal façade, which is towards East Bridge Street, along which it extends for about 225 feet, is effectively treated in red brick and Giffnock stone in the style of the English Renaissance. The principal entrance, which is not yet completed, will be from East Bridge Street, the entrance for goods, &c., being from Lagan Bank Road.

The chimney, a novelty in tall chimney construction, is of quite an ornamental character, the red brick being judiciously relieved with courses of artificial stone, while a cornice and mouldings of the same material have been introduced in an effective manner, the whole being surmounted by a cast-iron cap to which four lightning conductors have been fixed. The height of the structure is 180 feet, and the base 26 feet 6 inches. It is carried on 154 round timber piles. The various departments of the establishment have been so arranged that they can be duplicated should the public requirements necessitate an increase in the accommodation.

The contract for the building was secured by the contractors on July 1, 1897, and although some time was lost at commencement owing to labour troubles, yet the whole building has been completed in a little over twelve months.

The piling of the building, a separate contract, was also done by the same contractors. The 1,190 piles were driven in 37 days, or an average of 32 piles per day—a record in pile-driving.

The building has had over 1,500,000 bricks used in its construction, 250 tons freestone, 450 tons iron, 3,250 tons concrete and one-third acre of glazing. It has been successfully carried out under the supervision of the firm's manager, Mr. James Hanna, and Messrs. Patrick Brennan and William Service, foremen.

The constructional ironwork was supplied by Mr. James M'Millan, Glasgow, through his Belfast agents, Messrs. Scott & Rea, and the castings by Messrs. Stephen Cotton & Co., Belfast. The plumbing-work has been done by Mr. Harrison M'Cloy, and the painting by Messrs. George Morrow & Son. All the work was carried on under the superintendence of the efficient clerk of works, Mr. James Moore.

The architects for the work were Messrs. Graeme-Watt & Tullock, and the contractors for the entire work Messrs. J. & W. Stewart.

The specially-designed gold key with which his lordship performed the opening ceremony is of elaborate workmanship; the stem is curved and rich members at the lower part and also towards the capital. A large centre globe supports the scrolls which arch over and form the framework of the key. The upper curves support an imperial crown, below which is shown the shamrock set with emeralds.

In centre of obverse of head are the arms, crest and motto of Earl Cadogan in proper colours, and on reverse of the crest is a device illustrating electricity, while the inscription is engraved in the shield on back of arms. Round the head of the key are turquoise, pearls and emeralds, forming a beautiful combination.

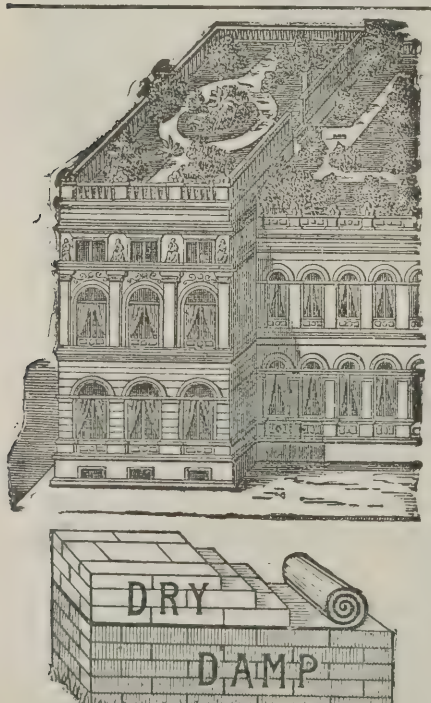
The key is enclosed in silk velvet case.

EXTENSIVE SEWERAGE SCHEME FOR MORECAMBE.

A PUBLIC inquiry was held at the Morecambe District Council offices on Friday morning, before Colonel W. Langton Coke, Local Government Board Inspector, into an application by the District Council to borrow 60,000*l.* for purposes of sewerage and sewage disposal, and also 1,590*l.* for works of private street improvements.

In explaining the scheme, Mr. Nicholls, the engineer, said that taking the present population at 11,000, the scheme allowed for an increase in the present population and for visitors, and provided for an aggregate of 60,000 people. The sewage works would take about three years to complete, and by that time the normal population would be about 15,000, for which provision should be made during five months of the year. From about three months at the beginning and end of the visiting season the population would be increased to 25,000, and during the summer months to 45,000. In the near future, on the above basis, the population was likely to reach 60,000, and he considered that the scheme should be so constructed with regard to outfall sewers and the discharge of sewage into the bay to deal with the full population. The scheme had been laid out accordingly. The sewers themselves varied in size from 9 inches to 24 inches in

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diameter, the smallest being for the contributory arterial sewers of the district. The main outfall sewers were divided into two parts in eastern and western. The eastern district, being the larger, would have an outfall sewer 24 inches in diameter, with a gradient of 1 in 850, and the one for the western district would have a gradient of 1 in 745. The discharging capacities of these main sewers would be 1,723,500 gallons in six hours. Taking the water supply, which at present was about 18½ gallons a head per day, for the basis of the sewage scheme, and allowing 20 gallons a head on the full population, they would get 1,200,000 gallons in twenty-four hours. The pumps and the machinery were arranged in sets to work independently for the normal flow during the winter period, during the times between the autumn and spring, when the visitors were here in smaller numbers, and during the busy time in the summer season. After being raised by the pumps, the sewage would flow through a channel alongside and into a set of tanks, constructed on the septic system. Here it would be treated, after which the outfall would pass into another channel, and thence into a large tidal culvert, with a containing capacity of 800,000 gallons. This culvert would receive the sewage and retain it during high water. The capacity really required was a maximum 600,000 gallons, but provision had been made for receiving any extra in case of storm, or from the yards and roofs of houses. The treated sewage would be received in a tidal culvert, and let out about an hour or an hour and a half after high water, and be discharged at the point in the bay called "Seldom Seen." From float experiments he had found that that point was the best that could be decided upon, because the currents set direct west, and went about a mile and a half to the west of the new docks at Heysham, continued south and south-west, then took a curve, and went into the bay further west and then into the main channel, so that there could be no chance of sewage pollution on any part of the foreshore in the bay. The inquiry also covered the sewerage of Bare, and this portion of the scheme being explained, Mr. Nicholls then submitted some of the items of cost, as given in his estimates. The tanks would cost 7,945*l.*, and for the clerk of the works and his assistant he had put down 6*l.* per week for three years.

The inspector said it was a large scheme, and he would prefer trial holes to be dug. He did not want to put back the work, but otherwise the only alternative was to put the report back, and recommended that the consideration of the application be deferred until the trial holes had been dug. Questions being asked by the inspector of a detailed character, and satisfactorily answered by the engineer, the inspector remarked that the scheme met with his general approval, and he would do all he could to forward it with the Local Government Board.

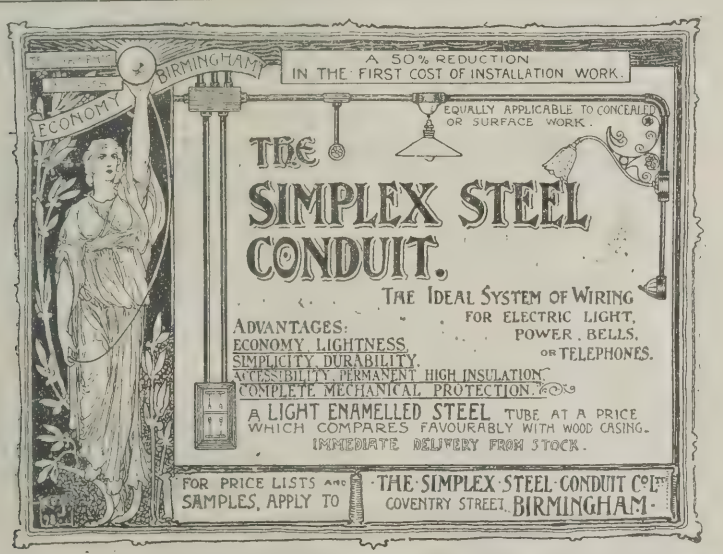
CENTRAL LONDON RAILWAY.

An extremely interesting visit was made by a party of the members of the Society of Engineers on Tuesday, October 11, to the Central London Railway Works at the Post Office station, E.C.

Among those present were Mr. W. Worby Beaumont, president; Mr. Henry Adams, past president; Messrs. J. C. Fell and Charles Mason, vice-presidents; Messrs. J. Patten Barber, Joseph Bernays, George Burt, Percy Griffith and R. St. George Moore, members of council; Mr. Perry F. Nursey, hon. secretary and treasurer; Messrs. H. W. Andrews, R. L. Andrews, J. C. Belton, A. R. Burch, W. G. Bower, H. O. Carr, S. O. Cowper-Coles, G. B. Cutler, F. E. Duckham, P. M. Faraday, N. Harker, W. H. Hill, A. E. Hubert, E. Hulburd, A. J. Lenton, W. R. Phillips, H. Puplett, J. J. Rawlings, G. M. Robins, F. A. Robinson, J. Waddington, Capt. Walter Wood, and Mr. G. A. Pryce Cuxson, secretary.

The constructive work of the Central London Railway was divided into six contracts. Beginning at the west end at Shepherd's Bush, the first three contracts were let to Mr. John Price, whose work extended to the Marble Arch. From thence to the General Post Office includes two contracts, both of which were secured by Messrs. Walter Scott & Co., of Newcastle-upon-Tyne. Contract No. 6 extended from the General Post Office to the Bank, and was let to Mr. George Talbot. This includes the General Post Office station and the Bank terminus as well as the important work beneath the roadway in front of the Mansion House.

The line runs throughout almost entirely in the London clay, the exceptions being where it passes up through the gravel at the western end, and also the length extending from Berners Street, Oxford Street, to Red Lion Street, Holborn, where the tunnels run along the line of junction between the Reading beds and the clay. The former consist of green and red marl, with patches of rock, but not being water-bearing, compressed air is not required for the working. Air at moderate pressure was, however, used where the tunnels come to the surface at



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Shepherd's Bush. A part of the line which has received a good deal of consideration is that which crosses the Holborn valley and runs under the Viaduct. Here the tunnels keep in the clay even in passing under the site of the old Fleet Ditch, but the dip of the ground naturally brings the line closer to the surface. In consequence of this and the superincumbent pressure of the Viaduct, it was determined to use compressed air along this section as a matter of precaution, and not with any idea of excluding water, which it was not anticipated would be met with.

The line consists of two tunnels for the up and down lines respectively. The usual diameter of these is 11½ feet inside. Where there are stations the tunnels are enlarged to 21 feet 2 inches in diameter, so as to take platforms, &c. There are also cross-over tunnels of 25 feet internal diameter for the purpose of connecting the up and down lines and affording shunting facilities.

The rail-level in the stations will be 80 feet to 90 feet below the surface, and passengers will be conveyed to the platforms by lifts which it is proposed shall be worked electrically. After leaving the stations the tunnel runs down at a gradient of 1 in 30 for a distance of about 300 feet, whilst the gradient in approaching is 1 in 60 for about 600 feet. This puts the stations about 10 feet higher than the main length of line. The figures vary somewhat, but those given may be taken as general.

Starting at the surface, the first operation is the sinking of the shafts, which, in the completed work, will give passengers access to the line. In each station there are two shafts, each 23 feet in diameter, and one of 18 feet diameter, and as the company have taken as little surface land as possible on the line of route where land is so supremely valuable, the site is pretty well crowded, the shafts occupying about half the available area. The shafts are lined with cast-iron, and the first part is put in by bolting the segments together and sinking the rings bodily by means of weighting—baulks of timber being placed across for the purpose—whilst excavation is carried on from the interior. No great weight is required to sink the rings, the gravel being fairly free as a rule. When the clay is reached and has been penetrated for a foot or two underpinning is started, the clay being removed to the net diameter of the shaft and the segments lowered down and put in position singly beneath the work already in place. Each ring, as completed, is grouted at the back to fill up any space between the iron and he earth. The bottom of the shaft is formed by 2 feet or 3 feet of concrete. All shafts were sunk by the aid of steam locomotive cranes.

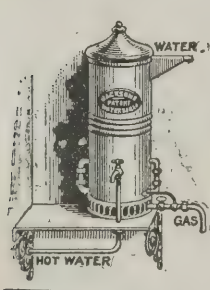
When the shaft is finished, the head-gear, which is to be used throughout the tunnelling operations, is erected. At the Post Office station steam winches are used for raising and lowering the temporary cages in the shafts, but at the Bank and other stations hydraulic lifts are used, the power being taken from the mains of the London Hydraulic Power Company. At all stations every precaution is taken to avoid creating any nuisance by noise or otherwise to the surrounding householders.

The clay is brought up in ordinary tubs by the cages on to a raised platform, and tipped through tumblers into the carts. The bulk of the spoil is taken to wharves on the river, to be carried by lighters to Barking, where it is being deposited for reclamation purposes. Of the iron lining for the tunnels, bricks, lime, cement, &c., about sixty loads per day of twenty-four hours are, on an average, sent down at each station.

The permanent passages of the stations, which will afford accommodation for passengers, leave the lifts at a height of about 10 feet above the rails. It is therefore necessary in all cases to drive a temporary passage at the level of the rails in the tunnel. These passages are of 8 feet internal diameter, and have all been iron-lined. On the line of tunnel being reached, a break-up is formed, and a cylindrical chamber, iron-lined, is constructed, in which to erect the tunnelling shield. This chamber, which is, in fact, the first part of the tunnel formed, is 15 feet in diameter and 7 feet long, being larger than the tunnel proper. In this chamber the shield is erected.

The shields used in constructing the tunnels have worked admirably throughout. They are of two kinds, namely, a large shield 22 feet 10 inches outside diameter, which is used for the stations, and a smaller shield, the ordinary diameter of which is 12 feet 8 inches, although there is a slight variation in the latter, in order to meet the case of tunnels requiring to be made of larger diameter in parts of the line that are on a curve, and where, therefore, extra clearance has to be allowed to the rolling stock.

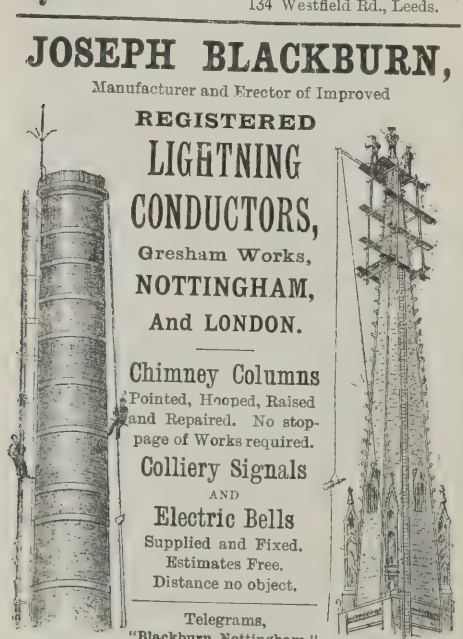
The length over all of the station-shield is about 6 feet 10 inches. The shell or skin is formed of strong steel plates carefully fitted and strongly rivetted together, and strengthened by two strong cast-iron rings. Each ring is made up of twenty-two segments, the joints of which are accurately machined and strongly bolted together, the front ring forming a cutting edge. The inner ring forms the main body of the



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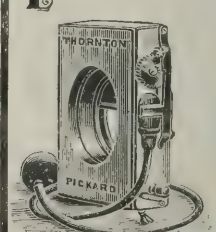
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shield, on which are fixed twenty-two hydraulic rams. Between these two rings comes a strong steel diaphragm plate, to further augment the rigidity of the whole. The rams each consist of a ram, with its cylinder or case, and a cross-head for the end of the ram, the latter of which is formed to bed on the flange of the tunnel rings. The rams are coupled together, and are in communication with hydraulic pressure pumps by means of a series of pressure and return pipes, in which are fixed shut-off valves to each ram, so that any one or more rams may be disconnected, and the direction of the forward movement of the shield thus controlled. In these pipes are also placed two reversing valves, the use of which is to direct the flow of pressure-water so as to either force the rams in or out as required. The return water from the ram cylinders is delivered back into the supply tanks of the pressure pumps, so that it is used over and over again.

The structure of the shield is further strengthened by two vertical and three horizontal stringers formed of steel plates and channels, these being strongly connected at their ends to the body of the shield. The station shields are provided with what are called hydraulic erectors that are used for lifting into position the segments of the cast-iron rings forming the tunnels, ready for bolting together in their permanent position. The erectors consist of an hydraulic lifting cylinder pivoted on a strong centre, which is securely bolted to one of the vertical stringers. The lifting cylinder is fitted with a ram which has a head on the end of it so constructed as to be readily attached to the tunnel ring segments. There are two turning rams attached by chains to a wheel on the pivot of the lifting cylinder by which means the latter is turned to any required position. The erectors are operated by suitable valves geared up to handles conveniently placed on the floors of the shield.

The operation of the shield may be described as follows:—When the ground in front is sufficiently removed to allow the shield to be pushed forward, the water-pressure is admitted to the rams, the heads of which are against the last ring of tunnel-plates put in. As the rams move outwards, they push the shield forward. After they have made a full stroke the shield has been advanced a sufficient distance to allow a ring of tunnel-plates being put together in the back portion of the skin of shield after the rams have been forced back into their cylinders. The ring of tunnel-plates is then securely bolted together and to the last ring, and the operation for the getting in of the next ring proceeded with.

The small or ordinary tunnel-shields are similar in construction to the large station-shields. This skin is formed of two thicknesses of steel plates, the total length of the shield being 7 feet. The front or cutting end is formed of a strong circular cast-iron ring, divided in halves, on which are secured steel knives, made in short segments, and forming a perfectly true circular cutting edge. The knives are so arranged that they can be adjusted to cut a slightly larger diameter than the body of the shield if necessary. Behind the cutting-edge ring comes a strong bulkhead, in which is a heading-out hole 6½ feet high by 5¼ feet wide. At the back of the bulkhead there is a strong ring of cast-iron made in six segments, having flanges which form the joints between each segment. These joints are securely bolted together, and the ring is also well bolted to the skin of the shield. On this ring are secured hydraulic rams similar to those on the large shields, one on each segment of the ring, or six in all. These are connected by pressure and return-pipes to two hand-pumps, each fixed to strong water-tanks securely bolted into the shields. The working of these rams is the same as that described for the large station-shields. The hand pumps are fitted with compound rams, one ram being larger than the other. The object of this is that by a simple arrangement the larger rams can be operated, while the pressure required is not excessive, as is always the case when the rams are only being pumped in after having advanced the shields to their full length, and sometimes when the shield is in places where the resistance to its progress forward is not excessive. The movement of the shield by the larger rams is naturally much faster than when the smaller ones are used. When greater pressure is necessary, the smaller rams are thrown into gear, thus making the working of the pumps lighter, but the movement of the rams is correspondingly slower. Each hydraulic ram is fitted with a shut-off valve, as described for the large shield, and a reversing valve is also used, so that the rams can be moved outwards or inwards as desired, the return water being delivered into the pump tanks as it leaves the ram cases.

In operating the ordinary tunnel-shield, after it has been erected in the chamber provided, the first thing to do is to drive a heading in advance 7 feet or 8 feet. If the ground be hard, the whole of the clay is removed in front of the shield for the distance of one ring, or 20 inches, with the exception of an annulus of from 1 to 2 inches, which is left for the cutting-edge of the shield to take away. Before the shield is moved forward a number of pointed pieces of timber are placed horizontally in front of the shield, their pointed ends being inserted in the face

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and the other ends abutting on the shield. As the latter is forced forward by the hydraulic rams, the clay is loosened by these piles being broken down into the heading, and the miners then get through the shield and remove the earth. When the shield has been pushed forward sufficiently far by the rams—the latter pressing against the completed end of the iron lining as an abutment—the next ring of lining is erected inside the tail of the shield, and, having been bolted up, the shield can be again moved on. The annular space between the earth and the iron lining, left by the advance of the shield—it being remembered that the ring of the lining is erected inside the tail of the shield—is filled up by grouting, which is forced through holes purposely made in the lining by means of compressed air.

The rate of progress varies from two to four rings erected per shift, or from 40 inches to 80 inches completed for ten hours' work.

The method of working the larger shield is not greatly different in principle to that of the smaller one, excepting that no advance heading is driven. The interior of this shield is divided up by two vertical girders and three horizontal platforms, and there are the rams with tables supporting the face, as already stated. The earth is removed from the face by hand and is thrown on to the platforms, and from thence to the waggons beneath. There are the piles for breaking up the earth as in the smaller shields. The progress is usually from one to two rings per ten hours, but the rings are 18 inches long.

At the Bank station the general arrangement of shafts and tunnels is the same as at other stations, but the upper station or booking hall is, from its situation, of an exceptional character. By agreement with the City Corporation the station is situated below the open space in front of the Royal Exchange, the railway company constructing for the public use a system of subways and stairways connecting the various streets which meet at this point.

By this arrangement, pedestrians desiring to cross the roadway will be able to do so without incurring the risk and delay now so notorious.

The main or public subway which surrounds the station is 15 feet wide, and will be lined with white tiles and lit by electricity. Under this public subway is placed another, in which are arranged all gas and water mains, telegraph lines, &c., which formerly crossed the street in all directions. This will obviate the necessity of disturbing the roadway for repairs of pipes and the like.

In the central space is the booking hall or upper station of the railway, which, except that its floor level will be some 16 feet below the street, and consequently that its roof will carry the City traffic overhead, is similar in its arrangements to the other stations of the line, and from it lifts will carry the passengers to the platform below.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

20781. Robert Alan Erskine Murray and Edward Neville Bray, for "Improvements in and connected with columns and the like."

20808. Arthur William Shepherd, for "Improvements in apparatus for cleaning or removing pitch, asphalte and other like substances from paving stones, blocks or the like."

20831. John Clarke, Thomas George Stevens and John James Hewit, for "Improvements in the manufacture of cement."

20930. George Love, for "Improvements in brick, tiles and the like."

20941. John Kyle, for "Design for storing, seasoning and aerating cement in large quantities on harbour, dock or other works."

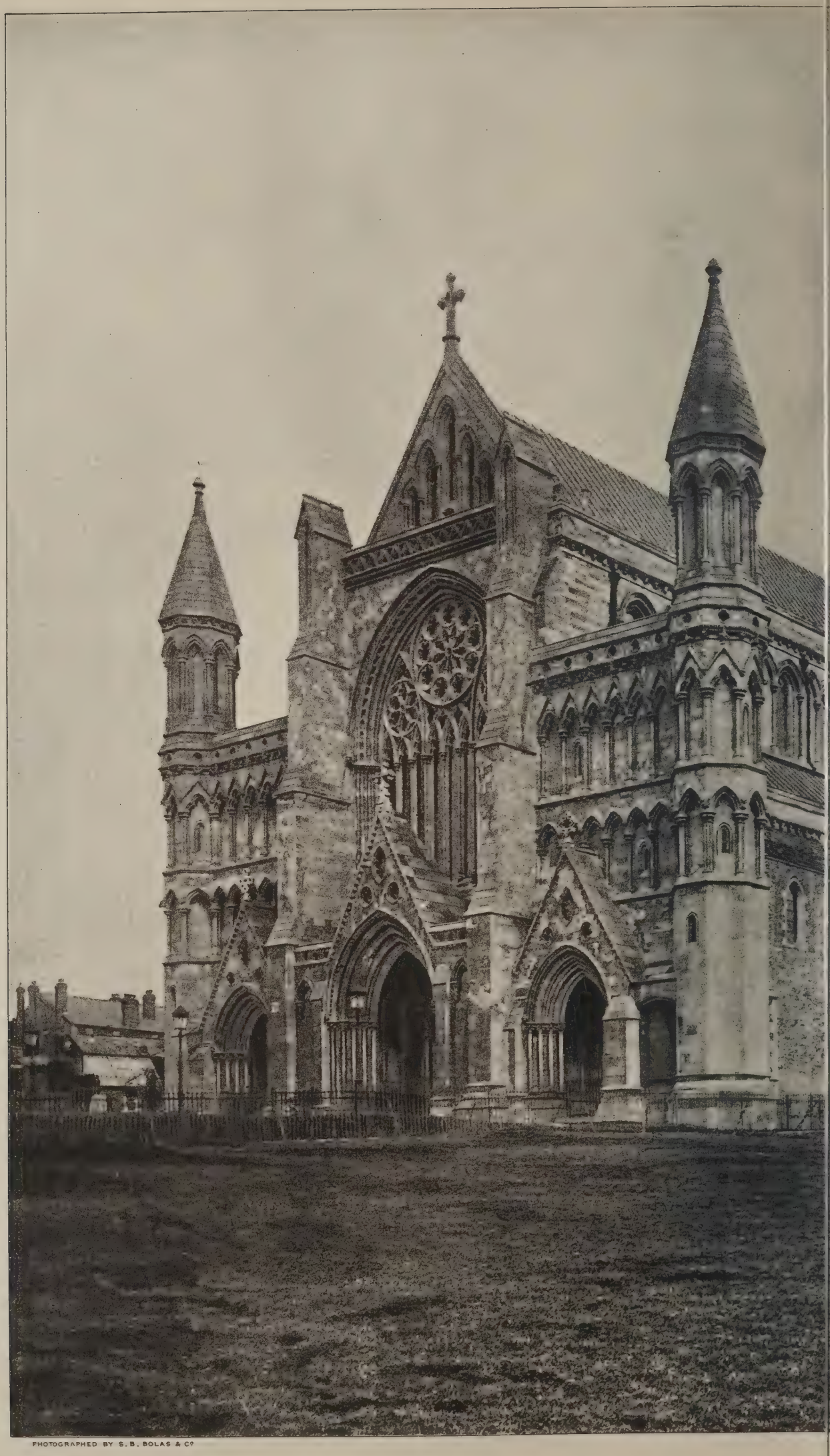
20952. John Richardson, for "Improvements in and relating to fireproof buildings."

21018. Moses James Adams, for "Improvements in water-closets."

20231. John Armour, for "Improvements in the manufacture of building materials."

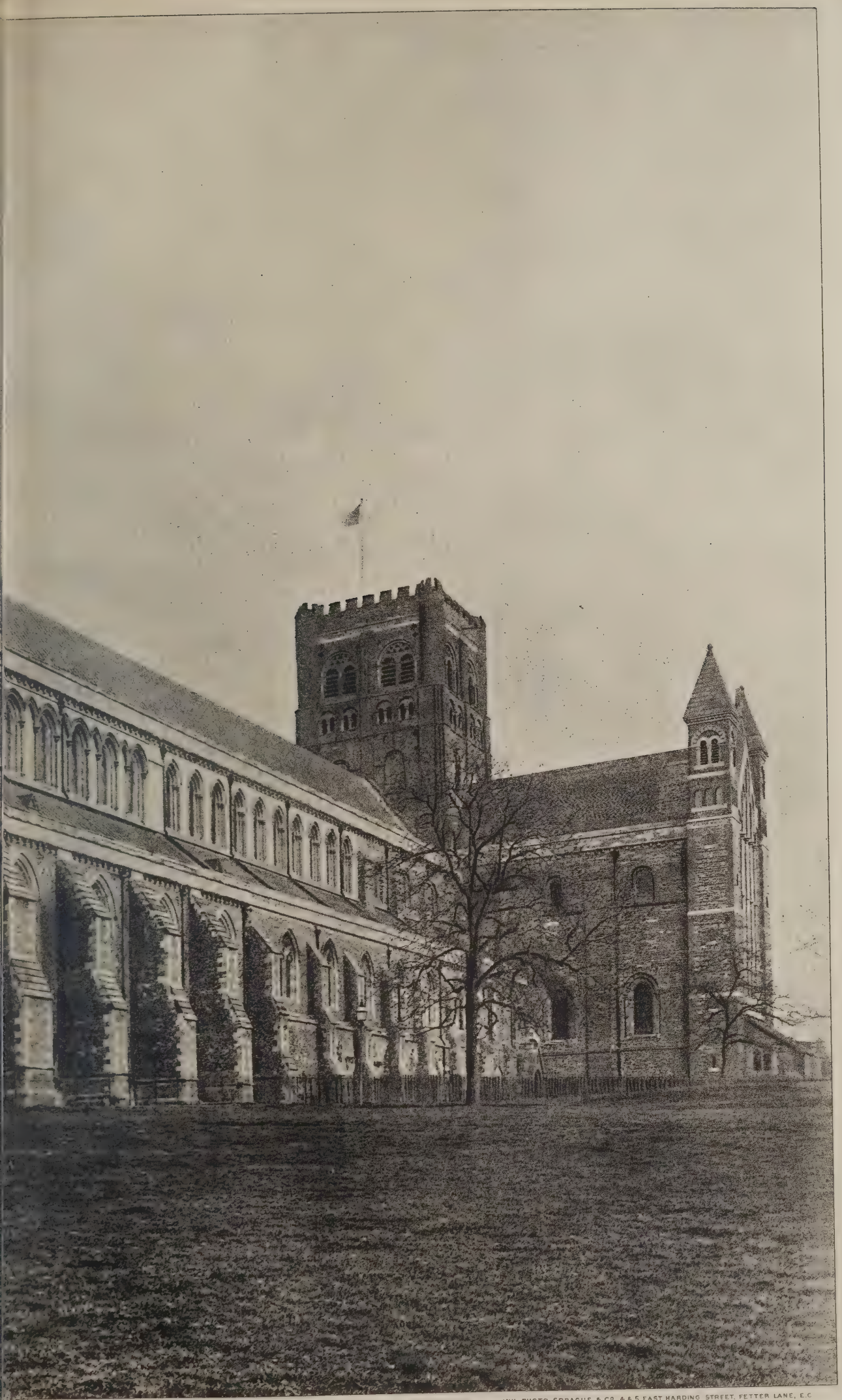
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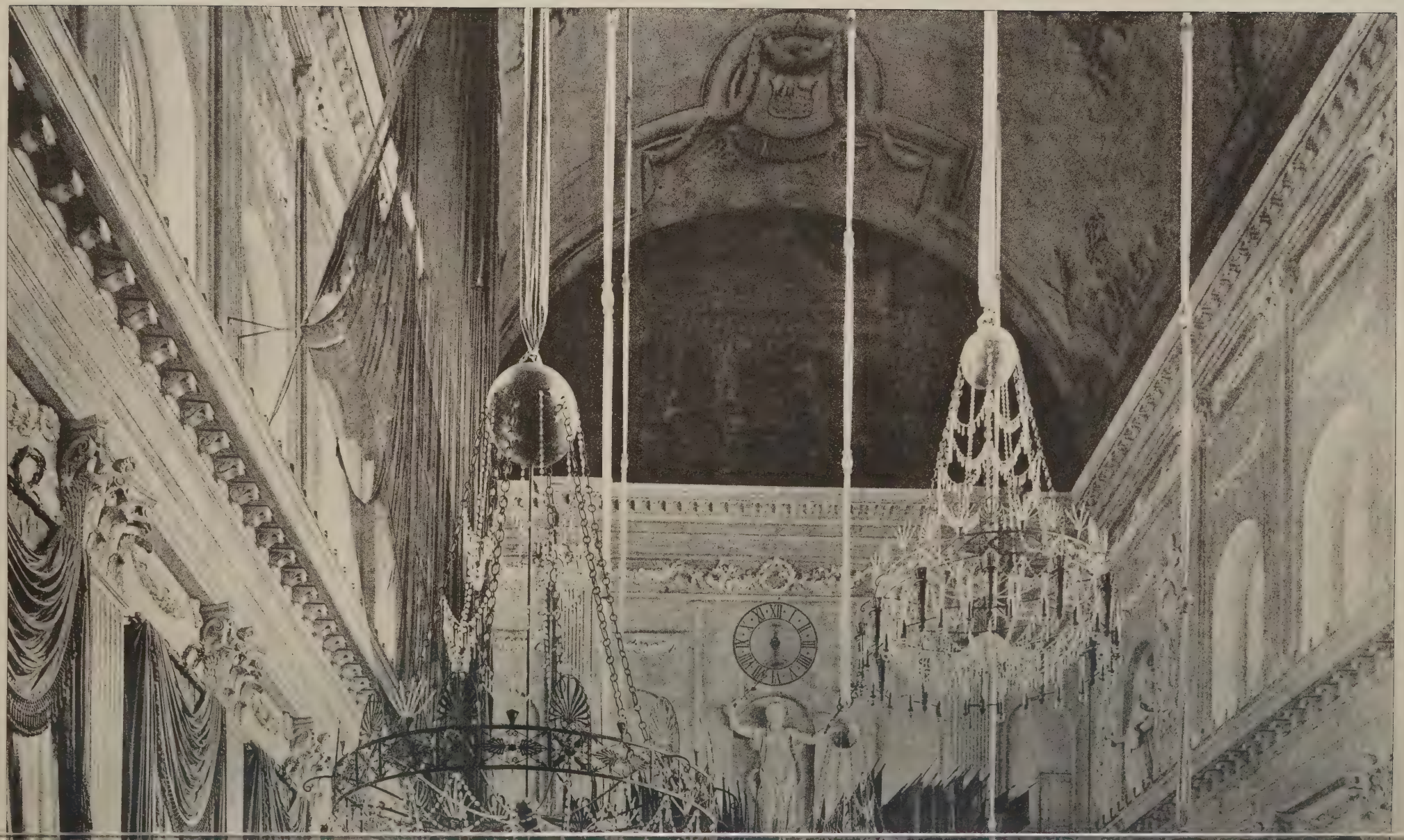


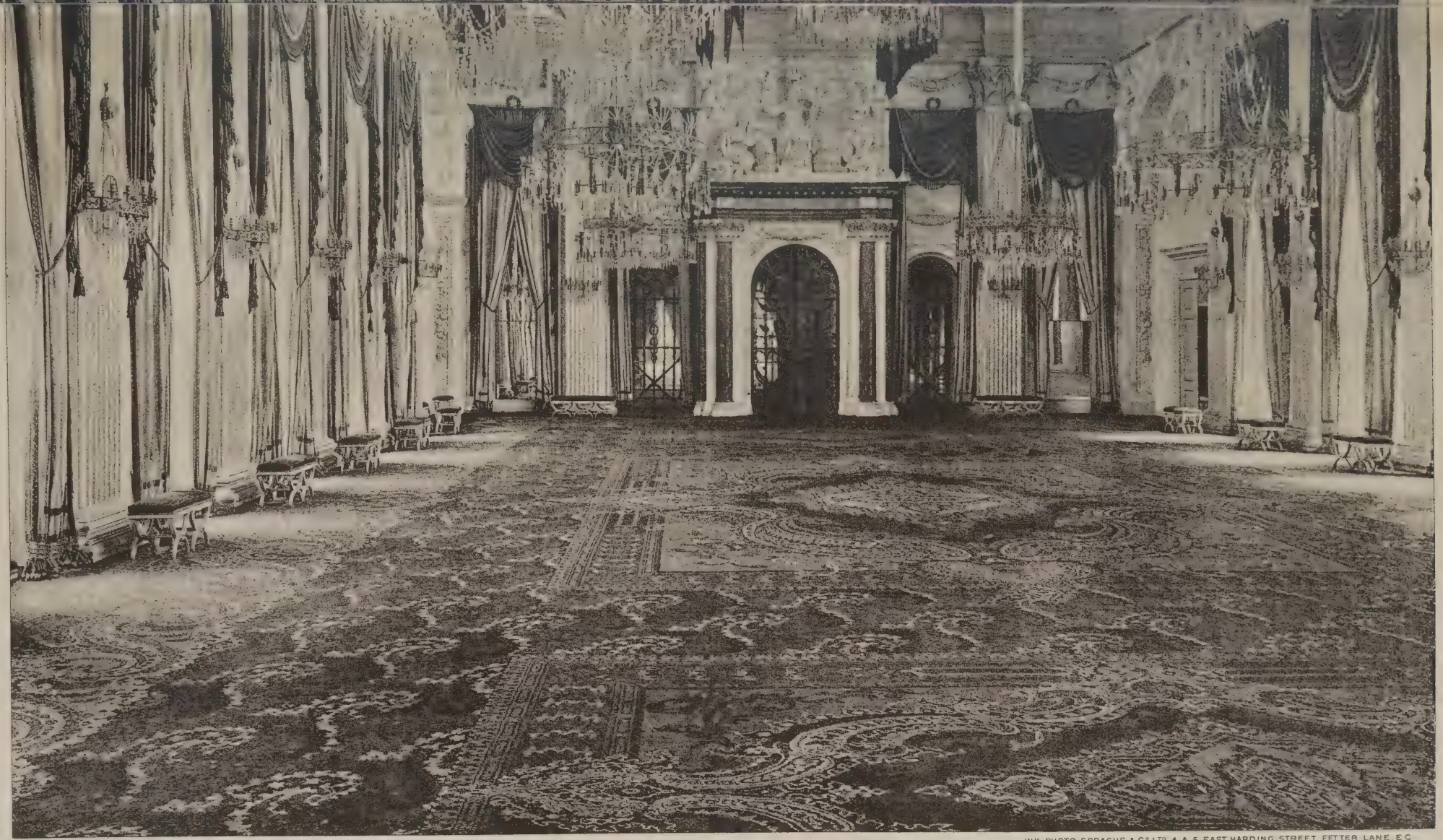
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THE BALL ROOM, THE PALACE, AMSTERDAM.

The Architect.

THE WEEK.

The *Architect* was the first among the European journals to give illustrations of the wall-paintings of M. Puvis de Chavannes. At the time few of his countrymen were able to appreciate his style, and to the close of his life he was misunderstood by the majority of people in France. The principal reason was that in treating his most important subjects he felt bound to be subservient to the buildings where his pictures were to be placed. There never was a more loyal servant of architecture. Mural decoration was practised for centuries in France, but in general the artists were indifferent to the destination of their works. They were supposed to be suitable for any wall that might offer. Puvis de Chavannes carefully studied not only the character of the building which was to contain his works, but he was no less attentive to the peculiarities of the positions which were assigned to him. Unlike most painters, his endeavour was not to monopolise all the admiration of spectators. In the Panthéon the series illustrating the *Childhood of St. Geneviève*, by Puvis de Chavannes, makes the intervening pilasters and the masonry that is visible more emphatic. That is not the effect of the work of some of the other painters in the building. Puvis de Chavannes in the Panthéon avoided sombre colours, and his palette was restricted to red, brown and white. Elsewhere he has suggested old tapestry, and the general tone was determined by the masonry to be adorned. Of late years it must be allowed he was less controlled by logic, and the works he executed want the charm of the *Ludus pro Patriâ*, the *Happy Land* and the Panthéon pictures. Puvis de Chavannes lived for years in modest style, sharing a floor of a small house with M. Henner, but there was nothing suggestive of bohemianism in his manner; he was one of nature's aristocrats, a French gentleman who was a fitting companion for princes. In his paintings there was no fleshliness; his figures were not mere animals, but suggested spirits enclosed in "a vesture of decay." Yet he was the pupil of Couture, whose "Decadence of the Romans" must always be considered as a dubious sermon about the advantages of temperance. Puvis de Chavannes was born in Lyons in 1824. His success was slowly acquired, for he was excluded from the Salon and remained unnoticed by critics. His first reward was not bestowed until 1867, when he obtained a third-class medal at the international exhibition. But during the last sixteen years there was compensation for the long period he was neglected, although he could not overcome the prejudices of the members of the Académie des Beaux-Arts.

The report on the examinations of the City and Guilds of London Institute for the session 1897-98 states that in all branches of the building trades there has been a marked increase in the number of candidates for examination, and in most of the subjects a similar increase in the attendance of students at the registered classes. The percentages of passes also show improvement in the work. The examiners in brickwork remark that most of the North of England candidates show but a very slight knowledge of cut and gauged work, and whether it be for hard or soft material. It was said that some of the candidates in masonry were under the impression that a knowledge of materials need not form part of a mason's training. The candidates for painters and decorators' work are said to have been instructed in a practical manner, and are able to explain why the different materials used in painting and decorating are employed, and why the successive steps in execution of the work are taken. The most unsatisfactory answers related to dryers, distemper and the form and spacing of letters.

The conversazione of the Architectural Association was held on Friday last in the King's Hall of the Holborn Restaurant. There were nearly 600 members and guests present, and the evening was enjoyed by all. There were paintings and drawings by Sir Wyke Bayliss and Messrs. Brewer, Haig and Weedon, with several students' drawings. Mr. H. F. Waring gained the Travelling Studentship. The orchestral band of Messrs. Dan Godfrey Sons performed, and there was a party of glee singers. Messrs. Doulton & Co., De Morgan & Co. and Martin Bros. lent specimens of pottery. The president (Mr. G. H. Fellowes Prynne) and other prominent members of the Association exerted themselves to promote the interest of the conversazione, and there could be no doubt about their success.

Among the members who assisted at the meeting of the Académie des Beaux-Arts on the 15th inst. was Jules Eugène Lenepveu, the painter, who belonged to the Institute for nearly thirty years. He had won the Prix de Rome in 1847, was awarded third and second medals, was an officer of the Legion of Honour. Two days after the meeting he suddenly expired in his seventy-ninth year. M. Lenepveu was one of the survivors of the old followers of high art. The guide-books testify that he produced some of the paintings which are to be seen in the churches of St. Sulpice, St. Louis-en-l'Ile and Ste Clotilde. The death of Paul Baudry opened a way for him to the Panthéon, where he was entrusted with the commission for the four pictures illustrative of the life of Joan of Arc, and, although he was no longer young, they are the best evidence of his skill. To the amazement of his admirers he also was persuaded by Garnier without much difficulty to paint the ceiling of the Opera House. The subject depicted might be described in the words of Moore, "The best of all ways to lengthen our days is to steal a few hours from night, my dear." It cannot be said the painting proves the advantage of a training in ecclesiastical work for imaginative subjects.

The London County Council have acted fairly towards Mr. Thomas Blashill, the superintending architect. He has been in their service for eleven years, but he is to receive a retiring allowance on the scale of twenty-one years actual service. The pension is calculated at the rate of $\frac{21}{60}$ths on 1,500*l.* a year—the salary received—and works out at 525*l.* a year. Mr. Blashill could have retired three years ago, but at the request of the Council he continued to give them his services. There was an attempt made to have the proposal reconsidered and the pension awarded on the basis of only eleven years service, but it was rejected by the good sense of the majority, and there was no division. Mr. Blashill has acted justly and discreetly during his tenure of office, and we hope he will enjoy the leisure which he has so well earned.

A meeting of the Edinburgh Town Council was held on Tuesday to consider the perennial subject of the site for the Usher Hall. Mr. Waterhouse, R.A., had recommended the West Meadows as suitable, but a majority of the Council preferred Atholl Crescent. One of the members said that the Crescent, although costing 121,000*l.*, would not be suitable because the hall would be out of sight, while the neighbourhood was not like Chambers Street, which was the centre of the population it was meant to benefit. In ten wards out of thirteen in the city there had been a distinct vote against Atholl Crescent. Another member asked whether there was a servitude by the other houses which prevented the building of a hall in the area, and whether that extended to the other houses in Atholl Crescent and Coates Crescent. The town clerk said the houses in Coates Crescent had nothing to do with the houses in Atholl Crescent, which were held from Heriot's Hospital. They were built under condition that they were to be put up according to a specified feuing plan which each of the vassals should enforce against the other. That had been done. If they got an Act of Parliament to build a hall in the middle, they would by the very fact take away the restrictions of the dwelling-houses there, and that would have its effect upon compensation, which would be taken from experts. When the question was put to the vote the former decision of the Council in favour of Atholl Crescent was confirmed, as 29 members were in favour of the site, while 17 voted against it. Parliamentary powers will therefore be sought.

M. GUILLAUME'S DISCOURSES.*

ALL races are liable to epidemics which for a time disturb the mental equilibrium. We are not without experience of them in England. The French may not from their constitution be more subject to those visitations than other men. But from their inability to believe that silence is golden, and to restrain extravagant language, unreal things with them assume proportions like the dreams of invalids, which are painful to the sufferers and disturb the peace of others. At the present time Frenchmen are going through one of those epidemics, and therefore allowances should be made for much which is done by them. They are invalids, and not altogether responsible for their words or acts. Fortunately, there are always men whose sanity is proof against all those incomprehensible attacks, and who often succeed in obtaining for that *bon sense* which is supposed to be an essentially French quality, the supremacy which is its due. In art M. GUILLAUME, the sculptor, is a type of the class. His own work is most refined. What was said of JOHN KEATS is applicable to him; he is "a resurrectionised Greek," and his works would do credit to his great master, PRADIER. His figures are no doubt somewhat cold in expression; but an affectionate anxiety for the prosperity of other sculptors, and a patriotic earnestness for the advancement of French art in general, have made him indifferent about his own gifts. His brother sculptors admit that as a stylist and an æsthetician he is supreme among contemporaries, and his honours have given more satisfaction to others than usually happens with artists. But instead of enjoying the recompenses which from his position were sure to arrive, M. GUILLAUME is always ready to undertake any office or to share in any task which he considers will be advantageous to his country. When he was young it was proposed to make an avocat of him, and he would have attained distinction as a lawyer. Art, however, exercised more fascination over him, and he abandoned THEMIS. Probably he would have obtained still more success if he had become a diplomatist. His tact, judgment, urbanity and shrewdness might have saved France from many a disaster, and those who know him would make no objection if they heard the Fashoda affair was to be left to his decision.

M. GUILLAUME'S competence to undertake delicate duties as an amateur envoy was long ago discovered. In 1848, when the Government of Rome fell into the hands of MAZZINI and his friends, there was an apprehension about the safety of the Prix de Rome men in the Villa Médicis. They were brave enough, but it would be impossible for any heroes to defend a building when the only arms at their disposition were a fowling-piece and a pistol. M. ALAUX, the director, therefore resolved to remove his young artists to some secure place beyond Rome. There were clever and brave fellows among them, such as CHARLES GARNIER, the architect, ALEXANDRE CABANEL, the painter, and the brothers BENOUVILLE; but M. ALAUX preferred to make EUGÈNE GUILLAUME his plenipotentiary, and leave all the arrangements in his hands. The sculptor resolved to begin with the triumvirs. MAZZINI told him there was no danger, for the French School brought credit to Rome. But he allowed himself to be persuaded by M. GUILLAUME. He explained, however, that the triumvirs were not omnipotent. Rome was in a state of siege, and the gates could not be opened without the authority of General AVEZZANA, the War Minister. To him M. GUILLAUME next applied. He also objected and had to be convinced. Then the question arose, How was so large a party to be removed? All the horses in Rome were requisitioned for the artillery. The Minister could not take one. It became necessary to apply to the commander, Colonel LOPEZ. He was most amiable to the envoy. He inquired how many carriages were to be employed, and asked to see the passports. The inhabitants of the Villa Médicis did not possess one. M. GUILLAUME had therefore to exercise his diplomacy on the Minister of Police. That official declined to issue passports without special authority from the triumvirs. Once more there was an interview with MAZZINI, and finally a general passport and three pairs of horses were secured as the reward of M. GUILLAUME'S negotiations. The party reached Florence in an impoverished state. In a very short time a breach was made in the walls of Rome by the French troops, and as soon as the news arrived M. ALAUX and his charges returned to their old quarters. They found the gardens had suffered and the ateliers were in ruins, but the Villa was safe and all the property of the students untouched. An amateur who was able to accomplish so much amidst the excitement of a revolution would be sure to have made a name as a diplomatist. M. GUILLAUME has contrived to serve his country in a different way.

From M. GUILLAUME'S position and experience many people would expect a semi-official yet statesmanlike view of art in France in his "Discourses and Notices." They are mainly personal and descriptive of such men as CHARLES BLANC, PAUL BAUDRY, JEAN ALAUX and ANTOINE BARYE, the narration of whose lives enables M. GUILLAUME to express his thoughts on æsthetics, painting, sculpture and the direction of the Academy in Rome, the last being a subject which has a personal interest for the author, since he was not only a student, but a director of the Villa Médicis.

CHARLES BLANC was M. GUILLAUME'S predecessor in the chair of æsthetics and the history of art at the Collège de France. It is remarkable that although the production of art in its manifold forms is among the greatest of French industries, the science on which art is of late years supposed to be based was not recognised officially until 1878. There appeared to be an apprehension in some way of a connection between æsthetics and treason. COUSIN'S lectures on the Beautiful had to be suspended, and were not published for forty years after delivery. His pupil JOUFFROY found great difficulty in persuading a very few writers and lovers of science to hire a small room where he could give a course on Æsthetics, which was never completed. JULES SIMON, SAISSET and JACQUES, when they prepared a manual of philosophy, omitted æsthetics, although including theodicy. CHARLES LÉVÊQUE, the professor of Greek and Latin philosophy in the Collège de France, became alarmed about the probable consequences of a single lecture upon PLATO and his æsthetics. Yet France was producing many of the most beautiful works of modern times. The selection of CHARLES BLANC as the first recognised professor was, we suppose, determined by the fact that he was author of a grammar of the arts of design, and one on the decorative arts. He also wrote about art in dress and jewellery. To the authorities he was, therefore, supposed to be a practical man who was likely to increase the sale of objets de Paris and to enrich France. It was not to be expected that CHARLES BLANC would take a profound view of the subject, although there could be no doubt about the depths to which he descended in order to find a basis for his disquisitions. He used to deliver gratuitous lectures and provoke discussion in order to discover the popular notions about a subject. A man who would gravely ask an audience to tell him why women loved soldiers and why soldiers liked to make up as women (in those days small waists and expansive bosoms were admired in the élite of French regiments) could not be expected to produce treatises like those of KANT, HEGEL, or FICHTE. But while the German books are still almost unknown in England, CHARLES BLANC'S volumes at one time had a ready sale among us. We must, therefore, speak respectfully of him as a pioneer.

CHARLES BLANC, it must also be admitted, was not one of the cast-iron teachers on art who believe that a lesson when once prepared will serve year after year. He could say with the poet, "In my wisdom there is woe and in my knowledge care." The more he wrote, the more he felt his shortcomings, and the exalted position of professor in the Collège de France only increased his sense of his responsibilities to his generation. To enable him to understand if there was any influence exercised by the land and climate of Greece on the ideas and works of its artists, he made the sacrifice of selling his library, which he had accumulated by much self-denial. He also visited Egypt, and studied in Italian galleries. Yet his experience was that of many other men. Later works surprised him. Before those more ancient his anticipations were only confirmed. As he said, "J'avais connu Rome, j'ai reconnu Athènes." But there were

* *Notices et Discours.* Par Eugène Guillaume, de l'Académie Française et de l'Académie des Beaux-Arts, Professeur d'Esthétique et d'Histoire de l'Art au Collège de France. (Paris: Société Française d'Editions d'Art.)

occasions when he ascertained that what he had taught was erroneous. The sight of the tombs at Beni-Hassan convinced him that the earliest Doric order was not to be found in Egypt.

His ideas expanded before the vastness of Egypt. His early work as an engraver, his philosophy of trinkets and millinery were lowered in value in his own eyes. It is remarkable to find CHARLES BLANC, whose books were adapted to be used by industrial designers, transformed into an idealist. He then believed that architecture was created by ancient priests as a rival of nature, and one that was no less imposing and law inspiring. Its eloquence was due to its mysteriousness, but the priests alone fully understood its full mystic signification, as nature reconstructed by man.

M. GUILLAUME has to give lectures on æsthetics, and he is very competent for the task. But while he advocates the necessity of investigations into the causes and effects of the Beautiful, we doubt if he would assert that one of his courses would make an artist. We cannot help thinking of what he says about buildings, pictures and statues. But the critic who appreciates, or it may be condemns, reasons by the aid of his system of taste, while the artist who creates reasons by instinct. The philosopher must have abstract formulas in order to reason methodically, and if science is not constituted as a body there must be at least ideas to serve instead. CHARLES BLANC was faithful to ideas until the last day of his life. But his idealism was neither that of the philosophers nor that of the artists; it was rather, says M. GUILLAUME, that of criticism, a devotion to formulas which he had worked out, and some which have been since superseded.

In the sketch of PAUL BAUDRY, as well as in one of ANTOINE BARYE, we can easily perceive the kind of preparation for great works which M. GUILLAUME admires. With everyone who knew the swarthy little PAUL, the painter was of far less consequence than the man. He was transparent without the least affectation. There was nothing dramatic about him. He worked in a bare room in order to concentrate his thoughts on his canvas. If his meals were more simple than the ordinary workman's, it was because he was indifferent while painting to other enjoyment—or as he would sometimes say, when one has known misery very intimately, one is afraid to become too indulgent to the palate. His head was as sharply cut as any we see in Roman bronze; it would have served as a general's or an explorer's. But as a painter his individuality was shown by his multiplying difficulties in order to overcome them by force of energetic labour.

BAUDRY had gained a reputation when he received the commission for the decoration of the foyer of the Opera House. He began the work as if he were a tyro instead of a master. Years were spent in study. At one time he was in the Villa Médicis, once more a student and devoted to the examination of the Sistine paintings. At another time he was engrossed with RAPHAEL'S cartoons in London. A long period was spent before the great wall-paintings in Venice. After deriving suggestions from the masterpieces he began his own studies. He was embarrassed by the power of his imagination. PAUL BAUDRY could hardly draw a line without thinking of another which appeared superior, and his sketches suggest his difficulty to determine between the variety. We have already published examples. He was not satisfied with a multitude of sketches. In order to obtain more precision he used to describe in notes his imaginary compositions. When he began to paint the pictures BAUDRY at first worked in a big atelier in the Rue Boissy-d'Anglais, but he was not satisfied until he secured a loft over the auditorium of the Opera House. There he could spend days without the intrusion of a visitor, and he only tore himself from his painting in order to enjoy the atmosphere that surrounded the roof of the building. BAUDRY so closely identified himself with his creations that when the series for the foyer was ended—it occupied him nearly twelve years—he found he was unable to resume the representing of the kind of subjects which he had employed in his easel pictures.

BAUDRY endeavoured by travel in Spain, Egypt and Greece to bring back his former condition of mind. But the proposal to represent the history of JOAN OF ARC in the Panthéon was enough to bring about a revolution in his thoughts. From his childhood he was longing for such an opportunity, and the scenes in her history were as familiar to him as if he had witnessed them. BAUDRY went about his task just as he did with the pictures for the foyer. He endeavoured to become a contemporary of the heroine. In the Bibliothèque Nationale and in the library of the Arsenal he sought out all the documents which belonged to the period. M. GUILLAUME mentions some of them. They comprised chronicles of England and Normandy, besides those of FROISSART, RENAUD DE MONTAUBAN, GÉRARD DE NEVERS, the prayer-book of ISABEAU STUART, the "Miroir historial de France," the "Merveilles du Monde," &c. He made extensive notes from them, and sketched costumes, buildings, armour, furniture. He desired to fill five, then seven, then sixteen panels in the building. He made pilgrimages to all the places connected with the heroine's history. As might have been expected from so much devotion to the period, his sketches for the wall-paintings corresponded in style with the manuscripts which had inspired them. They appeared to be drawn by an illuminator of the fifteenth century rather than by a Frenchman of the nineteenth, who had followed the early Venetians and CORREGGIO, and had painted Roman vestals, Ledas, Fortunes and the like. However, he was never destined to put the history of JOAN OF ARC on canvas. That duty was reserved for M. LENEPVEU, whose noble work we reproduced a few years back—an artist who has now passed away, ripe in years and honoured by all who knew him.

All who have visited the gardens of the Tuileries wil remember the groups of animals devouring their prey which were modelled by ANTOINE BARYE, as well as sundry lions on buildings, groups of figures on the Louvre and statuettes in shop windows which are also his work. He began as an apprentice to an engraver for metal workers, and there could hardly be found a more efficient artist "to the trade" than BARYE. As M. GUILLAUME says, his art embraced all varieties, from goldsmiths' work to monumental sculpture, from the most modest subjects to heroic figures, and men as well as beasts. To the end of his life he was the craftsman rather than the grand signor that so many of his contemporaries who were inferior in ability affected to appear. Patrons preferred to have works by him which suggested the savagery of animal life. The majority who gaze at the examples imagine that with such vast masses power alone was to be expressed, and there was no need for that extreme accuracy which is needed in the representation of men and women. There never was an artist who toiled more constantly to attain truth than BARYE. He haunted the grounds, cages, dissecting-rooms and galleries of the Museum of Natural History. Life had hardly left a ferocious animal when the sculptor commenced to measure and model the remains. He had gained the favour of the CUVIERS and of GEOFFROY SAINT-HILAIRE and had mastered their theories. He was well acquainted with the conclusions of the professors of comparative anatomy about the unity of forms. There were few skeletons in the museum of which he had not taken records, and his measurements were not merely in feet and inches but in lines. BARYE must have known how little was the credit he was likely to gain from so much devotion to the truth. His patrons and the public were incompetent to appreciate the accuracy which was attained; only a few anatomists could discern the distinguishing quality of BARYE'S work. But an artist can be as conscientious as other men, and the sculptor would have lost his self-respect if he had not been over-fastidious.

JEAN ALAUX has no reputation like BAUDRY'S or BARYE'S. He was one of the last representatives of academical art, a variety which is no longer in favour. Born in 1785 and living until 1864, he witnessed many artistic as well as political revolutions. In 1814, when he was competing for the Prix de Rome, he fought under MORTIER in the defence of Paris against the Allies. He gained the prize in the year following, and in 1816 arrived in Rome. When six years afterwards he returned to Paris, he found himself amidst theories to which he was a stranger. GÉRICAULT and DELACROIX had adopted new principles, and put them into pictorial form. Critics like THIERS applauded them, and the public rejoiced at the novelty. What more natural for a votary of academicism than to feel bewildered and to return to Rome? That was how

Alaux acted; he was too gentle for a combatant, and he fled to what was the home of his art. He was nearly forty when he ventured to exhibit a *Lapith* and a *Psyche*. The State could not well neglect an artist it had created, and Alaux received commissions to represent two characteristic subjects, *Justice leading Abundance and Industry on Earth* and *Justice Watching over a Reposing World*. He also painted Scripture pieces and the inevitable *Scène de Brigands*, which was a testimony of residence in Italy. The creation of the Musée at Versailles enabled him to paint battle scenes and portraits of warriors. He also executed other public commissions, and if he did not produce masterpieces, at least he gave representations of scenes which, being a sort of history made easy, satisfied the multitude. Louis Philippe made the important discovery that a room which Alaux had represented with red hangings was hung with blue. The painter changed the colour, and the king, who was proud of his discovery, rewarded him with the cross of an officer of the Legion of Honour. What simple times they were. M. Alaux also painted visits and dinners of the Corporation of London, who saw in Louis Philippe a person who was worthy to be an alderman, and M. Guillaume testifies that in the studies if not in the finished pictures he was able to recognise the originals.

It followed as a matter of course that Alaux should become director of the academy at Rome. He was a paternal chief who never kept aloof in awful state, but was ready to talk with every student about his special art. Nor was he afraid to cite his own example to suggest what was to be avoided. During the reign of Alaux the bourgeois king was forced to seek shelter in England, and in Rome and elsewhere in Italy revolutions broke out, but the director displayed the prudence that was desirable and held office until 1855. His departure led to the introduction of a new system of study.

The works of Alaux have not had much influence on his contemporaries or on the artists who followed. M. Guillaume revives his memory for two reasons. First, he has an affectionate feeling for his old director, and secondly, he wishes to point out how thorough was the teaching in the old time. Nowadays, as he says, even the grand talents are incomplete. Certain qualities are admired, while others no less essential are condemned, and thus it happens that works which are "faiblement équilibrées" are accepted with delight.

The fact is, French politics are demoralising French art as well as French literature. Indeed, it would be hard to discover what is free from that baneful influence. A *coup de théâtre* is now alone successful, and unless pictures, statues and buildings amaze spectators they are neglected. The Fashoda incident is simply the latest of many efforts to gain success by surprises with a people "faiblement équilibrées," and its failure will, we hope, be followed by a healthy reaction in French life.

BRITISH SCHOOL AT ATHENS.

ON the 20th inst. the annual meeting of subscribers to the British School at Athens was held in the rooms of the Society of Antiquaries.

The report of the managing committee stated that the committee have to report a session whose results, though less varied in character than those of some of its predecessors, will probably be found to compare favourably in scientific value with any that the school has hitherto obtained. The excavation of the prehistoric site at Phylákopi, in the island of Melos, has led to the discovery of a vast quantity of pottery (painted and unpainted), as well as many stone implements and such other objects as are usually found on early Greek sites. What makes the site especially important from the scientific point of view is the existence of three clearly defined settlements of different epochs, represented by superincumbent layers, the proceeds of which have, needless to say, been scrupulously kept apart for purposes of study and comparison. The number of students during the past session was seven. Of these, Mr. A. E. Henderson (gold medallist and travelling student of the Royal Academy) has been wholly occupied in drawing and painting details of Byzantine buildings in Constantinople. Of the remaining six students, four are graduates at Oxford and two of Edinburgh, one of the latter (Mr. Mackenzie) having also a Vienna degree. That none of the students were Cambridge men is a purely accidental and unusual occurrence, and both the recently elected travelling students of the University (the Craven and Prendergast students) have been admitted to membership of the school for the coming session, and have already proceeded to Athens. Of the seven students of last session, two (Mr. Duncan Mackenzie and Mr. C. C. Edgar) were admitted for the third time, and one (Mr. J. W. Crowfoot) for the second time. The first of these had spent the summer of 1897 in a journey among the Cyclades, which proved fruitful in new archæological results, especially of the prehistoric period. Notwithstanding illness, he was able to render excellent service in the excavations of Phylákopi. The committee have secured his services for another session by a grant of 50*l*. Mr. Edgar, formerly Oxford Craven Fellow, rendered invaluable service in sorting and preparing for publication the pottery from Phylákopi. Mr. Crowfoot, Hulmean Exhibitioner of Brasenose College, did some surveying on the island of Sphakteria; and at the end of March went to Cyprus in order to supervise, on behalf of the British Museum, the excavation of a cemetery near Larnaka. Late in April he went to Smyrna, and in May started with Mr. Anderson for the interior of Asia Minor. The three new students are Mr. W. A. Curtis (Heriot Scholar of Edinburgh University), Mr. A. J. Spilsbury (of Queen's College, Oxford) and Mr. E. B. Hoare (of Magdalen College, Oxford). Mr. Curtis worked at first in the library and museums with special reference to ancient Greek dress. Later he travelled in Greece, and attended the excavations at Phylákopi, where he did most of the photographing, and assisted both in supervision and in sorting pottery. Mr. Spilsbury was elected to the studentship offered to Oxford by the committee of the school, and came out late in January for three months only. These he spent in studying monuments and travelling in Greece. Mr. Hoare was sent out in April as architectural student, to draw plans, &c., for the excavation in Melos. He both drew plans and copied in colours certain of the finds in spite of ill-health, and he remained at Phylákopi until the close of the work. Mr. J. G. Anderson, formerly a student of the school, has been exploring Asia Minor, and Messrs. Arthur Evans and J. L. Myres, associates, have been exploring Crete. Professor E. A. Gardner, former director, went in May to advise the Greek Government with regard to the consolidation of the Parthenon. Reference may also be made to Mr. J. G. Frazer's monumental edition of Pausanias, part of the material for which was collected by him as a student of the school. Another old student, Mr. W. J. Woodhouse, has written an important monograph on Aetolia. Mr. G. C. Richards, formerly a student of the school, afterwards Professor of Greek at Cardiff, and now tutor of Oriel, was appointed for four months to the temporary post of assistant-director, and delivered lectures in the museums to students and (at Easter time) to visitors. The fabric of the new students' hostel, which is to be known as the Macmillan Hostel, was completed before the opening of the session, and has been in use throughout the year. The library has again received large additions, and some 250 volumes have been bound during the year. The accounts presented show that the small accumulated capital of the school had been reduced by about 360*l*. The committee must also remind their subscribers that several most important subscriptions were promised for five years only from 1895, and have therefore but two years more to run.

The Bishop of London, who presided, in moving the adoption of the report, said that it told a story of very considerable work accomplished, and work which carried with it great promise for the future. It would be easy for him simply to move its adoption, but he found on the agenda paper that he was to deliver an address. To give an address on such an occasion was a difficult thing, as he was speaking to experts, and had no claim to be considered an expert himself. He would rather therefore address himself to the experts who were not present. It was for non-experts, it had been said, that public meetings were called, as they gave opportunities for enlisting their sympathy in that most profitable form of all, subscriptions. He felt that the great importance of the British School at Athens lay in the fact that it was the most conspicuous institution which recognised the study of archæology—the one of our institutions, in fact, which was engaged in training archæologists. There was nothing more remarkable in modern study than the place which archæology was taking in supplying gaps in our knowledge. We had become familiar with the conception of human development, and archæology was one form of recognition of the fact that man's activities and energies in the past were to be tracked in every sphere, however remote, and to be found in every region. The careful collection of materials for comparative study produced results of immense importance in filling up the hitherto void spaces of human records. Discovery in the present day had filled up the map of the world in a manner which would have surprised our ancestors. In like manner archæology was engaged in filling up the records of remote ages with astonishing rapidity. It was therefore a matter of great moment that those who were engaged in this process should be properly trained. That aim was being fulfilled in the British School at Athens, which was

established to supply such training in the place where it could best be obtained. The work of archæology was really to abolish the difference between historic and prehistoric times, and the area which lay between them was being swiftly bridged over. He had recently been reading a writer who, moralising on the trite theme of the futility of human aspirations, asked what reputation survived 100 years. If it did, said this writer, it was simply to become the vehicle of some historian's theories. There was much truth in the observation. Great names too often survived simply to become pegs upon which the historian hung his generalisations; as the perspective changed, human reputations changed, and the records did not afford much help. No doubt we read into the records of the past the prepossessions of the present. But the archæologist interpreted the record of man's activities in the stones which had survived from past ages. The process went on with marvellous vigour. The collection of materials, the piecing of them together into an intelligible whole, required training in methods of comparison, and the great centre where that training could be accomplished was undoubtedly Greece, where lay the key of the beginning of almost all knowledge, whence was transmitted to us the thoughts of the East, and where those thoughts received definite outline and form. Greece was the starting-point not only of our thought, but in large measure of our commerce and enterprise. It was the meeting-point between the East and the West, and the place where the prehistoric and barbarous things could be seen in the process of moulding into forms common to all civilisation. In Greece, therefore, each discovery of archæology added to our knowledge, and nowhere else could the wonderful course of development in the past be so advantageously studied. The excavations and explorations which had been effected were systematised by archæology, and in that labour the British School, in common with those of every other European nation, was bearing its share. It was especially gratifying that in connection with the school there should be such an institution as the hostel, where not only students could be housed, but the unlearned traveller might be enabled to make the best of his visit to Athens. It was our habit to do these things independently of Governments, of which we had a wholesome dread. Private enterprise awakened energy and zeal in a way which was impossible to a mere Government department. We were sometimes apt to grieve that we did not receive so much encouragement from Government as our continental neighbours. But there was probably on that very account more vitality in the work and a deeper impression on the public mind. Englishmen did things thoroughly, even when they did them by mistake. In the museum at Spalato was a book published by Adam in 1764. Adam was an architect engaged in the study of Classical buildings, and desired to examine Diocletian's palace. The result was that he produced a monumental work whose value had not been impaired by age, yet it was not clear that his own work was made the better by his investigations. Englishmen, in a word, were like Saul, the son of Kish, who went out to look for his father's asses and found a kingdom.

Mr. Penrose seconded the motion, which was carried.

Mr. Hogarth, the director, read his report, in the course of which he expressed the obligations of the school to the Government of His Majesty the King of the Hellenes for the singular courtesy shown in the past season, especially for the generous aid afforded towards a settlement of the difficult negotiation for the Phylákopi site in Melos; to the French School for their sympathetic invitation to the Jubilee fêtes held last Easter; to the new Austrian School, cordial congratulations on its birth and promise, and to the directors of the German and American Schools for all kinds of help and advice freely given on many points. The relations of the British School with all its neighbours left nothing to be desired. As to the work of the school, it would be best to define clearly its functions. These were twofold—education and research. The first divided itself into education in æsthetics and education for research. Neither in his view was a primary object of the school, the first being really not archæology, though often miscalled so. The second ought to be well nigh completed before students come to Athens at all—at the Universities and English museums. As a matter of fact the functions of the school were limited—first br its small staff. If the British School was to be a teaching institution it must provide itself with such an organisation as the German School had. It should also be remembered that few men could afford such a luxury. The supply of such students would always be small. The second function, research, was the one which both in theory and practice the school performed best. In fact last year a large majority of the students represented this side. The research might be:—(*a*) Individual, for which the school provides trained advice, a library and all possible facilities; but the researchers, mostly graduates of full age, took their salvation into their own hands. Again, their numbers could never be large owing to want of endowment for long terms of residence abroad—English students not being supported by their Government—and to want of endowments at home, professorial chairs, museum places and the like. The school had only a very small and uncertain nucleus of men working at archæology as a profession. On the increase of this would depend its international reputation. (*b*) Collective, undertaken by the school as such. This was principally by excavation. The scene of action during the past season had been the most important prehistoric capital of the island of Melos, discovered at Phylákopi, on the north-east coast, by Ross, and reported on by Dummler. The school began to excavate it in 1896, little suspecting its great importance. It was proving a second Hissarlik, an undisturbed repository of the products of the primitive civilisation of the Ægean from the "Mycenæan" age back to the Neolithic period. Much had been eaten away by the sea, but what was left was equal in extent to Tiryns. Mr. Hogarth picked up the work where Mr. Cecil Smith left it, and after determining the limits of the city on south and east, and digging test trenches to obtain a relative chronology of the potsherds in which the site was marvellously rich, proceeded to open out the great barrack-like structures on the north and west. Here were remains of three settlements, divided by layers of débris, the middle and lower ones being singularly well preserved. The best rooms were on the higher ground to the west. The blocks were divided by narrow lanes with covered drains down the centre. The depth varied from seven metres to three metres. In the two lower settlements was found a mass of pottery, and almost as many vessels, complete or little broken, as in a large cemetery. These covered the whole development of the potters' art up to the fine Mycenæan work. Fabrics, shapes and decoration were in many cases new. The most notable vase was pipe-shaped and decorated with four scantily-clad figures, bearing fish in either hand. This was about the most interesting primitive Ægean vase in existence. In several rooms painted fresco was found, in one case white and gold lilies on a red ground; in another a beautiful scene of the sea with flying fish and marine growths and a man working a casting net. Of the primitive symbols now attracting so much attention on Cretan stones, &c., over fifty distinct examples were found scratched in clay before baking. Many fine steatite vases, clay lamps (unknown previously on early sites), and other stone utensils and implements came to light. There was a little bronze and bone, but no gold or silver.

The site was to be continued next spring and its cemeteries examined. When finished it would rank with Hissarlik, Tiryns and Mycenæ.

THE ORDNANCE SURVEY.

THE report of the progress of the Ordnance Survey up to March 31, 1898, has been issued as a Parliamentary Blue Book. Dealing first with England and Wales, the report states that the publication of the revision of the cadastral survey on the 1-2,500 scale is proceeding as rapidly as possible, the total area published being 9,236 square miles, of which 5,217 square miles have been published during the year. The revision has now been taken up of all the counties of England and Wales which were surveyed more than twenty years ago. The publication of the revised maps on the 6-inch scale has been hitherto much retarded by the publication of the new maps on this scale of London and the Tyneside towns. This latter work is, however, now approaching completion, and more rapid progress is expected in future. The total area on this scale published is 3,788 square miles, of which 3,609 square miles have been published during the year. With regard to the revision of the 1-inch map, which was sanctioned by the Treasury in 1893, the report states that the fieldwork of the revision was begun in 1893, since when the whole of England and Wales has been revised on the ground with the exception of a few streets in the midland counties and North Wales, which will be completed this year. Of a total area of 58,527 square miles thus revised 14,643 have been revised during the year. The revised maps of 28,305 square miles have been engraved and published, 5,282 during the year. The general result to be obtained by the revision is that in 1899 there will be available to the public for the first time a 1-inch outline map of the whole of the country, prepared on one uniform system, and with its principal details nearly up to date. It is further stated that the revision of the map in the scale of 4 inches to the mile will follow on that of the 1-inch map, but cannot proceed very rapidly until the latter has been completed. After giving some details with regard to Scotland and Ireland, the report, in a summary and tabular statement of progress for 1897-98, shows that, so far as the original surveys of the United Kingdom are concerned, the town surveys for Great Britain and Ireland, the 1-2,500 maps for Great Britain, the 6-inch maps and the 1-inch maps for Great Britain and Ireland have all been completed, while the hill engraving for the new series 1-inch map of England and Wales is proceeding, 4,262 square miles out of a total of 27,569 published on March 31, 1898, having been published in 1897-98. Considerable work has also been accomplished in the way of resurveying.

ROYAL MANCHESTER INSTITUTION.

A SPECIAL meeting of the governors of the Royal Manchester Institution was held on Monday. Mr. Thomas Worthington presided. The following report of the representatives of the Institution on the art gallery committee was presented to the meeting:—"In accordance with a resolution passed by the City Council, the art gallery committee presented a report, on December 28, in which they recommended the erection of additional galleries on land behind the present building. Before this scheme could be discussed in the Council the question of building a new reference library and art gallery on the infirmary site was raised, and the consideration of the art gallery committee report has been adjourned until this other suggestion has been settled one way or the other. The committee therefore still find themselves face to face with the difficulties of entirely inadequate accommodation, which must inevitably increase, and it became a matter of serious consideration as to whether the permanent collection or the autumn exhibition should have the preference in the allotment of space, and the decision that the permanent collection must not be allowed to suffer appears to have met with general approval. With the erection of a new gallery, or the enlargement of the present galleries, the question of the appointment of an art director, which has been so repeatedly urged by your representatives, will become of paramount importance. At the close of the last autumn exhibition the committee rearranged the pictures forming the permanent collection in galleries 1 and 5, with regard, for the first time, to chronological order so far as such arrangement was compatible with the satisfactory exhibition of the individual pictures. This change, together with the purchase of several fine examples of the work of the earlier masters of the English school, has made it evident that the collection is now the most generally representative in the provinces, and there is good ground for hope that by careful purchase and discriminating gifts the collection will steadily improve in this respect. During the ensuing year the question of artistic decoration of the galleries should be considered. At present they are very dingy and unworthy of their contents. The floors are also in a bad condition and should be relaid with parquet; ventilation should also receive more attention."

Mr. C. J. Pooley said that little progress had been made during the year towards the erection of a new gallery, but the Corporation had admitted the necessity, and he believed that ultimately it would be carried out. The difficulty of the moment seemed to be the question of the infirmary site. There seemed to be still a feeling that the infirmary site might be secured by the Corporation for municipal buildings, and the free library committee and art gallery committee had been requested to defer further action until the infirmary question was settled. He hoped it would be decided within the next three or four months. It was certainly desirable that some good site should be secured in Manchester for a new art gallery and free library, and that it should be in a central and prominent position. Although they had many fine buildings, such as the post office and the new technical school, they were all put out of the way in holes and corners, and visitors to the city did not even see them. Therefore it was important that the new building should be placed in a public position. It occurred to him to ask the question, even supposing the infirmary site to be available, whether the Corporation should not create a new centre. They saw that done at Paris, Brussels, Amsterdam and other places, where the authorities struck out such centres right away from the existing ones. In Manchester nothing of the sort had been done, and it seemed to him that there were, for instance, blocks of buildings reaching from one side of Oxford Road to Piccadilly up to the infirmary which were available at a cheap rate, and there was some splendid back land to be had in Oxford Street. Mr. Pooley referred to the need of consolidation of the art work of the Corporation. The art gallery committee had intended holding an exhibition of water-colours in the spring, but the chairman of the parks committee told them that the Queen's Park committee always held one in the spring: the art gallery committee withdrew, and allowed the Queen's Park authorities to have their own way. He mentioned this to show the ridiculous position in which the art gallery committee now stood. There were the art gallery committee, the Queen's Park Museum, the collection connected with the School of Art and the Ancoats Museum. If these could be consolidated and a competent gentleman appointed as director or keeper it would be a great improvement. The cost, too, he maintained, would not be great. Manchester was ahead of London in paving, lighting and certainly in water supply, and yet they were behind, not only London, but Glasgow and Birmingham and Nottingham in this matter of art. They were at present working with superseded machinery. The question of the consolidation of the art work of the city was of the first importance, and he looked to the Corporation to take the matter seriously in hand. It was sure to come sooner or later; he hoped it would be sooner.

The report was adopted.

The following were afterwards nominated representatives of the Institution on the art gallery committee of the Corporation:—Mr. Thomas Worthington, Mr. C. J. Pooley, Mr. H. P. Greg, Mr. J. D. Milne, Mr. E. Salomons, Mr. Louis Schwabe and Mr. J. Ernest Phythian.

THE CHARTERHOUSE.

ON Saturday last the members of the London and Middlesex Archæological Society visited the Charterhouse, where the master, the Rev. W. Haig-Brown, LL.D., read a paper on the history of the foundation. From the doctor's remarks, says the *City Press*, it appears that this history divides itself into three periods—the monastery, the mansion and the hospital periods. It was in 1361 that the building of the monastery was begun by Michael de Northburgh, Bishop of London, and Sir Walter de Manny. The site was a piece of ground just outside the City walls, a sort of "no man's land," part of which in 1348 had been used as a burial-ground for victims of one of the pestilences that were frequent in those days. The house when complete was inhabited by Carthusian monks, and was named after La Chartreuse, in Savoy, the word Charterhouse being merely an English corruption of the French title. The monasteries of this order usually consisted of two cloisters, large and small, and in the case of the Charterhouse the large cloister occupied the site of the present school playground. It has now entirely disappeared, but the entrance to the prior's cell still remains, and a portion of the original chapel is also to be seen. Another interesting remnant of the past is the pair of solid gates that still hang in the chief entrance, whilst the large Guesten Hall, or dining-hall, dates back to the sixteenth century. Whilst discussing the habits of the monks who originally dwelt here, the Master observed that they were strict vegetarians, although they did not enforce abstinence from flesh food upon their visitors. Their guests, however, were entertained in a special part of the premises called "Little Egypt," a humorous allusion to the hankering after the "flesh pots" that once prevailed among the Israelites. Sir Walter de Manny did not long survive the erection of the monastery, which in 1537 passed, with its revenue, to King Harry, who in 1545 granted it to Sir Edward, afterwards Lord North. Subsequently the premises were converted into a nobleman's residence, one of the changes effected to secure that end being the sweeping away of the cloister and the cells of the twenty-five monks. This little cloister, with its Guesten Hall, kitchens and other commodious rooms, was readily adapted to its new purpose, and it still remains, the ancient character of this part of the premises being, however, hidden behind a modern "skin" of brick, erected towards the end of the last century to preserve the original stonework. In 1565 the Duke of Norfolk purchased the place for 2,500*l.*, and spent a large sum of money on improving it, and much of what he accomplished, notably the minstrels' gallery in the dining-hall, is still to be seen. The duke, however, like Sir Walter de Manny, did not long enjoy the house he had beautified, for in 1572 he was executed for high treason. In 1611 the property was bought by Mr. Thomas Sutton for 13,000*l.*, and henceforward the place was neither a mansion nor a monastery, but a hospital, or a shelter for the aged, and a school for the young. This Thomas Sutton appears to have been a very prosperous merchant and financier; and, in referring to the latter aspect of his career, the Master mentioned that it was not at all unlikely that the start of the Spanish Armada was delayed for three weeks whilst Sutton negotiated a loan with the Spaniards, the hindrance playing an important part in the history of this country in that when the mighty fleet did set out for these shores it encountered the disastrous storm which helped British pluck to annihilate the invaders. This tradition was one that Dr. Brown said he much cherished. The first object of the institution was to furnish a comfortable home for eighty men in the decline of life who had failed to provide it for themselves, and the second object was to feed, clothe and educate forty poor boys, who, without such assistance, would be likely to go untaught. Provision was made to the effect that as the revenues increased the number of the men and boys should likewise do so. Sixteen governors were appointed, and since 1611 the list has included a goodly array of princes, archbishops, peers, judges, prime ministers and other men of national fame. Minute regulations were not laid down by the founder, and much was left to the discretion of the governors who now, as before, nominated pensioners for the benefits of the foundation. In regard to the boys nomination had ceased, and entrance was now only by competitive examination. In 1872, to bring the history of the place to a close, the number of boys had grown so extensively that removal was necessary, and a site was procured at Godalming, where the school now flourishes. The old site was bought by the Merchant Taylors' Company as a new home for their school in Suffolk Lane.

ARCHITECTURAL ASSOCIATION OF IRELAND.

ON Tuesday the opening meeting of the session of the Architectural Association of Ireland was held in the Grosvenor Hotel, Dublin.

Mr. J. Howard Pentland, R.H.A., presided, and delivered an address on "The New Architect, his Work and Registration." He pointed out that, having regard to modern developments, the necessity for definite views on the general position of architects, the corelation of art, science and business in their calling, and the necessity of legislative protection both for themselves and the public, was of growing importance. Referring to the contention of the Academy party in the *Times* controversy of 1891, that art was of too elusive and ethereal a character for the hall-marks of the Architects' and Engineers' Bill, and that an architect was such in virtue of his artistic and not of his scientific ability, he inquired whether, leaving the various studentships out of account, the letters "R.A." did not constitute a diploma, and whether these very academicians did not hold every spring a great competitive examination in Piccadilly, when not only was the palm of place awarded, but the appreciation was tempered with the finer distinction of "sky" or "line." These people forget that if art could not be weighed in the balances, taste sank to preference, criticism to dialectics, and the Grand Prix de Rome to an empty honour. He then took up the other contention, and showed by an appeal to history and criticism that architecture was unthinkable without science, and that it was difficult to realise who was the greater fool—the man who looked down on construction from the pinnacle of art, or on art from the pinnacle of construction. He went on to refer to the general nature of art, and architectural art in particular, pointing out that as a matter of æsthetics alone architecture was the material expression of a want beautifully satisfied, and as such included not only engineering, but pottery, jewellery and even tailoring and millinery; that men like Michael Angelo were architects, engineers, goldsmiths and most probably designed some of the dress of their day for ceremonies, if not for every-day life. As time went on division of labour became necessary. No man could be such an Admirable Crichton as to excel in all these things, and master the gamut of the underlying sciences that inspired them. Things were, therefore, as we found them, and it was no wonder that with the views of architecture that resulted from philosophical and æsthetic considerations, and the work of architects in past ages, the exact limits of the business of the new architect should be a matter involving some doubt. The social and physical conditions arising from modern progress that guided his thought and pencil at any moment were as different from the simple requirements of old times as a turret ship from a trireme. But it was the same at the other end of the line; the mechanical engineer had to turn out Pullman drawing-room cars with elaborate architectural interiors. How was any one man to embrace in his constitution the varied experiences and aptitudes of science and art that were demanded by the necessity of a perfect result? One man had to be responsible for the whole, and that man, whether the work was a cathedral, a lunatic asylum, a yacht, or a turret ship, should be the man who knew most about the general run of the work involved. As the engineer provided himself with good architectural draughtsmen for architectural guidance in cases where engineering work prevailed, so should the architect provide himself with good engineering draughtsmen for engineering guidance when architectural work prevailed. In short, the designer should fit the aggregate of the work he had to do, and supplement the gaps in his experience by the aid of experts in art or science. Trade is conducted on similar lines, and professions and arts must follow suit. He did not deny that in many cases independent co-operation might offer a solution, but he was dealing with ordinary work-a-day experience; there were some men who were capable of dealing personally with all the problems, scientific or architectural, presented, say, by a big modern hotel, others shone more in one branch than another, but the power to assimilate advice and so produce an equally balanced result was one that grew with experience, and coupled with the study and experience of the administrative aspects of those branches of work where special temporary assistants became advisable constituted the most satisfactory means of dealing with a difficult problem. The necessity of one man being responsible for a whole had to be carried out even when co-operation was deemed advisable. No lay individual or body was, of course, capable of dealing with a number of experts employed to produce one efficient result, but in such cases consulting architects or engineers were employed as intermediaries, and the question was reduced to very much the same lines as before, the head of the office being replaced by the consulting architect or engineer and his various assistants by the independent experts employed. He finally advocated a more systematic system of education in the principles at least of steam, hydraulic and electric engineering, so far as office administration was concerned, for in no other way could one hope that the modern structures, whose very veins, nerves and sinews these things constituted, could be artistic and efficient wholes.

Mr. Thomas Drew proposed a vote of thanks to the president, and Sir George Moyers seconded the motion.

Mr. Kaye Parry said undoubtedly one of the great difficulties with which they would be beset in the future was the multiplicity of branches of his profession in which the architect would be expected to be versed. As to the suggestion that specialists should be called in by him temporarily, there would unquestionably be difficulties in the way of such a system, but he thought that the architect of the future would have to be a consulting architect to generally direct the general plan and be assisted in the various branches of his work by specialists in their different departments.

THE CATALOGUE OF NATIONAL PORTRAITS.

THE following additional letter from Mr. Julian Marshall has appeared:—

In my first letter on this subject I was careful to say nothing which could be construed as reflecting in any way upon Mr. W. H. J. Weale, the late keeper of the Art Library. His letter, dated October 11, professes to be a reply to my statements about him. It is in reality nothing of the kind. It is simply supplemental evidence volunteered by him in defence of the finding of the select committee—evidence which he did not think fit to give while the committee was sitting, when it could have been properly tested, and its allegations, if necessary, could have been met. Mr. Weale is, of course, entitled to champion the cause of the select committee, but hardly to do so by bringing forward fresh evidence which he withheld from them while they were sitting. One is forcibly reminded of a certain affaire which is now agitating our neighbours across the Channel. A man is condemned on evidence which is unsatisfactory and insufficient. On the conviction being challenged supplemental evidence is produced *ex parte* to prove that the judgment was righteous. This is not the way in which we usually do things in England.

As regards the substance of Mr. Weale's letter, I think it is greatly to be regretted that he should have come forward, quite unnecessarily, to make a charge of the gravest possible character against the late Sir Philip Cunliffe Owen, who was formerly the director of the Art Museum, but who is now unfortunately dead. It is difficult to reconcile the course taken by Mr. Weale with his professed desire to avoid personalities. As to the charge itself, I totally disbelieve that Sir Philip C. Owen ever intended to suggest to Mr. Weale that, by recommending me for employment, he would "make an influential friend of Sir John Donnelly." Sir Philip C. Owen was not the man to resort to a means of persuasion so dishonourable. Moreover, such a suggestion, besides being disgraceful, would have been extremely foolish. It could not have mattered a straw to Mr. Weale (who at the time was bound by the service rules to retire from his office in a little over two years) whether he gained the friendship of Sir John Donnelly or not. Mr. Weale, I am satisfied, must have been wholly mistaken in the inferences which he drew from the expressions used by Sir Philip C. Owen in the course of their conversation.

Mr. Weale appears to doubt whether I am entitled to be regarded as an expert in prints. Let me refresh his memory by referring him to his own recommendation, dated February 22, 1892, which ran as follows:—

"Director,—In May last I reported to you as to the necessity of a catalogue résumé of the prints in the Art Library. I have had slips prepared of those as to which we have sufficient information, and have had to set aside those—chiefly Italian engravings and German and French woodcuts—which no one on my staff has sufficient knowledge to class and describe correctly. I should be glad now to have for these the assistance of an expert, and beg to recommend that Mr. Julian Marshall be asked to devote thirty days to the work."

Lord Balcarres thinks that it was for me to tender myself, not only once but repeatedly, as a witness before the select committee, if I wished to give evidence. Unfortunately I have not the gift of prescience, and I could not anticipate that the committee would deal with me as unfairly as they have done. Allow me to say that nothing like thirty or forty volumes of the "Dictionary of National Biography" had appeared when I wrote the short biographies; I should say not half that number.

EDINBURGH ARCHITECTURAL SOCIETY.

THIS Society met on the 19th inst., Mr. W. N. Cumming in the chair, when Mr. P. E. Nobbs read a paper on "Wrought-iron Work." The meeting took place in the workshop of Messrs. Houston & Stewart, smiths, Dundee Street, and a practical illustration formed part of the evening's work. Mr. Kinross, the honorary president, and others took part in the discussion, and the attendance was a large and appreciative one.

NOTES AND COMMENTS.

Mr. William Scott, the architect, who for some years resided in Venice, has transferred his business to Bordighera. He has taken advantage of the opportunities around him to write a book on "Rock Villages of the Riviera," which will be illustrated with dainty drawings from his pen. The book will deal with some of those picturesque and out-of-the-way hamlets which visitors to the South may have seen perched on hill-tops or hidden in the valleys, away from the beaten track of tourists. The district referred to is that part of Liguria which commences at the French frontier, and a brief historical outline traces the origin and development of these little "ville," as they were called, from the early days of the Genoese Republic, through the interesting period when some of them, revolting from the oppression of Ventimiglia, formed the "Community of the Otto Luoghi," and proceeded to carry out their ideas of Home Rule. Several of the villages still possess a number of their old documents, account books and other records, and these are now laid under contribution for the first time.

One of the last official acts of M. Puvis de Chavannes as president of the Society of French Artists was to write, with M. Jean Paul Laurens, the president of the Salon, in explaining the grounds of their opposition to the arrangements for the display of French pictures in the palace of the exhibition of 1900. It was alleged that the artists demanded an excessive amount of wall-space. But the Presidents of the rival Societies in reality sought for less than was required in 1855. In the international exhibition of that year there were 1,832 French paintings shown, the foreign pictures numbering 1,193. All that was demanded from the direction of the exhibition of 1900 was provision for displaying 1,800 pictures. That figure cannot be considered as excessive, especially as the number of works which are sent in annually to the Salon is at least 3,000. It is worth knowing that Great Britain in 1855 was able to introduce 232 paintings, and had therefore the largest number of any of the foreign States. Belgium was represented by 206 pictures. The value of the British works was estimated at 130,000*l*. Out of the hundred artists who sustained British art on that occasion, Mr. Holman Hunt, Mr. Horsley and Mr. Cooper appear to be the only survivors.

Although it is not above 15 miles from Venice, the ancient town of Treviso is not much visited. It contains some interesting buildings. One is the Palazzo dei Trecento, which has just been restored at the cost of the town and communes. It dates from 1184 and is Romanesque in style. The palace has suffered much during the century. A fine external staircase was removed, windows were disfigured, and so much vandalism was perpetrated throughout that the restoration was a costly undertaking. A great many booths which were attached to the building have been removed. On the south side, where various armorial bearings appeared, a fresco representing a winged lion was discovered, and it also has been restored. Within the building is an assembly-hall about 30 feet high. This part will shortly be put in the hands of the restorers, and it is anticipated that several frescoes may be found when the walls are cleaned.

Over twenty-two centuries have elapsed since at Chæronea a dishonest victory was won by Philip of Macedon and the independence of Greece came to an end. A colossal lion was erected as a memorial. When it was discovered it was within an earthen tumulus. There is a tradition it was entire, but in the early part of the century it was broken up by gunpowder because a hollow sound was heard when it was struck, and the Greeks supposed there must be treasure concealed within it. The German archæologists have long been desirous to set up the lion. Recently they sent some skilled men to report on the feasibility of the undertaking. The operations will not be easily performed. Originally three colossal blocks were employed for the figure. But in order to convey them to Chæronea it was decided to remove as much of the marble as possible. Whether in the transit or when the lion was overthrown, the marble was cracked in several places, but the blocks are still so heavy they cannot be raised and fixed without much difficulty. What remains of the pedestal is now of such soft material as to be unsuitable to sustain a weight. What decision will be arrived at cannot be anticipated, but the lion cannot be restored for a small sum of money.

The volume on the "Architecture of the Renaissance in Italy," by Mr. W. J. Anderson (B. T. Batsford), must have supplied a need, for it is not common for a second edition of a work of the class to be called for in two years. The author does not accept his success with self-satisfaction, for he expresses a wish to see it in a different form, and was inclined to rewrite the whole or large portions, but he has most carefully revised the pages, a process which in this case has involved a good deal of expense. The number of pages is increased, and there are several new collotype and other illustrations. In some cases larger views are substituted, and in others the views are from different standpoints. Where so much anxiety is shown to improve a book it is interesting to follow the changes and endeavour to make out why they were necessary. On that account the first edition is not entirely superseded by the second, and a comparison of the two will repay the student. The author's theory, it will be remembered, is that the Renaissance does not begin with any determinate year. Mr. Anderson believes in continuity as a principle, and in his first edition he said there was a recurrence of the "type" for some two thousand years. The author now assumes the period to be three thousand. The historical architecture of Europe is, he says, an undivided whole to this day, having commenced in Mycenæ. Interesting as is the Italian variety from its limitation in area, "it must have an incompleteness of character and a littleness of design in relation to the whole." We thus see that Mr. Anderson departs from the usual plan of authors and does not overvalue the importance or interest of his subject. But he has demonstrated that the variations of Renaissance architecture have more philosophical interest than was allowed by lovers of Greek and Gothic, and he has treated the subject with a freshness which makes the subject more interesting than the average novel.

In last May proceedings were taken by the County Council at the Guildhall Police Court in respect of openings having been illegally made in the party wall between 45A and 46A Basinghall Street and 4 London Wall Avenue. The alderman decided that the buildings came within the exemption specified in section 77 (1) of the London Building Act, 1894, which states that buildings shall not be united except where they are wholly in one occupation or are constructed or adapted to be so. The summonses were therefore dismissed, the alderman, however, expressing his willingness to state a case. The Building Act committee are advised that it is questionable whether the alderman rightly construed the words "or are constructed or adapted to be so," and as the question of the irregular uniting of buildings is a very important one on account of fire risks, and is constantly arising, it is desirable that an authoritative decision should be obtained upon the point raised. A case for the opinion of the High Court has been stated as to whether the words in the section of the Act referred to bear the interpretation he has placed upon them. The solicitor to the County Council has been instructed to take the necessary steps for obtaining the decision of the High Court upon it.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: LOOKING ACROSS NAVE.

EASTCOTE, PINNER.

ST. GEORGE'S CHURCH, STOCKPORT.

ST. ALBANS CATHEDRAL.

IN an article on St. Albans Cathedral which appeared last week we referred to the condition of the building before the restoration was undertaken. The following copy of the report addressed to Earl Verulam by the late Sir Gilbert Scott in 1872 will explain what was then proposed to be carried out :—

The injuries which the building has sustained may be classed under the following heads :—

(a) *The deterioration of its design during the latter part of the Middle Ages and the earlier portion of the succeeding period, mainly arising from decay in taste and artistic sentiment.*

Under this head may be enumerated—1. The removal of all the high-pitched roofs, whether of the clerestories or aisles. The latter included the lowering of the walls which sustained the original aisle-roofs, and the exposure to external view of the backs of the Norman triforia, which were thus converted into windows. Nothing could tend more than these alterations to the reduction of the dignity of the external aspect of the building. Unfortunately, the correction of this defect seems so formidable a work that one scarcely feels to have courage to propose it. 2. The alteration of the great windows, both of the western and of the transept fronts, from their early forms into huge Perpendicular windows—an alteration which it seems equally hopeless to correct.

(b) *The ruthless mutilation of ancient features, which is more or less observable throughout the church*, and may in most instances be repaired.

(c) *The loss of ancient features by structural failure*, such as that which has ruined the two side portals of the west front, and damaged the central portal. These losses could be remedied, subject to a certain amount of conjectural restoration.

(d) *The natural course of decay, whether of stonework, timber, lead covering, or other parts.* This class of defect is very extensive, and demands throughout effectual remedy.

(e) *Actual structural failure, threatening the safety of the building.* Of this the most marked instance is that which has been recently detected in the central tower. This is of a very serious nature, and has happily been discovered in time, and effectual means taken to arrest it, or most serious consequences might have resulted.

One of the most conspicuous and barbarous injuries which the church has sustained is the cutting off of its beautiful eastern chapels, a large portion of which has been rendered little better than a ruin, while a public footway has been cut directly through it. No attempt at restoration will be worth the name unless this monstrous piece of vandalism be obliterated. Indeed, I think that, after providing for actual structural safety, this should be the first work undertaken, as the continuance of such a state of things is a public disgrace. Happily, the way has been prepared for this by the restitution to the church of the lady chapel, so long made use of as a grammar-school.

The next step must be the stopping of the footway, which passes directly through one of the most beautiful portions of the church, after which the restoration of these exquisite but ruinous chapels may be proceeded with, while the arches which once united them to the church may be reopened. These walled-up arches will probably be found to be perfect mines of antiquarian wealth. Some portions of them, already partially cleared by Dr. Nicholson, yielded a rich return of architectural detail, including a considerable part of the marble substructure of the shrine of St. Alban—as charming fragments of ancient carving as can well be conceived ; and we may hope that the mine is far from being exhausted. Be this as it may, the opening out of these long-closed arches will add to the church features of startling beauty such as one now hardly imagines.

The lady chapel itself is at present shut off from the intervening chapels, and the opening out of the arch which formed its entrance will add yet another element of internal beauty. This arch was closed only by an open oak screen, of which the remains still exist. The lady chapel itself is in far better condition than those which united it with the church, but it requires very extensive restoration. The beautiful wall-arcading which occupied the lower part of its walls has in a great measure been cut away ; the vaulting, which, like those of the outer chapels and that of the choir, was of oak, enriched with decorative painting, is now covered by plaster, while its woodwork is much decayed, and other architectural features are sadly mutilated. All these must be fully restored.

The central part of the outer chapels has been originally planned to be divided into three spans, by two additional ranges of columns, something as the lady chapel at Salisbury ; but this plan was abandoned, and the whole covered by a richly-panelled ceiling of oak, now sadly ruined. This ceiling must be restored, and the evidences of the change of plan left apparent. The ruin and dilapidation of these outer chapels is most distressing. Exposed for centuries to the weather, beating through the unglazed windows and the gangways cut through the walls, and used partly for a public thoroughfare and partly as a sort of playground for the boys of the grammar school, who have age after age amused themselves by cutting the soft stone of its beautiful arcading with their knives, these chapels have been reduced to a most melancholy wreck ; yet enough remains to show them to have been works of the highest art, and happily enough also to guide their restoration —a work of love and piety which will be richly repaid by the result.

If we turn our attention for a moment from the eastern to the western extremity of the church, we shall find a somewhat parallel demand for the restoration of exquisite architectural features now nearly lost through their dilapidations. I refer to the three western portals, to which I have more than once alluded. These were deep porches, approached externally by rich and lofty arches and surmounted by high gables, parallel in many respects to the portals of French cathedrals. Unhappily their fronts at some period gave way. That of the central portal was replaced by a plain arch of a late period, but those of the side portals were simply walled up ; so that externally these exquisite features are now wholly obliterated, while within they form mere closets, in which fragments of sculptured stone are stowed away. At the risk of having to exercise some degree of conjecture, I think that these portals should be opened out and restored ; and I feel confident that in the walls by which they are now blocked up evidences will be found to aid greatly in the work of restoration. It is, indeed, evident that these walls are composed largely of the moulded fragments of the fallen fronts. These portals were built from a level lower than that of the nave, intending to rise by several steps from the first to the second internal bay. This beautiful arrangement was either abandoned or altered, and the consequence is that the lower portions of the portals, as well as of many adjoining parts, are now buried some 2 feet beneath the floor. This must be corrected, and their forms brought out in their noble integrity.

Another case of restoring lost features strikes the eye at once on entering from the west. I refer to the lost vaulting of the greater part of the aisles of the nave. Of twenty-six bays of the aisles eight only retain their vaulting ; three of them Norman and five of the fourteenth century. Eighteen require to be revaulted ; nine of them Norman and nine Early English.

Somewhat parallel in class are some extensive restorations required in the interior of the choir, where, besides the cutting away of the shafts of piers and other architectural details, some very important features have been wholly removed, consisting of beautiful tabernacle-work projecting over two doorways (themselves now obliterated) on either side. I some years back discovered nearly all the parts of one of these beautiful projections and succeeded in getting them fitted together, and their materials are still preserved. Many minor cases of the same kind occur throughout the church which it would be tedious here to enumerate.

The most serious structural defect in the building is that already referred to in the central tower, of which the two eastern piers have shown signs both of subsidence and of actual crushing. The failure of the north-eastern pier extends into the choir and is shared in a less degree by the east side of the adjoining transept. So pressing was the danger that signs of increased subsidence showed themselves while the parts which first showed evidence of failure were under repair. Very active measures were at once taken by the application of powerful shoring, followed up by the restitution of the piers of large portions which had long since been cut away from them, and the piers themselves have been greatly strengthened by the substitution of sound for disintegrated material—a difficult and anxious operation. The foundations of these piers have been a good deal weakened by the proximity of graves ; and, strange to say, the southern pier had apparently been excavated beneath the floor into a sort of cave, so far as we can judge, with a view to the destruction of the tower. The repairs already undertaken are only such as immediate security demanded, but there remain very extensive dilapidations in the tower throughout its entire height, all of which must be thoroughly and substantially repaired or it cannot be pronounced safe. Its tendency northwards both increases and is increased by a corresponding tendency in the north transept, which is clearly settling in that direction and is much cracked. This also demands a decided remedy.

The decay of material externally is very extensive. The Norman walls are free enough from this, having no stonework about them ; but the later portions have everywhere their architectural features carried out in the soft church-stone of Totternhoe—a material which, though suitable enough internally, is far from durable for external work. The consequence is that throughout the more architectural parts of the building sad havoc has been made by time and the elements. This is especially the case with the long ranges of clerestory windows to the nave, which are shattered in a most lamentable manner, and their ruin is increasing every winter. The old parapets erected of this material have almost wholly perished and been

replaced by brick, and every part which has stone dressings externally shows more or less the sad effects of the use of this perishable stone. In renewing these shattered details I should endeavour to find a durable material which would correspond in colour with the old stone, and this, I think, we have in the Chilmark quarries in Wiltshire, from which Salisbury Cathedral was erected.

The timbers of the roofs and ceilings also demand careful reparation. This is especially the case with the ceilings, which are everywhere very much decayed and are getting actually unsafe. The lead covering also requires careful reparation throughout and renewal in some parts; as a rule it has been carefully attended to, but as it greatly exceeds an acre in extent this alone is a work of importance. The plastering and stonework of the interior require to be carefully freed from whitewash. This has already been effected in many parts with a happy effect under the direction of Dr. Nicholson, bringing to view the beautiful and most interesting coloured decorations of the old wall surfaces.

Every Norman pier on the north side of the nave is found to have an altar painting on its western side forming a sort of reredos to the small altar erected against each. These paintings all represent the Crucifixion and are most valuable specimens of early art. The simple operation of taking off whitewash from surfaces so prodigiously extensive and doing it with such care and tenderness as not to disturb the painting beneath, is a work of considerable cost. If we had succeeded in enumerating all the manifest defects of the structure, which would be a wearisome catalogue, the fact still remains that the minor reparations of a building of such enormous extent still form, by the vastness of the surfaces over which it is spread, a formidable and costly undertaking.

To avoid tedious details which would encumber without elucidating my report, I will accompany it by a rough specification of the leading items of reparation I recommend. It will be seen that I have not calculated anything for internal fittings nor for the detached objects such as tombs, screens, &c., having limited myself to the repairs of the actual structure, with its roofs, walls and floors. My leading object in the treatment I have calculated on has been to insure the perpetuity of the structure and to guard against the loss of any of its architecture, but to do this with the smallest possible change in its general aspect, such changes being limited to the restoration of such lost features as are essential to its character, especially as viewed from within.

No church in Great Britain more thoroughly deserves a careful and conservative restoration, nor would any more richly repay this labour of love. It is a glorious work and one with which I feel a special pride in being connected, and I most earnestly wish you every possible success and liberal support in what may fairly be styled a great national undertaking.

GLASGOW ARCHITECTURAL ASSOCIATION.

AT a meeting of this Association on the 18th inst., Mr. John Fairweather, vice-president, in the chair, a lecture was delivered by Mr. Low, his subject being "Ventilation." The lecturer pointed out how closely the sciences of heating and ventilation were allied. They could not very well be treated separately. Questions regarding the quantity of air required, the cubic space of room necessary per person and the necessary purity of air fit for breathing were gone into closely and clearly. Although carbonic acid gas was an impurity, it was more the presence of organic matter that rendered air unfit for breathing. One of the greatest difficulties ventilating engineers had to contend with was the difficulty of ventilating comparatively small rooms without causing a draught, and this no matter what system was adopted. There were many different systems, but they could all be grouped under either of the headings "natural" or "mechanical." Mechanical methods, again, could be subdivided into plenum and vacuum. Mr. Low described each system in turn, referring to different buildings ventilated by each method. The natural system was illustrated by several very interesting experiments made with a small model of a room. The failure of cowls as foul air extractors was pointed out. The whole series of experiments tended to show how difficult and uncertain natural ventilation was under certain conditions and circumstances. On the motion of the chairman, a hearty vote of thanks was accorded Mr. Low for his interesting paper.

The Opening Meeting of the Dundee Institute of Architecture, Science and Art will take the form of a dinner, on or about November 17 next. The probable dates of the other meetings of the session will be January 12, February 9 and April 20.

ST. MARY REDCLIFFE, BRISTOL.

(Concluded from last week.)

ON comparing the roof of the transepts with that of the chancel we shall find much in common both in design and enrichments, which leads to the inference that the latter was constructed very soon after the former, and from a plan furnished by the same architect. The period of the erection of this part of the superstructure should be placed not later than 1410, and my reason for doing so is that the arch dividing the chancel from the transepts, and which continues throughout the entire nave, for the sake of uniformity as it would seem, so far declines from the perfection of that architectural member as to leave no doubt that it was erected soon after the Perpendicular style had obtained permanence as a national mode o. building, that is, at the commencement of the fifteenth century. By dividing the horizontal line at the base into eight parts, the centre of this arch will be found at the seventh.

We have no means of knowing by whom the superstructures of the chancel and transepts were designed, particularly the latter on the north side of the church, but there is sufficient evidence in the vaulting to show that they were the work of one presiding genius, and that he was employed to superintend the erection of the entire of these parts of the structure above the first stage, from about the death of the first William Canynges, until the close of the first ten years of the following century. From about that time another architect was employed, and to him is to be ascribed the design of the elaborate vaulting which so enriches the nave of this beautiful church; but the name of this architect, like that of his predecessors, is entirely unknown to us.

The completion of so elaborate a superstructure as that of the nave must have occupied a longer period than the erection of any other part of the interior. It is by far the most costly portion of the entire fabric, and displays an example of decorative excellence scarcely to be paralleled. The space between the arches above the first stage of the building and the clerestory windows is filled with Perpendicular English panelling, as also is the same space in the north transept and chancel, that in the south transept only being designed in the Decorated style. The clerestory windows which rise above are uniform in structure throughout the entire nave, chancel and north transept, all being in the Perpendicular fashion, but those in the south transept are constructed in the style which preceded it. The screens also at the east end of the chancel and its aisles may be classed with the Perpendicular portions of the fabric, as may likewise several subordinate erections in that part of the edifice.

It can scarcely be doubted that the whole of the superstructure of the church was raised upon the work of the first William Canynges, excepting the Decorated English portions which occur in the south transept. Its progress must have been slow from want of sufficient funds, for in those days of patents, licenses, monopolies and charters, the wealth of provincial towns was confined chiefly to the mercantile few, to the comparative exclusion of the trading many; contributions therefore could be obtained for the most part from those only who were so favoured, and of course the work was more or less retarded in consequence. The completion of the church was probably far from accomplished when, as we find it recorded in a manuscript cited both by Barrett and Britton, with a difference of one year in the date, "Anno 1442, William Canynges (the second of that name) wyth the helpe of others of the worshipfulle towne of Bristol, kepte masons and workmenne to edifie, repayre, cover and glaze the church of Redcliff, which his grandfather had founded in the days of Edward III."

If any reliance can be placed upon the genuineness of this document, it is evident that William Canynges, junior, was, like his grandfather and Simon de Burton, a contributor only towards completing the church, and is an additional proof that no part of the structure whatever was raised at the sole expense of any one individual; but that, with the Harringtons, Hungerfords, Cradocks, Medes, Sturtons, Dyricks, Says, Graunts, Cheneys, Fulks, Fitzwarrens, Inyns, Rivers and others among commoners, whose arms were formerly blazoned in the windows of the church as benefactors to the edifice (and some of whom have monuments still remaining there), together with the Straffords, Berkeleys, Beauchamps and Montacutes, among those of noble blood whose heraldic shields, charged with their family devices, are sculptured on the roof of the north aisle of the nave, William Canynges, junior, "wyth the helpe" of the above-named donors and "others of the worshipfulle towne of Bristol, kepte masons and workmenne to edifie" or complete all imperfect detail and embellishment; "repayre" the unfinished building of his predecessors wherever injured through the length of time occupied in its erection; "cover and glaze," that is, finish, the vaulting already in progress, roof in the church, erect the parapet and glaze the windows. These, the only incomplete parts of the structure

to the date last mentioned, are all that can with certainty be ascribed to the time of the second William Canynges, previous to the falling of the spire in 1445. If he had been more than a contributor with others to the work, surely some mention of such a circumstance would be recorded, either on the monuments erected to his memory, and still standing in the church, or that he would in his will have named a fact so remarkable, yet nothing of the kind was ever placed upon record on either memorial. What is still more strange is, that whilst by his last testament he particularly specifies a gift of "twenty pence to the mother church of Wells," directs that the "lights and torches" used at his funeral should "be given and distributed" by his executors "to twenty-four of the neighbouring parish churches without Bristol," gives to the fabric of the church of Westbury forty shillings, and a like sum to the church and tower of Compton Braynesold, no mention whatever is made of any such gift to the church of St. Mary Redcliffe, neither do we meet with the slightest notice of any donation being made by this second William Canynges towards the erection in any memorial to which the slightest importance can be attached. The inscription on a board at the back of his tomb in the south transept of the church is regarded as the composition of that well-known maker of epitaphs in the reign of Queen Elizabeth, Thomas Churchyard, and is therefore unworthy further notice.

The part undertaken by William Canynges, junior, in the completion of the church was evidently to superintend the application of the funds raised for that purpose; and Norton, whose first name is not recorded, was the "master mason" or architect employed by him to carry on the work. To the latter may be ascribed the finishing of the structure at the west end and also the portion of the spire as it long appeared, that part of the building never having been rebuilt. There can be no doubt, however, that the church was finished entirely before the fall of the spire in 1445. Referring to this unfortunate event, Mr. Barrett quotes, as he informs his readers, two "very ancient" manuscripts, which relate the fact in the following manner. The first says that in "1445, at St. Paul's tide, was very tempestuous weather, by which Redcliffe steeple was overthrown in a thunder-clap, doing great harme to the churche by the fall thereof, but by the good devotion of Mr. William Canynges it was re-edified, to his everlasting prayse.' The second document speaks thus:—"William Canynges re-edified and enlarged the church of Redcliffe, almost destroyed by lightning in 1445, in so exquisite a manner that he has ever since passed for the founder thereof, and he afterwards gave 500*l.* to keep it in repair." Mr. Britton also cites a manuscript preserved in the Bodleian Library, by which we are informed that "the said church, having suffered much in a tempest, the above-mentioned William Canynges, a celebrated merchant and public benefactor, in the year 1474 gave 500*l.* to the parishioners of Redcliffe towards repairing the church, and for the maintenance of two chaplains and two clerks in St. Mary's Chapel there and of two chantry priests." The genuine character of these manuscripts is, however, exceedingly doubtful, and for reasons already assigned when speaking of all such documents relating to old Bristol.

It will be observed that the second manuscript quoted above records in other language the particulars contained in the first, with the addition of a gift of 500*l.* "afterwards" bestowed by William Canynges towards keeping the church in repair, and the third, or Bodleian, writing, in addition to reciting the contents of the two previous papers, announces that, besides repairing the church, the 500*l.* was given also for the maintenance of two chaplains and two clerks, and gives the date of the execution of this deed so late as the year 1474. This date evidently refers to the will of William Canynges, which was executed November 12 in that year; but in this document not one word is mentioned of any such donation to the repair of the church as that above cited, nor indeed of any other sum being left for that purpose. But, admitting it to be correct, we are to believe that no measures for restoring the church were adopted between the falling of the spire in 1445 and the gift of this money in 1474, a period of nearly thirty years. Such a thing we may regard as incredible. This manuscript is in fact nothing more than a transcript in brief of the parish register (with another date) hereafter quoted, and most likely the work of Chatterton, who probably had as much access to such documents through the medium of his uncle, who was sexton of the church, as he had to those in the chests of William Canynges.

In speaking of the restoration of the edifice after the falling f the spire, Mr. Barrett says (page 570), "the same plan was observed by him (William Canynges, junior) in rebuilding and restoring it to its original beauty after being thrown down by the lightning; the south aisle, where the mischief fell heaviest, seems to have been rebuilt with a somewhat more elevated arch and in a lighter style than the north; a difference also is between the windows of the north and south aisle. The fall of such a large and very high steeple upon the church must have done great injury, and destroyed everything wherever it fell." In another place the same writer says in substance that by this accident the body of the church was so much injured that it was almost ruinous. Now both these statements cannot be correct, for in the first mention is distinctly made of the damage having been sustained by the south aisle, and in the second by the body of the church—that is, the nave. The former assertion is doubtless the correct one, and to the south aisle it may be confidently said the mischief was confined, for had the spire fallen upon the body of the edifice some indications of repair or restoration would appear in that part of the building as well as in the south aisle, but as nothing of the kind is observable we may reasonably infer that it wholly escaped the effects of the accident.

In discussing the contents of the manuscripts recently noticed it will be observed that the third refers to a gift by William Canynges, junior, of 500*l.* "towards repairing the church, and for the maintenance of two chaplains and two clerks in St. Mary's Chapel there, and of two chantry priests." In Mr. Barrett's first manuscript no mention whatever is made of this gift; but in the second quoted his remarks lead to the inference that William Canynges, junior, having repaired the church injured by the falling of the spire, "afterwards gave 500*l.* to keep it in repair." The introduction of the adverb "afterwards" seems to imply that the donation was not made then, but at a subsequent period, and it is, no doubt, the same sum of 500*l.* as that mentioned by the same author at page 612 of his work, where he records, under date of

"1466. William Canynges gave by deed for	£	s.	d.
divine offices in Redcliffe Church . . .	340	0	0
And in plate to the said church	160	0	0
Vested in the vicar and proctor of Redcliff	500	0	0."

According to this latter document, 340*l.* of the total sum was given "for divine offices in Redcliffe Church," the meaning of which is explained by an extract from a volume of the parish register for the years between 1678 and 1694 inclusive, made by Mr. Britton, and quoted in his work, page 31, in which it is expressed that William Canynges, by deed dated October 20, 1467, one year later than that stated by Barrett, "gave unto the vicar and wardens, and also to the senior and major part of all the parishioners of the church of the blessed Mary of Redcliff in Bristol, the sum of 340*l.* of current money, upon condition that the said vicar and churchwardens, and their successors for ever, should for that gift and with the said money sufficiently repair or cause to be repaired and re-edified the ruinous buildings, tenements and houses whatsoever of the said church, and with the rents and issues of the land and tenements of the same church should provide, find and give unto two chaplains, called St. Mary's priests, 9 marks a-piece per ann.; to two clerks sufficiently instructed in reading and singing, at 2*l.* 13*s.* 4*d.* a-piece; and for executing the sexton's office 1*l.* 6*s.* 8*d.* With divers other gifts, as per the record of the same deed, &c. &c."

It will not fail to strike the reader as somewhat remarkable that in the above quotation, while the repair and re-edification of "ruinous buildings, tenements and houses" belonging to the church is specially cared for by the donor, not one word is said about any repairs to, or rebuilding of, any part of the sacred edifice itself, nor is the slightest intimation given of there being any works whatever, exterior or interior, in progress. The sum of 340*l.* was therefore bestowed "to provide, find" and pay "two chaplains" and "two clerks" and "a sexton," who should properly discharge the various duties appertaining to their respective situations in the church in a becoming manner, and it evidently had no connection whatever with repairing the fabric itself, in which these different parties officiated. Of the total sum of 500*l.* there still remains 160*l.* unappropriated, and as no mention is made in any document as to the way in which this balance was disposed of, we are left to conjecture that this amount only was in reality all that the second William Canynges gave as his own personal donation towards the reconstruction of the church. How 340*l.* came to be the particular sum left "for divine offices" in the church, is accounted for by the fact that William Canynges (says the deed recorded in the parish register before quoted) had advanced 160*l.* to Sir Theobald Gorges, knight, upon some jewels (Barrett says plate, but this is an error), which the latter had placed in his hands as security for the loan of that amount, but which it would seem had never been redeemed. These valuables, therefore, with 340*l.* were presumed to make together 500*l.*, the total sum given by William Canynges in relation to the matter before us. It is worthy of remark here that in a deed formerly possessed by the late Mr. Cumberland of Bristol, and dated 1467, the sum of 340*l.* only is mentioned; and this was given to repair the dilapidated tenements belonging to two chantries in Redcliffe Church founded by Everard le Fraunceys, and to found another to be called "W. Canynges priest." If this deed could be depended on as the most truth-telling of the whole of the documents brought forward in this essay, it clearly shuts out William Canynges junior from all participation in the re-edification of the church, and leaves us to the alternative that he did not even contribute at all towards the undertaking This, however, we cannot believe, for that he gave of his sub

stance to the work there can be no doubt, although no positive record of the fact upon which we can rely is known to exist. The manuscripts noticed are of so contradictory a character as to be unworthy our credence ; and they bear so strong a general resemblance to each other and yet admit of such varied interpretations as to have the appearance at least of having been concocted for purposes of fraud and deception.

In the preceding remarks it will be seen that opinions are given which differ widely from those of all previous writers upon this subject ; yet, although they should affect the long-established fame of those to whom, by common consent, the erection of the matchless church of St. Mary has been ascribed, it were better, far better to endeavour to divest the subject of a mysticism in the dark folds of which it has for so great a length of time been enwrapped, than to echo, as most writers have done, an undisturbed tradition which has no more foundation in fact than to assert that the mist upon the mountain's top is as permanent in its duration as the "everlasting hills." "If," says Mr. Dallaway, "to investigate truth be in some instances to lessen traditional fame which has descended to our times without examination, the present age is become more interested in discovering realities and in detaching such errors from seeming authorities, which have never been submitted to the test of historic proof."

The sum of the foregoing remarks clearly establishes three important facts :—First, that tradition alone, unsupported by any documentary evidence of undoubted authority, has ascribed the founding of the church of St. Mary Redcliffe to Simon de Burton ; and that the oldest parts of the structure were erected at least forty years before that event is said to have taken place, another style of architecture being at the time in practice. Secondly, that in constructing those parts of the building usually assigned, through the same suspicious and unconfirmed medium only, to William Canynges, he was aided by the contributions of other wealthy individuals, and as a contributor alone he stands connected with the erection of any part of the structure. Thirdly, that in the examination of such documents as refer to William Canynges, jun., nothing has been discovered to justify the long-received opinion that he executed the work of reconstruction at his own sole cost, all the evidence adduced tending to prove that, like his predecessors, Simon de Burton and William Canynges, sen., he was but a contributor, and as such only, "wyth the helpe of others of the worshipfulle towne of Bristow," he finished the labours ascribed to those worthy men by employing "masons and workmenne to edifie, repayre, cover and glaze the church of Redcliffe," which had been commenced upwards of a century before the time when his grandfather flourished.

VENTILATION AND WARMING.

(*Concluded from last week.*)

Ventilation of Infirmary Wards, with Space Allowance of 850 cubic feet per Bed.

I PURPOSE first to offer some considerations respecting the ventilation of infirmary wards intended for general cases of the first class referred to in the report of the Cubic Space Commission, for which an allowance of 850 cubic feet of space is prescribed. Following the direction which I have indicated in the introduction, we may approach the consideration of the question in the following way :—Assuming that a full-sized chimney with a fire in the grate will remove 20,000 cubic feet of air per hour if freely supplied, such a chimney will provide ventilation for five beds at the rate of 4,000 cubic feet of air per bed per hour. A five-bed ward at 850 cubic feet per bed would be approximately represented by a ward 21 feet long, 20 feet wide and 10 feet high. The air supplying the chimney would clearly come in cold and almost certainly cause draughts, unless some provision were made for warming it. If such provision be made by having grates with ample fresh air supply, so that the windows need at most be only very slightly opened, say at the top, a ward of the dimensions indicated would not be ill-provided as regards warming and ventilation so long as the fires were kept burning. A ward of twice the dimensions with ten beds would similarly be reasonably ventilated by two fires. These dimensions and provisions do not differ materially from those of some of the wards inspected. Except that the ducts for supplying air may want cleaning and are probably not so large as they should be, no serious objection need be argued against the arrangements of the wards in question. It is true that in taking a definite figure for the ventilation-efficiency of a full-sized chimney we are taking a single value for what in reality varies between rather wide limits according to the state of the wind and the activity of the fire, and which depends, moreover, upon the height and dimensions of the particular chimney. As a matter of fact, 20,000 cubic feet per hour is possibly a too liberal estimate of the average draught of a chimney in one of the school infirmaries, and it would be well before coming to a final decision upon the efficiency or inefficiency of the ventilation of any particular ward, to verify or amend the estimate by measuring the actual flow in the chimneys themselves ; but the figure is, I believe, within the bounds of probability, and is, indeed, probably a not more uncertain statement than the specification of 4,000 cubic feet per hour as the necessary allowance of fresh air and may, like that, be provisionally accepted for a working basis until more definite data are available.

In the computation given above no account has been taken of the effect of the gas used for lighting. This should be dealt with by providing extraction shafts above the jets, but it must be remembered that unless the inlet openings for feeding the fires with air are very ample, a down-draught through the extraction shafts is very likely to be established, which would bring the fumes of the gas down into the room. In Stevenson & Murphy's "Hygiene," vol. i., I have set out the conditions which govern the reversal of the action of an extraction shaft. It is the less likely to occur the greater the vertical height of the shaft (leaving out of account exceptional conditions of wind), and it can be avoided either by having a shaft of sufficient height without altering the inlets for air or by making the air-inlet sufficiently ample without altering the height of the shaft.

In view of the tendency to down-draught it would be very useful to have at the inner end of the shaft an index to show whether the air was going up or down. I am not aware that such an index is at present in the market, but it would be easy to construct one which could be fitted into the mouth of the shaft. It might consist of a small flag of mica attached by one edge to a horizontal axis about which it could turn freely, and lightly counterpoised so that the flag would be approximately horizontal when there was no motion of the air along the tubes. A current up the tube would then carry the flag upwards, and the reversed motion would bring it downwards ; the direction in which the air was moving could thus be identified at a glance. Such an index might be used as a criterion of the due supply of air to feed the fires by day or night. If the inlets were adjusted so that the flow of air was directed upwards in the gas-flue they would be shown thereby to be sufficient to feed the fires with the proper amount of air for ventilation ; if, on the other hand, there were down-draught, it would be desirable to open the windows or otherwise enlarge the inlets until the down-draught was reversed.

It would be equally useful and still easier to attach an indicator to the face of an extraction shaft which terminates in a vertical grating. A small square plate of paper or mica attached to a horizontal axis and nearly counterpoised forms a very sensitive indicator ; it swings towards the flue or away from it according as the air is being extracted or is passing in the reverse direction. Such indicators would be a very useful and inexpensive addition to the arrangements for ventilation.

Consideration of Certain Objections to Ventilation by Open Fires.

Supposing that the extraction of the gas fumes is satisfactorily provided for, either by special extraction shafts or by openings into smoke-flues which are not open to the objection indicated above, we may proceed to consider some further points in connection with the use of open fires as a basis of a system of ventilation and warming of infirmary wards of the first kind. The suggestion to regard the ventilation and warming as depending exclusively upon open fires, even with the proviso that the number of patients is suitably limited, has to face the objection that open-fire warming is dusty, and, according to Carnelley, has generally associated with it a large number of micro-organisms in the air. If the inlets to the backs of the grates be large enough, it is an easy matter to supply them with filters to abstract much of the dust from the incoming air, but the schools are almost without exception favourably situated in open country; their air supply is free from injurious dust, and special precautions need not be taken to deal with it. The dust that accumulates in large quantities in the schools. in any place that is left undisturbed for a length of time is a product of the interior, and probably little of it comes in with the air supply. A hospital ward, too, must be regarded as in itself a nursery of pernicious micro-organisms, and such as come in with the air from outside are, comparatively speaking, harmless and few.

Of course the ventilation of infirmary wards by open fires requires the constant and intelligent care and attention of those in charge, in order to secure a good result as regards both temperature and freshness throughout the vicissitudes of our climate, but I see no reason for thinking its successful management to be beyond the range of possibility, provided that the number of beds in the wards is suitably limited. One of the obvious causes of difficulty lies in the variation of temperature that ensues if the fires are allowed to go out for any considerable length of time in cold weather. In that event the chimney being warm throughout its length con-

tinues the ventilation for hours after the heating effect of the fire has practically ceased, and within the room a very cold morning may in consequence succeed a comparatively very warm evening. This difficulty constitutes a valid objection to the use of the method of combined warming and ventilation by open fires in fresh-air grates for ordinary domestic use in bedrooms, where the fire is allowed to go out many hours before the occupation of the room ceases ; the objection holds good in the case of the infirmary wards (where an equable temperature is of the first importance) unless provision can be made for keeping the fires alight throughout the night.

One other objection to the system of open fire ventilation may also be referred to, namely, the influence of the large window area that is on other grounds desirable in infirmary wards. The windows expose large portions of the air of the room directly to the cooling influence of the external air, and in very cold weather, especially on cold nights, a very large amount of heat is thus abstracted by conduction, and the effect upon the air thus chilled is that a cold stream is established descending to the floor and passing thence to the fires. Thus draughts arise, often so conspicuous as to be erroneously attributed to leakage of air through the window-frames. There is no remedy for the difficulty except the double glazing of the windows, either by doubled panes with an air-space or by double sashes. In consideration of the fact that the local circulation produced by the cold windows is an advantage if it be restricted within moderate limits, the best remedy is probably glass shutters to fold back upon the walls. They might be used only in the more extreme weather, and when not required might be folded back or removed altogether.

It is claimed for the method of mechanical ventilation (see the account of the new hospital at Birmingham, *Lancet*, 1895, vol. i. p. 1203), that if the windows of an infirmary are not opened, and all the air is passed through filters, a valuable result is secured in the exclusion of flies, with their pernicious power of carrying infection. No such claim can be advanced for the open fire system, for in the warmer weather of summer, when flies are most abundant, the ventilation will necessarily be dependent upon the windows ; in fact, when fires are not required resort must be had to the system of cross-ventilation. I am, however, informed that in certain tropical climates, where flies are much more annoying than they are in this country, it has been found that the best way of keeping them out of a room is to provide an active cross-ventilation, and that a through draught is a better protection than mosquito curtains. I cannot say how far this would apply in the case of infirmary wards, but in so far as it is applicable, it indicates a practical advantage in those wards which are so built as to provide for adequate cross-ventilation.

The most attractive feature about the use of an open fire for combined warming and ventilation in the infirmaries of the Poor Law schools is the simplicity of its action. Viewed from the point of view of saving labour in carrying coals, &c., it may not be all that could be wished for, but objection on that ground does not seem to me to be of great force in the special circumstances of the schools.

As soon as we depart from the simplicity of the open fire, and attempt to warm either partially or exclusively by other methods, other difficulties arise. When the heating is by steam or hot water separate provision must be made for ventilation, and we are met at once with the difficulty of providing sufficient and continuous motive power. The system of cross ventilation as described for dormitories can, of course, be applied in this case also, a larger allowance of heating surface being made in order to give greater elasticity in the control of the temperature, but the method seems inapplicable to the special circumstances of infirmary wards on account of the necessity for uniformity of temperature. I have supposed that in the case of dormitories considerable variations of temperature, such as may arise from sudden changes in the weather during the night, are not seriously injurious to healthy children well covered up with bed-clothes, but I should probably not be justified in making a similar assumption in the case of infirmary patients. Moreover, an occasional current of cold air across a well-ventilated dormitory may produce no ill effects upon the healthy, but the same cannot be said about the sick.

If open fire ventilation is to be supplemented or replaced, there seems indeed to be no really trustworthy alternative except the system of mechanical ventilation, under which the amount and temperature of the air supply are both kept under control and independent of the uncertainties of the wind. Experience is gradually accumulating about the system of mechanical ventilation as an exclusive method in hospitals.

Taking all these points into consideration, it seems to me to be unnecessary if we limit ourselves exclusively to wards with an allowance of 850 cubic feet per bed to make any substantial difference in the arrangements already in vogue in many of the wards where the air supply is governed by open fires and warmed by being passed round the backs of the grates. The air supply to the backs of the grates may not be sufficiently free, and that defect may have to be made up by slightly opening the windows, but where there is a fireplace to every five beds and the outlet ventilators for gas jets or in the ceiling are provided with tell-tales, the system would, I believe, give fairly satisfactory results if carefully worked. At least it would be necessary to demonstrate the inefficiency either of the warming or of the ventilation by a series of careful experiments before the expense of remodelling the system could be regarded as justified. So far, therefore, as these wards are concerned, I have only to suggest that in estimating the available accommodation, the facilities for warming and ventilation should be taken into account, and that until the average capacities of the several chimneys for removing air be determined by actual measurement, the number of beds should not exceed five per open fire. When the capacity of the chimney has been determined, the number of beds should be so limited that the supply of air for each bed should amount in ordinary weather to 4,000 cubic feet of air per hour.

There are many of the wards which approximately comply with the requirement as regards the relation between the number of open fires and the number of beds, but in which the fires are unprovided with fresh air supply. The supply of air to the wards is therefore entirely cold. I cannot regard such an arrangement as satisfactory. I am aware that high authorities on the subject of warming and ventilation are of opinion that it is practicable to introduce the air for ventilation by fine jets suitably directed and in sufficient quantity to make an adequate provision of cold air without causing cold draughts. The supply of air behind the fire, however, increases the efficiency of the grate as a warming agent, so that if with an ordinary grate a certain quantity of cold air can be mixed with the air of the room and the temperature of the room maintained at a suitable figure, it follows that more fresh air can be introduced without unduly reducing the temperature if a larger fraction of heat is devoted to warming the room. On this ground it seems to me that the grate with fresh air supply has a specific advantage over one without it, and where the system of open-fire warming is to be maintained it is desirable that grates with fresh air supply should be introduced.

Consideration of Wards with an Allowance of 500 *cubic feet per Bed.*

When the number of patients in a ward is greater than can be satisfactorily provided for as regards ventilation by the open fires introduced primarily for the sake of warming, the case is not so easily disposed of. The most direct solution of the problem, following on the same lines, would be to increase the number of grates and chimneys, and so keep undisturbed the approximate proportion of one fire to five beds, to have, that is to say, three fireplaces with fresh air supply in a ward approaching in size 10,000 cubic feet, and making where necessary an adjustment in the allowance of cubic space to keep the figures within the proportion. But there are objections to this plan. First, when the number of beds is large they cannot be satisfactorily distributed with regard to the fires; some are too close, others too far away, unless the three fires are all placed in the middle line of the room. Secondly, the provision of an additional chimney may involve considerable structural alteration, and when it is provided and there are three fires in a room of only moderate size, there is a danger of a flow of air in the chimney of one of the three being reversed when the fire gets low, and in consequence the ward may be occasionally filled with smoke. Thirdly, there is the objection based upon the following line of argument :—That if two fires are sufficient to warm the ward when there are ten patients in it, three fires will overheat it when it is occupied by fifteen patients. There is less force in the third objection if it be understood that with the third fire is to be associated the supply of 20,000 additional cubic feet of air to be warmed, but it is doubtful whether the strict proportionality between the number of fires and the corresponding supply of air could be implicitly relied on and it would surprise no one to find that, in spite of the additional openings, the three fires would overheat the ward.

For these reasons it is desirable to consider some alternative methods of supplementing the warming and ventilation of the wards in question. It may be accepted without further argument that if additional ventilation is to be provided on account of the added number of beds, some additional heating will also be required, if for no other reason, because otherwise the fresh supply of air will come in cold and cause draughts. For additional heating one naturally turns to hot-water pipes or steam pipes, and coils of pipes on opposite sides of the room with openings for air behind them are an obvious suggestion for combining ventilation with warming, but without any further provision they assort ill with the open fires having their special air supplies, and cannot be recommended. It must be remembered that the air is drawn through the channels behind the fires, because the suction of the chimneys reduces the air-pressure in the room below that of the outside. If ample

openings are made direct to the outside through the walls the chimneys cannot produce the necessary diminution of pressure, and the flow through the air channels practically ceases, or is at least very seriously diminished. In such an event the combined action becomes incalculable and the ventilation and temperature are at the mercy of a varying wind. The effect here referred to of an additional opening upon the flow through the duct of a fresh air grate can be very easily tested by opening and closing the window of any room which has such a grate, and observing the change in the flow through the ducts. Through the kindness of Dr. Hollinshed, the medical officer, I have had an opportunity of inspecting the new infirmary of the King's Norton Union (Selly Oak), in which open fires are supplemented by steam coils placed under pairs of opposite windows and enclosed by iron cupboard doors. There are openings in the walls behind the coils, and the top of the iron case has a hinged flap by which an adjustable opening for the warmed air can be made just under the windows. The extraction ventilation of the fires is also supplemented by flues in the side walls carried up the chimney-stacks or in certain cases into the roof space. Any motive power there may be in these flues would be due to warm air coming from the wards, or to wind across the tops, and its action would tend to reduce the air pressure inside the wards and thus to diminish the disturbing effect upon the air supply due to the openings alone. If the wind across the top were sufficiently brisk the disturbance might indeed be entirely obviated. The combination of extraction flues with steam coils having openings behind them is not very different in its action from that of a third chimney in which the two functions of warming and extracting air are combined, but it has the advantage over the third chimney in that the first two of the objections are obviated in its case, and the heat would be sufficiently under control to make the third objection unimportant.

If tell-tale indicators were mounted upon the gratings covering the flue openings, and the inlet openings were adjusted from time to time, as might be found necessary to secure that the extraction flues were working in the proper direction, the combination would form as satisfactory a supplement to the ventilation by open stoves as any arrangement except mechanical ventilation. The arrangements at Selly Oak are especially commendable for the facility with which the steam pipes, their cases and inlet openings can be cleaned, and also for the distribution of the extraction openings, some of which are near the floor and some near the ceiling. I venture to suggest that in cases where the wards of infirmaries have to be made available for more beds than those for which the fires alone will provide ventilation a similar plan should be adopted, that is to say, enclosing cases for steam or hot-water coils should be placed under windows on opposite sides, not necessarily under opposite windows, and openings for the admission of air made behind them; at the same time the extraction openings should be supplemented by suitable flues. It is difficult to assign very precise figures for the total areas of the extraction flues which would be necessary; from my own calculations I conclude that for a ward of about 1,000 square feet in area, the sectional area of the extraction flues should amount to 2½ square feet. In the wards where separate extraction flues already exist, they should be examined when in actual work to ascertain whether the total amount of air extracted by them amounts on the average to 20,000 cubic feet per hour; if not, they should be supplemented by special shafts introduced for the purpose, and where no extraction flues already exist, a sufficient number should be introduced. They should be carried up as high as the roof ridge, and surmounted by cowls. The inlet openings behind the coils should be sufficient to secure the action of the extraction flues in the proper direction when the fires are burning. If the total available area amounted to 2 square feet, it would probably be found sufficient.

If the wards with arrangements for the larger number of patients were used for the smaller number, the combination of fires and extraction flues would, if working successfully, give more ventilation than is actually required. There is no harm in that state of affairs, but the steam-pipes might be disused if it were wished, and in that way the fuel necessary to heat the pipes would be saved. The inlets behind them and the extraction flues should in that case be closed. The economy in view is perhaps too trifling for consideration when the risk of the action of frost upon the pipes is taken into account.

Infirmary Wards used for Segregating Children for Observation by the Medical Officer.

Wards with less than 500 cubic feet Space Allowance.—The third kind of ward referred to may be dealt with in a few words. This is the case in which the ward is occupied by children, so that they may be under observation by the medical officer. In this case still more air is required than in the second case, although the allowance of air per head per hour may be only 3,000 cubic feet, for if thirty children are accommodated instead of twenty patients, they require 90,000 cubic feet of air per hour instead of 80,000. The difference is not very large. The appliances indicated for the second case would be available for warming the air sufficiently, and as the avoiding of draughts is not so rigorously necessary, the air required might be obtained by opening the windows at the top above the coil cases and trusting to the effect of cross ventilation. To do so would practically stop the flow through the ducts behind the fires, and thus change the system upon which the ventilation depends. To realise effectively that different modes of using the same appliances are to be adopted on different occasions would demand unusual intelligence and skill on the part of those in charge, and on that account the use of the same ward for two such distinct purposes, with such widely different number of occupants, is hardly to be recommended. It would be better to adhere to one plan for ventilating, and not introduce more beds than can be properly ventilated on that plan.

The remarks and recommendation about adjoining water-closets, which were made in the case of dormitories, apply with equal or even greater force in the case of infirmary wards.

Reference to Certain Special Cases.

I have hitherto made only a passing reference to special kinds of wards, such as those used for infectious cases. If such cases have a full allowance of cubic space (say 2,000 cubic feet), and if the wards are kept sufficiently warm by means of open fires, there need be no difficulty about the ventilation. There would practically be two fires to about five beds, and consequently, on the same assumption as before of the power of a fire for extracting air, there would be 8,000 cubic feet of air per hour for each bed, which may be provisionally accepted as an adequate supply.

In dealing with the ventilation of the infirmaries I have restricted myself to considering what may be done to improve the ventilation of the wards as they now exist; if it were a question of providing new buildings, and if electrical power were available, I should not hesitate to recommend the provision of mechanical means for supplying air. It would, I think, be desirable in that case so to distribute the motive power that there should be separate motive power for the outlets and for the inlets. An infirmary ward seems to me to be especially one of those cases referred to in the introduction to this report, in which it is desirable to have in the ward neither a "plenum" nor a "vacuum," but a state of things in which the air pressure is the same as in the outside air, so that the windows can be opened if desired without causing draughts. The machinery of mechanical ventilation would lend itself without difficulty to such an arrangement, and a slight modification would make it possible to have an open fire in the ward without causing interference with the general arrangements of the ventilation; but in the schools under consideration it is not a question of new buildings, and electricity is not yet available. It is therefore unnecessary to go into the details of this suggestion.

Recommendations as to Infirmaries.

1. That in fixing the allowance of cubic space for infirmary wards regard be had to the means provided for ventilating and warming, and that in wards intended to be occupied day and night, the number of beds allowed be not more than at the rate of five for each open fire (or other motive power) capable of extracting 20,000 cubic feet of air per hour and satisfactorily arranged to supply warmed fresh air.

2. That for wards occupied by night and only partially by day, in which a larger number of patients is accommodated than that indicated by recommendation 1, the ventilation by open fires with fresh air supply be supplemented by providing cased hot water or steam coils under windows on opposite sides with openings to the outside air behind them at the rate of one pair of such coils for each 25 feet of length in the ward; that the casing be so arranged that all parts may be effectively and easily cleaned; that where separate extraction flues already exist they be overhauled and examined, and if found insufficient to give, on the average, in their ordinary working state, an aggregate flow of 1,300 cubic feet of air per hour per bed, they be supplemented by a sufficient number of additional flues; and that where no separate extraction flues exist, a sufficient number be provided to give, on the average, in ordinary working, a flow of 1,300 cubic feet per bed, in addition to 2,700 cubic feet per bed drawn by the open fires.

3. That provision be made as soon as practicable for attaching tell-tale indicators to the openings of the extraction flues to facilitate the adjustment of the inlet openings for the adequate ventilation of the wards.

4. That w.c.'s adjacent to the infirmary wards be provided each with a separate ventilating flue, in which a head for ventilation is maintained by a suitably placed gas jet or otherwise.

5. That provision be made for suspending in each ward a

card enumerating the appliances for ventilation and for warming with which the ward is supplied, and giving instructions as to the method of using them and as to the temperature which should be as far as possible maintained.

GLASGOW INSTITUTE OF ARCHITECTS.

THE annual general meeting of the Glasgow Institute of Architects was held last week in the rooms, 187 Pitt Street, Mr. David Barclay, vice-president, in the chair. Mr. C. J. MacLean submitted the annual report, which stated that the ordinary members now numbered seventy-two—the largest number in the history of the Institute. The Council for the ensuing year was elected as follows:—Messrs. Alex. Petrie, John Jas. Burnet, J. A. Morris, David Barclay, Alex. M'Gibbon, W. Forrest Salmon, Alex. N. Paterson, John Keppie, H. K. Bromhead, Jas. Lindsay, John L. Murray, Alex. Cullen, Miles S. Gibson, Jas. Miller and A. B. Morrison. Mr. N. Macwhannell was elected a representative to the joint house committee. A vote of thanks to the chairman terminated the proceedings.

TESSERÆ.

Nature and Art.

MAN is not a creator—he is a mere adapter. The most wonderful inventions of modern times are based upon discoveries made by diligent observers of the operations of nature. These specimens of art, which have been transmitted to us from a remote antiquity, excite pleasurable feelings proportioned to their approximation to the beautiful in nature. The Creator not only gave the earth a spheroid form, but He broke up its surface into mountain and ravine, hill and valley. He clothed it with an endless diversity of colour and peopled its regions with a countless variety of living forms. The continued succession of alternate scenes of grandeur and simplicity, of sublimity and beauty, of festivity and mourning, of sociality and solitude, all awaken and excite each its corresponding emotions; and to imitate these scenes and to excite similar emotions is the aim of true art and the achievement of high genius. If the greatest triumphs of art be felicitous imitations of nature, and if it be its chief aim to achieve such imitations—as who can doubt it is—why should we not have the walls and windows of our apartments decorated with these the most interesting of all the productions of genius? Why should we be deprived of the pleasure of contemplating the representation of objects endeared to us by the most delightful associations? Why believe ourselves capable of producing or conceiving more beautiful forms than those of nature—more harmonious arrangements of colour than we find in earth and sky? Let it be remembered that æsthetic proportion is the mere alphabet of colour, the mere anatomy of form, and that genius alone can arrange the former into eloquent sentences or invest the latter with animation. Geometric combinations and proportions merely mark the limits within which genius ought to confine its aspirations, while to the mediocre student they are grammatical rules, the study of which will enable him to write correctly. Seeing then that proportionate combinations of colour and form hold this relative position, on what ground can it be contended that the variety of figures and hues arising from such combinations should be used in decorations in preference to successful imitations of nature? If the human form was distorted or shapeless, or the colour of a rose offensive to the eye, then, indeed, might the imitation of such objects be objectionable and geometric proportion be considered the beginning, middle and end of all beauty and perfection. But as the most beautiful combinations of form and colour are to be found in nature, so will decorative art, under the guidance and control of first principles, become more and more perfect the more closely she studies the beauties and follows the designs of the divine original.

Primitive Electric Dischargers.

In an age when lightning made frequent devastation, Numa, instructed, we are told, by the nymph Egeria, attempted to propitiate it (fulmen piare), that is to say, setting aside the figurative style, to put in practice the means of rendering it less mischievous. He succeeded in intoxicating Faunus and Picus (whose names probably are used to designate the priests of the Etruscan divinities), from whom he learned the secret of making Jupiter, the Thunderer, descend upon earth, and he immediately put it into execution. From this time Jupiter Elicius was worshipped in Rome. Here the veil of mystery is too transparent not to be seen through. To render lightning less hurtful and to make it descend without danger from the bosom of the clouds, was both in effect and in end obtained by Franklin's beautiful discovery, as well as by the religious experiment repeated many times with success by Numa. Tullus Hostilius was less fortunate. "They relate," says Livy, "that this prince, when perusing the notes left by Numa, found among them some instructions on the secret sacrifices offered to Jupiter Elicius. He attempted to repeat them, but in his preparations for or celebrations of them he deviated from the sacred rite, and being thus exposed to the anger of Jupiter, aroused by a defective ceremony, he was struck by lightning and consumed in his own palace." An ancient annalist, quoted by Pliny, explains this event much more explicitly. "Guided by Numa's books, Tullus undertook to invoke the aid of Jupiter by the same ceremonies employed by his predecessor. But having performed imperfectly the prescribed ceremony (parum rite), he perished, struck by thunder." Instead of the word ceremony, if we substitute the word experiment, we shall perceive that the fate of Tullus was similar to that of Professor Reichman. In 1753 this learned man was killed by lightning while repeating, with too little caution, one of Franklin's experiments. Pliny, in the execution of Numa's scientific secrets, makes use of expressions which seem to indicate two distinct processes—the one obtained thunder (impetrare), the other forced it to lighten (cogere); the one was doubtless gentle, noiseless and exempt from any dangerous explosion, the other violent, burning and in the form of an electric discharge. It explains the story of Porsenna's destroying the terrible monster who desolated the territory of Volsinium—an explanation, however, which can scarcely be received, because, although it is not absolutely impossible, yet it is very difficult and dangerous to cause a strong electric detonation to take place at a very distant point; and there still remains the difficulty of drawing to this exact point the being whom it was intended to overthrow by the magical commotion. But in the coactive process mentioned by Pliny, and the well-known and well-attested possibility of obtaining, either from an isolated thunder-rod or an immense electrical battery, a discharge of such power that the luminous flash, the noise and the destructive influence of it completely resemble the effects of lightning, do we not perceive the secret of those imitators of thunder who so often became the victims of their own success, and who on that account were said to have fallen under the vengeance of the God whose arms they dared to usurp?

The Background in Painting.

From a story told of Rubens we have his authority for asserting that to the effect of the picture the background is of the greatest consequence. Rubens being desired to take under his instruction a young painter, the person who recommended him, in order to induce Rubens the more readily to take him, said that he was already somewhat advanced in the art, and that he would be of immediate assistance in his backgrounds. Rubens smiled at his simplicity and told him that if the youth was capable of painting his backgrounds he stood in no need of his instructions, that the regulation and management of them required the most comprehensive knowledge of the art. This painters know to be no exaggerated account of a background, being fully apprised how much the effect of the picture depends upon it. It must be in union with the figure, so as not to have the appearance of being inlaid, like Holbein's portraits, which are often on a bright green or blue ground. To prevent this effect the ground must partake of the colour of the figure, or, as expressed in a subsequent line, receive all the treasures of the palette. The background regulates likewise where and in what part the figure is to be relieved. When the form is beautiful it is to be seen distinctly; when, on the contrary, it is uncouth or too angular, it may be lost in the ground. Sometimes a light is introduced in order to join and extend the light on the figure, and the dark side of the figure is lost in a still darker background, for the fewer the outlines are which cut against the ground the richer will be the effect, as the contrary produces what is called the dry manner. One of the arts of supplying the defect of a scantiness of dress by means of the background may be observed in a whole-length portrait by Vandyke, in which the dress would have had an ungraceful effect. He has therefore by means of a light background opposed to the light of the figure; and by the help of a curtain that catches the light near the figure, made the effect of the whole together full and rich to the eye.

The Roman Sestertius.

The Romans generally reckoned sums of money in sestertii, although the coin used in making payments was commonly the denarius. The value of the denarius was at one period 8½*d.*, and therefore the sestertius was worth 2⅛*d.* After the time of Augustus the denarius was reduced to the eighth of an ounce, and was worth 7½*d.*, and therefore the sestertius was worth 1⅞*d.* Large sums they reckoned by sestertia, that is, sums of a thousand sestertii. It is very important to attend to the phrases used in such computations. The coin itself was called sestertius, or sestertius nummus, or simply nummus. The sum of a thousand sestertii was expressed by Mile sestertii, or M. sestertium, or M. nummi, or M. nummum or nummorum, or M. sestertii nummi, or M. sestertium nummum. The singular sestertium is never used for a thousand sestertii, but the plural

sestertia is used for all multiples of a thousand sestertii, up to a thousand; sometimes the word millia (thousands) is used instead of sestertia; sometimes neither word is expressed, and sometimes nummum is added. Thus 600,000 sestertii or 600 sestertia might be expressed by any of the following phrases:—Sescenta sestertia, sescenta millia, sescenta alone, or sescenta sestertia nummum. Sums of 1,000 sestertia and upwards were expressed by the numeral adverbs with the termination -ies, which implies that the number to which it is affixed is to be multiplied by 100. Thus decies, undecies, duodecies, vicies, tricies, tricies quinquies, stand respectively for 1,000, 1,100, 1,200, 2,000, 3,000, 3,500 sestertia. These forms are, however, sometimes varied. Thus Cicero uses quaterdecies for 1,400, and decies et octingenta millia for 1,800 sestertia. When two such adverbs come together, if the larger is first, they must be added together; but if the smaller is first, they must be multiplied. Thus we have in a passage of Suetonius, millies et quingenties for 150,000 sestertia, and immediately afterwards quaterdecies millies for 1,400,000 sestertia. (In the latter case care must be taken not to reckon the termination -ies twice over in multiplying; it is not 1,400 × 100,000, but 14 × 1,000 × 100.) The symbol HS or IIS is often used both for sestertii and for sestertia. It stands for libra libra semis (two pounds and a half). When applied to sestertii its meaning is clear enough, since the as was originally a pound (libra) of brass. When applied to sestertia it meant, according to Gronovius, two pounds and a half of silver, which he calculates to have been originally equal to 1,000 sestertii, and therefore to have represented that value ever after. It is often difficult to determine whether the symbol HS stands for sestertii or sestertia. When the numeral is written in cypher and has a line over it, it stands for the adverb in ies, and the HS means sestertia; thus, HS. $\overline{\text{CCCC}}$ is quadringenties, or 40,000 sestertia. Sometimes the numeral is found with the singular of sestertium, as sestertii decies, or sestertio decies. Gronovuis explains these forms and also the use of sestertium with the adverb in -ies (which he considers to be in this case an accusative singular), by understanding with them the word pondus, a pound (of silver), according to which sestertium in these forms means two pounds and a half of silver, or 1,000 sestertii. Hence, if these forms are used with a numeral in cypher they mean the number of sestertia represented by the adverb in -ies of that numeral. Thus sestertio X is decies or 1,000 sestertia. According to the value given above for the sestertius the sestertium was worth 8*l.* 17*s.* 1*d.*

The Greek Cella.

The cella was almost always built of large stones in the manner called isodomum, but sometimes with the stones of the ordinary size. The pavement was always raised higher than that of the portico, consequently there were always steps at the entrance, as is seen in the Parthenon, the two temples at Pæstum, that of Jupiter Panhellenius and several others. The exterior sides of the cella were very simple and had scarcely any ornament. At the four corners were antæ, which originally were evidently built for strength as counterforts, and which afterwards they ornamented with bases and capitals to give them a more agreeable form. The wall between the antæ was without ornament, they were satisfied by adding a base to the lower part, sometimes the same as the base of the antæ, sometimes differing from it in having fewer members. The upper part was ornamented with several members or with an entablature like that of the portico but less complete. The frieze was not so high, sometimes it had triglyphs, as in the great Temple at Pæstum and that of Apollo Epicurius at Phigaleia; sometimes it was without, as in the Temple of Jupiter Panhellenius in the isle of Egina. In some temples the cella was ornamented with bassi rilievi, with which they also ornamented the frieze, as in the Temple of Minerva on the Sunium promontory, where is represented the combat of the Centaurs and Lapithæ; upon that of the Parthenon, sacrifices and solemn processions of tho Athenian people called Panathenæa, and at the Temple of Theseus at Athens the combat of the Centaurs, and that of Apollo Epicurius with similar subjects. Above the floors, both in the pronaos and porticus, of the cella of the Temple of Jupiter Olympius at Olympia, are represented the Labours of Hercules; on the front entrance are five: the taking of the Erymanthean boar, the death of Diomede, king of Thrace, the combat with Geryon, Hercules sustaining the heavens in the room of Atlas, and the cleansing the Augean stables. And on the rear entrance were represented six others, namely, the conquest of Hippolyte, the taking of the stag with brazen horns, the conquest of the Cretan bull, the destruction of Stymphalidæ, the conquest of the Lernæan hydra, and of the Nemæan lion. Quatremère de Quincy imagined that these representations formed a continued series of bassi rilievi, but Professor Cockerell was of opinion that they were separate in the metopes, as in the temples of Theseus and of Apollo Epicurius. In the interior of the cella was placed the statue of the god to whom the temple was dedicated; it was always raised upon a base opposite the entrance and placed against the rear wall. In the hypæthros it was placed near to the door of the rear front, at the place where the galleries and porticoes of the interior joined and formed a canopy over the statue, but as this was hardly sufficient to protect it from the injuries of time, they placed a veil or curtain before it when they were not sacrificing. There was a magnificent curtain in the Temple of Jupiter Olympius; it was a present from Antiochus made of wool, curiously wove in the manner of the Assyrians and coloured with Phœnician purple; one of the same kind was in the temples of Diana at Ephesus and at Athens. When they wished to expose the statue they lowered the curtain, as in the Temple of Jupiter Olympius, or raised it as in that of Diana. This curtain was not used, as Stuart thought, for a covering to the middle of the cella of the hypæthros, and cannot be compared with the velaria of the Roman theatres and amphitheatres.

Correspondence

Post Office, Amsterdam.

Sir,—I beg to inform you that you made a mistake in the last number of your esteemed paper, as the name of the architect of the new post office is not J. L. Cuypers, as you mention under the illustration of that building, but C. H. Peters. Numbers of your readers in Holland are greatly astonished that it was unknown to you that Mr. Peters is the architect of that fine building, and therefore you will greatly oblige me if you will correct the mistake in a striking manner in the next number of *The Architect*.—I remain, dear sir, yours truly,

F. W. Braat.

Delft: October 19, 1898.

Workmen's Compensation Act.

New Buildings (*O. H. H.*).—The builder will be liable to pay compensation under the Act. The clause suggested by you would do no harm, and might give you additional protection.

Height (*Hotel*).—There is no prescribed method of measuring the height, but the arbitrator may have some guidance from the London Building Act, 1894, which enacts that "height" means the measurement taken from the level of the footway in front of the centre of the face of the building, or (where there is no such footway) from the level of the ground before excavation to the level of the top of the parapet, or where there is no parapet, to the level of the top of the external wall, or (in the case of gabled buildings) to the base of the gable.

M. R.-J.

GENERAL.

M. Constant Moyaux, architect, was on Saturday elected to the Académie des Beaux-Arts, in succession to the late M. Charles Garnier. He has been for a long period architect to the Institut.

A New Israelite Hospital is to be erected at Breslau by the Baroness Hirsch.

The Marquis of Exeter will preside at a public meeting to be held at Peterborough on November 2 in aid of the Cathedral Restoration Fund.

M. Edouard Corroyer on Tuesday read a paper at the general meeting of the French Institut on the "Origins of French Mediæval Architecture."

The Doré Gallery, Bond Street, has been reopened, and contains several of the painter's familiar works. It will be interesting to know whether a new generation will be as fascinated with them as those who were first impressed by their vigour.

The Superannuation Conference convened by the Municipal Officers' Association will be held on Monday next at Sion College, Victoria Embankment, at 8 P.M. Mr. C. Wm. Tagg will preside, and will be supported by Sir John Blundell Maple, M.P., Major P. H. Dalbiac, M.P., Mr. John Lowles, M.P., and other influential gentlemen.

The First Ordinary Meeting of the Institution of Civil Engineers will take place on Tuesday next, November 1, at 8 P.M., when an address will be given by Mr. W. H. Preece, C.B., F.R.S., the president, and there will be a presentation of medals and prizes awarded by the Council. There will also be a reception by the President in the library after the meeting. At the second meeting, on Tuesday, November 8, the following paper will be read and discussed:—"The Extraction of Nickel," by Professor W. C. Roberts-Austen, C.B., F.R.S., Assoc.Inst.C.E.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than 2 P.M. on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITION OPEN.

ABERAVON.—Dec. 1.—Plans are invited, with estimated cost, for the extension of the covered market. A premium of twenty guineas will be awarded to the architect whose plans shall be selected. Mr. Jas. Roderick, borough surveyor, Aberavon.

CONTRACTS OPEN.

ABERDEEN.—Nov. 1.—For erection of two houses at Orchardtown, Udny. Messrs. Jenkins & Marr, architects, 16 Bridge Street, Aberdeen.

ALNWICK.—Nov. 2.—For proposed enlargement of the vestry at the parish church. Mr. M. Temple Wilson, architect, Alnwick.

ARBROATH.—Nov. 14.—For erection of a post office. Mr. George Morham, 39 George Street, Edinburgh.

BALHAM.—For erection of some fifty or sixty flats. Messrs. Tompkins & Baker, surveyors, 41 St. Margaret's Road, Brockley.

BARRASFORD.—Nov. 18.—For alterations and additions to the parochial schools. Messrs. Armstrong & Knowles, 38 Grainger Street, Newcastle-on-Tyne.

BARRY.—Nov. 4.—For erection of fire-engine station, tower and mortuary. Mr. J. C. Pardoe, surveyor, Council Offices, Holton Road, Barry, Glam.

BELFAST.—Nov. 3.—For erection of a block of buildings on Stranmillis Road. Mr. James G. Lindsay, architect, 10 Chichester Street, Belfast.

BIRKENHEAD.—Nov. 14.—For erection of public baths in Corporation Street and Prince Street. Mr. Charles Brownridge, borough engineer, Town Hall, Birkenhead.

BRADFORD.—Nov. 3.—For erection of a bakery, stabling &c, in Cutler Heights Lane, Dudley Hill. Messrs. Rycroft & Firth, architects, Bank Buildings, Manchester Road, Bradford.

BRIDGEND.—Nov. 24.—For erection of a chapel at Parc Gwyllt Asylum. Messrs. Giles, Gough & Trollope, architects, 23 Craven Street, Charing Cross.

BRIDLINGTON QUAY.—Nov. 1.—For alterations to the premises of the York Union Banking Company, Limited, Manor Street. Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowlalley Lane, Hull.

BRIDLINGTON QUAY.—Nov. 3.—For erection of a pair of semi-detached villas in St. John's Avenue. Mr. J. Earnshaw, architect, Bridlington Quay.

BURNOPFIELD.—For addition and alteration to shop and outbuilding at Busty Bank. Mrs. E. Wilson, Burnopfield.

CARLISLE.—Nov. 1.—For erection of a Wesleyan chapel at Foulsyke, near Abbey Town. Mr. T. Hurst, High Laws, Abbey Town.

CARMARTHEN.—Nov. 18.—For erection of a stone bridge of three arches and approaches thereto over the river Towy at Drysllwyn. Mr. Thomas Codrington, Shire Hall, Carmarthen.

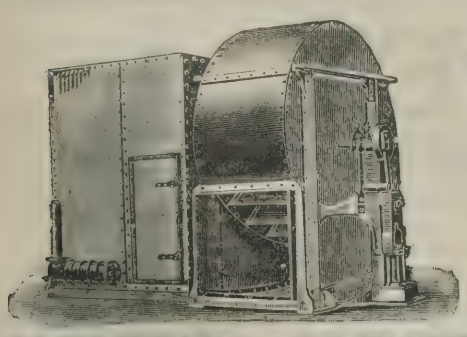
CHATHAM.—Nov. 9.—For the following works at the Medway union workhouse:—(1) Erection of additional rooms and alterations to the quarters of the superintendent of the casual wards; (2) erection of a new infirmary ward, new lavatories and various alterations in the infirmary. Mr. G. E. Bond, architect, High Street, Rochester.

CORK.—Nov. 14.—For erection of offices for the Cork Electric Tramway and Lighting Co., adjoining the power-house, Albert Street. Mr. Robert Walker, architect, 17 South Mall, Cork.

CORNWALL.—Nov. 1.—For completion of the restoration of Ludgvan church tower. Mr. William R. Jones, Ludgvan Church Town.

COVENTRY.—Nov. 12.—For erection of buildings at their proposed two new pumping stations on the side of the main road from Coventry to Daventry. Mr. James Mansergh, 5 Victoria Street, Westminster.

CROMER.—Nov. 3.—For erection of public conveniences, comprising accommodation for both sexes, with cloak-rooms and adjuncts, on the sea-front. Mr. A. F. Scott surveyor, Cromer.



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DARTFORD.—Nov. 1.—For erection of twenty-six cottages in Gordon Road. Mr. Ernest J. Hammond, architect, 111 High Street, New Brompton.

DOWNPATRICK.—Nov. 4.—For erection of press and weigh-rooms, gentlemen's dressing-room and telegraph office, at the Stand-House, Steeplechase Course. Mr. P. C. Cowan, Court House, Downpatrick.

DUBLIN.—Nov. 5.—For erection of a public library in North William Street. The City Architect, Municipal Buildings, Cork Hill.

EDINBURGH.—Nov. 7.—For erection of hotel at Princes Street Station. Messrs. Peddie & Washington Browne, architects, 8 Albyn Place, Edinburgh.

ELGIN.—Oct. 31.—For erection of Free church at Rothes. Mr. G. Sutherland, 51 High Street.

FLEETWOOD.—Nov. 1.—For construction of an underground convenience, with drain, manhole and works in connection therewith. Mr. Robert T. Hayes, surveyor, Town Hall, Fleetwood.

HALTWHISTLE.—Nov. 7.—For erection of the Mechanics' Institute. Messrs. Oliver & Dodgshun, architects, Carlisle.

HARROGATE.—Nov. 2.—For erection of twelve dwelling-houses in Walker Road. Messrs. H. E. & A. Bown, architects, James Street, Harrogate.

HARROGATE.—For erection of business premises, Princes Street. Messrs. Bland & Bown, architects, Harrogate.

HITCHIN.—Nov. 8.—For erection of a town hall and offices on a site at the corner of Brand Street and Grammar School Walk. Mr. E. W. Mountford, 17 Buckingham Street, Strand, W.C.

HOWDEN, YORKS.—For renovation of the Wesleyan chapel at Aughton. Rev. J. Woollerton, Westley Place, Howden.

HUDDERSFIELD.—Nov. 3.—For works at Zion Methodist New Connection Sunday schools, Lindley. Messrs. John Kirk & Sons, architects, Huddersfield.

HULL.—Oct. 31.—For erection of a crematorium at the Hedon Road Cemetery. Mr. A. E. White, city engineer, Town Hall, Hull.

KNAPHILL.—Nov. 1.—For alterations, additions, repairs, painting, &c., to Wesleyan chapel. Mr. J. Weir, architect, 17 Victoria Street, Westminster, S.W.

LAUNCESTON.—Nov. 12.—For erection of cattle, sheep and pig market. Mr. Otho B. Peter, architect, Launceston.

LEEDS.—For erection of two shops in Land's Lane. Messrs. Wm. Hill & Son, architects, 25 Park Square, Leeds.

LEEDS.—Nov. 5.—For erection of small detached house in Lidgett Park Estate, Roundhay. Mr. E. Barton Johnson, architect, 6 The Grove, Ilkley.

LIMAVADY.—Oct. 31.—For erection of labourers' cottages, viz. two in the townland of Drumavally, in the electoral division of Bellarena, and two in the townland of Carrowmuddle, in the electoral division of Myroe. Mr. William Crawford, executive sanitary officer.

LISS.—For erection of a residence in the Forest. Mr. H. T. Keates, architect, Petersfield.

LONDON.—Nov. 15.—For erection of public conveniences at Blackwall Tunnel (north side), for the London County Council. Particulars at the Architect's Department, General Branch, 13 Spring Gardens, S.W.

MACCLESFIELD.—Nov. 5.—For erection of a police station in Church Side. Mr. Edward E. Adshead, borough engineer, Town Hall, Macclesfield.

MIDDLESBROUGH.—Oct. 31.—For erection of buildings for the Commission and offices for the staff at Queen's Square, Middlesbrough, for the Tees Conservancy Commissioners. Mr. J. Mitchell Bottomley, architect, 28 Albert Road, Middlesbrough.

MORECAMBE.—Oct. 31.—For alterations to the Emmanuel Church and new Sunday school, East End, Morecambe. Mr. Albert Gorton, architect, 24 The Crescent, Morecambe.

MORLEY.—Oct. 31.—For paving cart-shed at new stables, Corporation Street (labour only); levelling land at new stables; erection of boundary walls, entrance gates, &c., at new stables; alterations at old town hall, Queen Street; alterations to urinal at rear of town hall; erection of public conveniences in yard at rear of Hobson's Coffee Tavern, Queen Street; erection of public conveniences in Chapel Hill. Mr. W. E. Putman, borough engineer, Town Hall, Morley.

NEWQUAY.—Oct. 29.—For erection of new council buildings and public conveniences, with cloak-rooms. Mr. Thurstan Collins, clerk, Commercial Square, Newquay.

NOTTINGHAM.—Nov. 4.—For erection of an electricity station in Talbot Street, Hanley Street and Wollaton Street

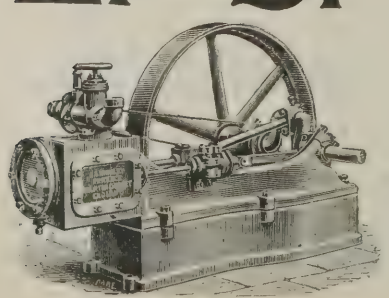
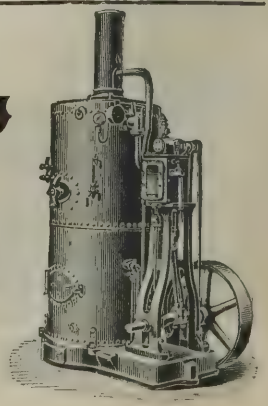
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for the electricity committee. Mr. Arthur Brown, M.I.C.E., city engineer, Guildhall, Nottingham.

PADDINGTON.—Nov. 15.—For erection of a coroner's court building at Manor Place, for the London County Council. Particulars at the Architect's Department, 13 Spring Gardens, S.W.

PONTEFRACT.—Oct. 31.—For erection of ten houses in Purston, near Pontefract. Messrs. Garside & Keyworth, architects, Pontefract.

PONTEFRACT.—Nov. 1.—For erection of bank buildings, caretaker's house, &c., in Station Road, Featherstone. Messrs. Garside & Keyworth, architects, Pontefract.

PRESTHOPE, AYNHO AND KINGSWOOD.—Nov. 8.—For erection of cottages at Presthope, Aynho and Kingswood stations respectively, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

ROTHERHAM.—For alterations and additions to business premises in Moorgate. Mr. H. L. Tacon, architect, 11 Westgate, Rotherham.

SCOTLAND.—Nov. 5.—For roofing, joisting and all windows and outside doors and floors of attics for two dwelling-houses to be erected in Buckpool, Buckie. Mr. Alex. Reid, 54 Main Street, Buckpool.

SOPHIA (BULGARIA).—Nov. 21.—For erection of eight public offices, viz., a Ministry of Public Works, Ways and Communications, a Ministry of Commerce and Agriculture, a Ministry of the Interior, a Ministry of Public Instruction, a Ministry for Foreign Affairs and Public Worship, a Ministry of Justice, and an Audit Office. Particulars can be obtained at the Commercial Department of the Foreign Office between the hours of 11 and 5.

SOWERBY BRIDGE.—Nov. 4.—For erection of a football pavilion at the Beech. Mr. H. Hatton, Town Hall Chambers, Sowerby Bridge.

SPILSBY.—Oct. 31.—For erection of headquarters at Spilsby for the F Comp. 1st Vol. Batt. Lincs. Regt., including drill hall, armoury, sergeant-instructor's house, &c. Mr. J. E. Butcher, architect, Spilsby.

STAMFORD.—For repairing the bridge at Ryhall, for the Ketton District Council. Mr. R. M. English, clerk, Broad Street, Stamford.

TOOTING.—Nov. 2.—For alterations, &c., to one of the wards at the home for aged and infirm at Church Lane. Mr. Gale, clerk of works, on the building.

TYNEMOUTH.—Nov. 1.—For construction of stairs adjoining the Tiger Inn, between Bedford Street and Little Bedford Street. Mr. John F. Smillie, borough surveyor.

ULVERSTON.—For erection of additions to Dr. Ashbourner's house, Cavendish Street. Messrs. Settle & Farmer, architects, Ulverston.

WALES.—For rebuilding half of the arch of the bridge over Llansoar brook, at Llandegveth. Mr. R. Derrett, district surveyor, Usk.

WALES.—Nov. 21.—For erection of an infants' school at Pontlottyn. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—Nov. 2.—For erection of a school building, boundary walls, cloak-rooms and urinals, for the Glyntawe School Board, and for making a road from the main road to the school site. Mr. Howell Watkins, Ddery Farm, Glyntaws, Ystradgnylais R.S.O.

WALSALL.—Nov. 7.—For erection of caretaker's house at the Wolverhampton Road schools. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WEALDSTONE.—For erection of stables, &c. Mr. James Hayes, Spencer Road, Wealdstone.

WIDNES.—Nov. 4.—For erection of administrative and other blocks at the infectious diseases hospital. Mr. F. W. Holme, architect, Westminster Chambers, Dale Street, Liverpool.

WINDERMERE.—Nov. 5.—For erection of the new Beech Hill Hotel, below Storrs. Mr. John Banks, surveyor, Kendal.

WITH the new volume commencing with the November part, the *Magazine of Art* will celebrate its coming of age. To mark the event new type and new paper are being employed, whilst colour will be extensively used by the newest and most artistic processes. The keynote that will distinguish the magazine henceforth will be the brightness and interest of all its articles, whilst it will continue to present the latest developments of art. A leading feature of the November part will be an article, illustrated throughout in colours, by Mr. Wilhelm, on "The Adaptation of Flowers to Artistic Fancy Dress."

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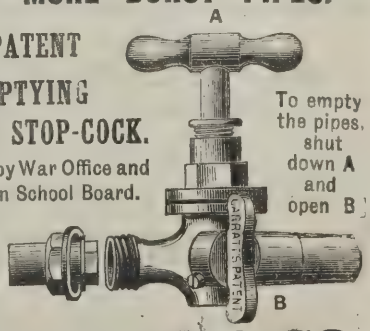
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TENDERS.

ASHFORD.

For erection of an iron bungalow.

T. J. Hawkins & Co., Ashford (*accepted*)	£105 5 0

BARNET.

For making-up of Bell's Hill and May's Lane.

Bell's Hill.

H. Clarke	£1,244 0 0

May's Lane.

H. Clarke	1,841 0 0

Whole tenders.

W. Griffiths	2,050 0 0
Kitteringham	2,850 0 0
G. Bell	2,359 0 0
C. Ford	2,294 0 0
T. Adams	2,270 0 0

BATH.

For construction of a steam disinfector-house at the refuse destructor works, Upper Bristol Road. Mr. Chas. R. Fortune, city surveyor.

F. Amery	£420 0 0
J. Long & Sons	419 0 0
J. H. Morris	350 15 0
Mould Bros.	338 0 0
Erwood Bros.	318 0 0
C. Wibley	298 15 0
W. Webb, Bath (*accepted*)	296 0 0

BEXHILL.

For work in connection with the electric-lighting station:—(Section A) water-tube boilers; (B) steam dynamos and balancer; (C) switchboards; (D) storage battery; (E) underground cables and pipes, arc lamps and posts. Mr. A. H. Preece, engineer, 39 Victoria Street, Westminster, S.W.

R. Hornsby & Sons, London (A)	£1,748 10 0
W. H. Allen & Co., Bedford (B)	2,570 0 0
Chloride Electrical Storage Syndicate, Limited, Manchester (D)	1,020 0 0
British Insulated Wire Company, Limited, Prescot (E)	5,958 0 0
British Insulated Wire Company, Limited, arc lamps, &c.	665 15 6

Switchboards (C) not decided.

BELVEDERE.

For erection of six cottages at Parsonage Farm, Belvedere, Kent, for the trustees of the late Lord Wynford. Mr. G. St. Pierre Harris, architect, 8 Ironmonger Lane, E.C., and Orpington, Kent.

G. Miles	£1,998 0 0
G. H. Gunning	1,800 0 0
T. Knight	1,739 0 0
Stebbings & Pannett	1,680 0 0
F. Hind	1,550 0 0

BRADFORD.

For erection of a finishing shed at Brick Lane Mills. Messrs. Isitt, Adkin & Hill, architects, Prudential Buildings, Bradford.

Accepted tenders.

W. Daykin, mason	£773 0 0
D. G. Bogg, joiner	321 0 0
E. & W. H. Haley, ironfounder	171 5 0
J. Smithies, slater	128 15 0
H. Hill, plumber	119 0 0
A. H. Bassett, painter	23 15 10

CAMBORNE.

For erection of proposed Masonic buildings.

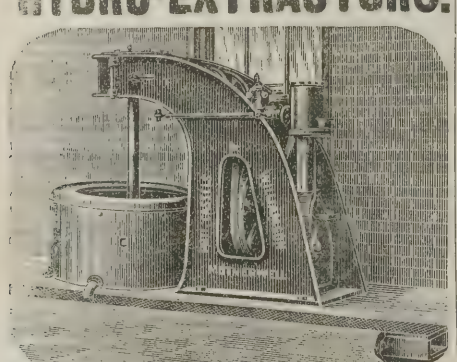
C. & J. Harris	£1,141 15 0
J. Berryman	1,050 0 0
Trounson & Haslett	1,013 0 0
Moyle & Moffatt	891 0 0
Trounson & Mitchell	889 0 0
W. C. Hodge	854 0 0
Barbary & Mitchell, Camborne (*accepted*)	827 8 7

CONSETT.

For kerbing, channelling, cementing and macadamising Mortimer Street, Bridge Street and back Talbot Street, Blackhill. Mr. William S. Shell, surveyor.

T. W. Dobson	£427 19 11
T. Hogg	409 4 1
G. J. Christopher	404 2 11
D. Omerod	381 5 9
W. J. & R. Walker, Consett and Blackhill (*accepted*)	381 0 7

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For painting, &c., at the cemetery. Mr. W. RICHARDSON, town surveyor.

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J. FISHER, Market Street (*accepted*)	23 0 0

DARLINGTON.

For painting and papering at the Corporation Hospital. Mr. T. SMITH, borough surveyor.

W. ROBERTS, Darlington (*accepted*)	£4 17 0

Note.—Two other tenders received.

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For construction of filter-beds and other works in connection with the waterworks.

Barnes	£3,857 0 0
Smullen	2,673 0 0
McLaren	2,638 11 8
Henley	2,588 15 9
SMALL, Banbridge (*accepted*)	2,496 12 0
Borough engineer's estimate	2,550 0 0

DEVON.

For constructing a sewer at Mount Edgcumbe Terrace, Torpoint.

E. L. P. DUKE, Plymouth (*accepted*)	£221 3 0

DURHAM.

For formation of new street at Blackfine. Mr. JOHN DIXON, surveyor.

T. Hogg	£102 0 0
G. CHRISTOPHER, Blackhill (*accepted*)	101 19 8

EALING.

For erection of villa residence at Castle Hill. Mr. EDWIN H. DANCE, architect, Quadrant Road, Thornton Heath.

STRUDWICK & PYRKE, Ealing (*accepted*)	£1,295 0 0

FARNBOROUGH.

For erection of a new girls' school at Farnborough, Kent. Mr. ST. PIERRE HARRIS, architect, 8 Ironmonger Lane, E.C., and Orpington. Quantities by Messrs. STANGER & SON.

G. E. Wallis & Sons	£3,178 0 0
J. C. Arnaud & Son	3,034 0 0
W. Holt & Son	2,990 0 0
F. Jones	2,975 0 0
H. Somerford & Son	2,960 0 0
T. D. GRATY (*accepted*)	2,898 0 0

FARNHAM ROYAL.

For extending the heating apparatus to warm three bedrooms and staircase, East Burnham Grove. Mr. W. COLLING, architect.

T. POTTERTON (*accepted*)	£119 0 0

HUDDERSFIELD.

For alterations to property at Outlane. Mr. J. BERRY, architect, 9 Queen Street, Huddersfield.

Accepted tenders.

J. Haigh & Sons, Scar Lane, Golcar, mason.
A. Park, Stainland, Halifax, joiner.
G. Garton & Son, Huddersfield, plumber.
Total, £250.

For erection of a dwelling-house at Lowerhouses. Mr. J. BERRY, architect, 9 Queen Street, Huddersfield.

Accepted tenders.

J. W. Boothroyd, Almondbury, mason.
W. L. Haigh, Paddock, joiner.
J. Marsden, Huddersfield, plumber.
J. C. Winterbottom, Damside, plasterer.
J. & H. Sykes, Lowerhouses, painter.
Pickles Bros., Huddersfield, slater.
J. Cooke, Little Royd, concreter.
Total, £300.

ILKLEY.

For erection of a detached house. Messrs. ISITT, ADKIN & HILL, architects, Prudential Buildings, Bradford.

Accepted tenders.

S. Mounsey & Son, Guiseley, mason	£595 0 0
J. & B. Emmott, Leeds, joiner	400 0 0
P. L. Nelson, Ilkley, plumber	192 0 0
F. Dean, Bradford, plasterer	144 0 0
R. Nelson, Ilkley, slater	64 10 0

IRELAND.

For repairs and alterations to the Methodist chapel at Trillick.

W. Ginn	£171 0 0
J. Donnelly	143 0 0
J. Gillespie	128 15 0
J. Weir	126 15 0
T. Moore	124 0 0
B. BLEAKLEY, Irvinestown (*accepted*)	120 10 0

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KEIGHLEY.

For painting interior of the new female sick wards, &c, at the union infirmary, Fell Lane. Messrs. JOHN JUDSON & MOORE, architects, Keighley.
W. BUTLER, Eboracum Street (*accepted*).

LIVERPOOL.

For construction of a drying-room and sorting shed in connection with the washhouse and laundry at the workhouse, Brownlow Hill.
HAUGH & PILLING, Whatmough Street (*accepted*).

LONDON.

For concreting the bed of the river Quaggy from the Plough Bridge to the river Ravensbourne.

W. WOODHAM, 3 Holmshaw Road, Lower Sydenham, S.E. (*accepted*)	£299 0 0

For painting at the City of London Distillery, Finsbury. Mr. J. HAMILTON, architect.

Hayworth & Son	£189 0 0
Conning & Son	145 0 0
W. Shurmur	144 0 0

For erection of new bakery for Messrs. Spratt's Patent.

Whitehead & Co.	£17,820 0 0
H. J. Williams	17,725 0 0
Kerridge & Shaw	17,248 0 0
Beer & Gash	17,223 0 0
Patman & Fotheringham	16,999 0 0
W. Shurmur	16,900 0 0
S. J. Jerrard & Sons	16,721 0 0
H. & F. Higgs	16,713 0 0

For new schools at Bethnal Green, for St. John's Church.

McCormick & Son	£6,830 0 0
Chessum & Son	6,829 0 0
Knight & Son	6,784 0 0
Outhwaite	6,779 0 0
W. Shurmur	6,666 0 0
Harris & Wardrop	6,537 0 0
J. Wall & Co.	6,488 0 0

For reinstating after fire Eagle Wharf, Stepney. Mr. A. E. PRIDMORE, architect.

W. Shurmur	£940 0 0
W. A. Wagstaffe	920 0 0
Ashby Bros.	900 0 0

LONDON—*continued.*

For erection of Tower Brewery. Mr. H. M. WAKELY, architect.

Patman & Fotheringham	£3,790 0 0
Lamble	3,351 0 0
Toms	3,250 0 0
Lascelles	3,189 0 0
W. Shurmur	3,173 0 0
Higgs	3,079 0 0
Cousell Bros.	2,848 0 0

ORPINGTON.

For additions and alterations to the Baptist chapel, Orpington, Kent. Mr. G. ST. PIERRE HARRIS, architect, 8 Ironmonger Lane, E.C., and Orpington.

Stebbings & Pannett	£827 0 0
T. Knight	822 0 0
SOMERFORD & SON (*accepted*)	767 2 0

For repairs to private residence. Mr. ST. PIERRE HARRIS, architect, 8 Ironmonger Lane, E.C., and Orpington.

Somerford & Son	£142 10 0

For laying of a new sewer with connections of two private houses to same at Crofton, Orpington, Kent. Mr. G. ST. PIERRE HARRIS, architect and surveyor, 8 Ironmonger Lane, E.C., and Orpington.

F. P. Duthoit	£1,083 0 0
T. Lansbury	1,070 15 0
Peill & Sons	1,018 0 0
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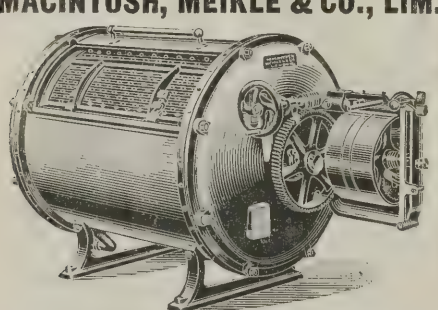
ROMFORD.

For erection of public baths for the Urban District Council. Messrs. HARRINGTON & LEY, architects, 108 Fenchurch Street, E.C. Quantities by Mr. H. W. SIMPSON, 108 Fenchurch Street, E.C.

W. Gregar & Son	£6,764 0 0
Balaam Bros.	6,280 0 0
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Thos. Bruty, Hornchurch*	5,682 0 0
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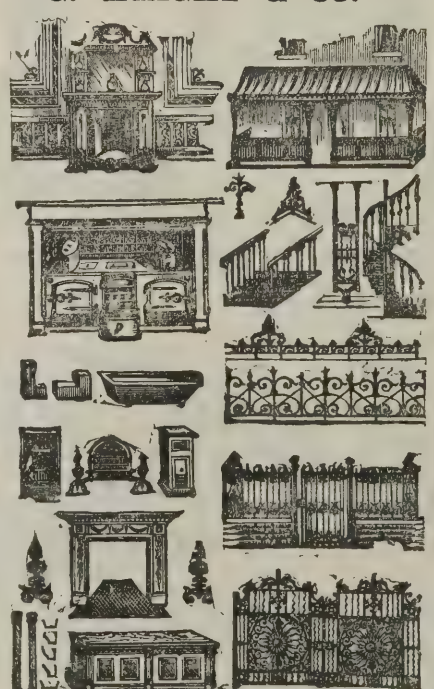
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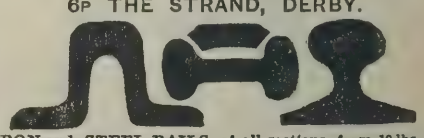
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Snewin Bros.	£2,970	0	0
Smith & Son	2,887	0	0
Jolliffe	2,870	0	0
Wells	2,762	0	0
W. Shurmur	2,682	0	0
Smith & Son	2,648	0	0
Wells	2,638	0	0
Holt & Son	2,600	0	0

ST. MARY CRAY.

For execution of building works at Effingham House, St. Mary Cray, Kent. Mr. St. Pierre Harris, architect, 8 Ironmonger Lane, E.C., and Orpington.

J. Lonsdale	£153	0	0
Stebbings & Pannett	150	0	0
Somerford & Son	120	0	0

STONY STRATFORD.

For road works. Mr. John Eunson, engineer, Northampton.

W. Heap	£1,035	2	0
Wilson & Martin	881	0	0
T. P. Robinson, Wolverton (*accepted*)	828	13	8

SWANLEY.

For erection of eight cottages at Hextable Road. Mr. St. Pierre Harris, architect, 8 Ironmonger Lane, E.C., and Orpington, Kent.

J. Lonsdale	£1,876	0	0
Stebbings & Pannett	1,800	0	0
T. Knight	1,789	0	0

For erection of a further block of eight cottages at Swanley, Kent. Mr. St. Pierre Harris, architect, 8 Ironmonger Lane, E.C., and Orpington.

Stebbings & Pannett	£1,848	0	0

SWANSEA.

For erection of ward block at borough hospital, to be constructed of corrugated galvanised iron and timber. Mr. G Bell, borough surveyor.

D. Jenkins	£380	0	0
Wire-Wove Waterproof Roofing Company	350	0	0
J. Goodridge	312	10	0
Humphreys, Limited	310	0	0
C. Marles, Swansea (*accepted*)	304	14	0

SLIGO.

For repairing the west gable of the main house.

G. Kerr, William Street (*accepted*)	£29	5	0

WALTHAMSTOW.

For erection of six houses at Walthamstow. Mr. R. J. Suter, architect.

J. A. Read	£1,819	0	0
W. Shurmur	1,798	0	0
G. W. Barker	1,775	0	0

For erection of premises at Hoe Street, Walthamstow, for Messrs. Pickford & Co.

Patman & Fotheringham	£8,891	0	0
Sheffield Bros.	8,245	0	0
J. Grover & Son	7,982	0	0
Dove Bros.	7,925	0	0
W. Shurmur	7,893	0	0
Carmichal	7,798	0	0
Higgs	7,576	0	0

For erection of premises at Hoe Street, Walthamstow, for Messrs. Pickford & Co. Mr. Peter Dollar, architect.

Patman & Fotheringham	£8,891	0	0
Sheffield Bros.	8,245	0	0
J. Grover & Son	7,982	0	0
Dove Bros.	7,925	0	0
W. Shurmur	7,893	0	0
Carmichal	7,798	0	0
Higgs	7,576	0	0

WARRINGTON.

For erection of a public convenience.

T. Davies	£124	0	0
Woods & Co.	112	0	0
R. W. Collin, Warrington (*accepted*)	100	0	0

It is proposed to build a church for St. George's district, in the parish of Holy Trinity, Darwen. The mother parish contains a population of over 13,000, and it is intended to assign a district of 5,500 to the new church. The estimated cost of the proposed church, exclusive of site, is about 5,000*l.*

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ELECTRIC NOTES.

At a special meeting of the Cheltenham Town Council the deputy-mayor (Alderman Norman) moved that application be made to the Board of Trade for powers to extend the electric-lighting area so as to include those portions of Charlton and Leckhampton which have been added to the borough since the electric-lighting order was obtained. Mr. Baker seconded and the motion was agreed to.

To meet demands for the electric light the St. Pancras Vestry have decided to extend their mains to Guilford Street, Heathcote Street and John Street, Bloomsbury.

Through some failure of Wolverhampton electric-lighting plant last Saturday, the greater part of the town was for nearly three hours plunged into semi-darkness. A couple of evenings before Brighton was in similar case; but here, although the inconvenience was greater while it lasted, owing to the more general use of the current for lighting purposes, the difficulty was only of some twenty minutes duration.

At the ward meeting in Coatdyke School, Coatbridge, last week, Bailie Lavell, convener of the lighting committee, stated that he was prepared to propose to the Town Council the advisability of purchasing the works of the Scottish House-to-House Electricity Company, Limited, in the burgh, which have hitherto proved unsuccessful in the hands of the company, but which, he believed, would become successful in the hands of the Corporation. Bailie Davidson, while ready to give the matter serious consideration, was of opinion that unless they got the works at a very low price it was not likely to pay the Corporation either for a considerable time.

A special meeting of the Motherwell Town Council had before them the question of laying down an installation of electric light within the burgh. Mr. Jack, convener of the committee who have had the matter under consideration, submitted a report by Professor Alexander B. W. Kennedy, who has been retained by the burgh. The total capital expenditure is calculated to be over 23,000*l.*, the scheme providing for private lighting, thirty arc lamps and 400 32 candle-power incandescent lamps for street purposes, and for power for mechanical purposes. After some discussion the report was adopted. The works will be proceeded with at once.

A remarkable case of death from electric shock was investigated last week at the Marylebone Coroner's Court, the victim being Henry Stagg, aged thirty-two years, an electric wireman in the employ of the Metropolitan Electric Supply Company, who was killed at Rathbone Place, Oxford Street, where he was engaged covering wires leading to a switch-board. The deceased was, according to evidence, noticed to be in a semi-reclining position against the board, his feet being in contact with the terminals on the floor underneath the board, which was marked "dangerous." There were rubber mats on the floor, and a fellow workman who was with the deceased deposed that he had never known rubber to be a conductor of electricity. There were 1,000 volts on at the time. The company's engineer gave it as his opinion that the deceased had fallen across the terminals of one of the machines. He had never known the force of 1,000 volts to kill a man before. The medical testimony was to the effect that death was due to electric shock, and a verdict of "Accidental death" was returned.

There was a large gathering of members of the Hull Corporation and representatives of other public bodies on the 24th inst. at the opening of the new electric-lighting extension works in Sculcoates Lane. The extension has involved an expenditure of something like 40,000*l.* The building consists of two lofty bays, with louvre lights for engine-room and boiler-house. In the engine-room there are four steam dynamos of 760 horse-power. The electric current will be generated at from 2,000 to 2,250 volts, and transmitted to sub-stations at Albion Street and Argyle Street, where it will be transformed to a low pressure of 220 volts. Amongst the adjuncts to the station is a large tank, having a capacity of 30,000 gallons, the water for which is to be drawn from Barmston drain. From the station there runs 9 miles of electric mains for the supply of the Hessle and Anlaby roads districts up to the Boulevards; and mains are about to be laid by which East Hull residents will have the opportunity of using the illuminant.

TRADE NOTES.

We learn that Milners' Safe Company have again had to extend their works owing to the great pressure of work. They have built an enormous shop and equipped it with the most up-to-date machinery, especially for the construction of bankers' strong rooms, safe deposits and the highest class of security work. Milners' now control one of the finest engineering works in the country, and their numerous sales depôts find plenty of business to keep the works constantly going at high pressure.

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MESSRS. SHANKS & Co., sanitary engineers, Barrhead, have secured the contract for a large underground convenience in the Market Place, South Shields. The work will be of the best quality throughout.

MESSRS. HORNE, SON & EVERSFIELD inform us that in consequence of their offices at No. 17 Great George Street being required by the Government under the Public Offices (Westminster) Act, 1896, they have temporarily removed to No. 19 Great George Street.

THE new hospital, Bucknall, Staffs, is being warmed and ventilated by means of Shorland's patent double-fronted Manchester stoves with descending smoke-flues and Shorland's patent Manchester grates.

BUILDING AND BUILDERS.

A PRIMITIVE Methodist church is being built at Dirtcar, in the Wakefield second circuit, at a cost of 500*l.*

THE memorial-stones of a new Calvinistic Methodist chapel at Carmel, near Holywell, were laid on the 23rd inst.

THE foundation-stone was laid on Monday last of a church which the vicar (Rev. H. Proctor) is about to build in the populous parish of St. Luke's, Gloucester.

THE plans for the church to be erected in Lockwood Street, Driffield, at a cost of over 3,000*l.*, have been formally adopted, and the work is to be pushed on apace.

THE ceremony of laying the foundation-stone of a new drill hall for the 1st Dorset Artillery Volunteers, estimated to cost 3,000*l.*, took place on Saturday afternoon at Bournemouth.

THE foundation-stone of a new Congregational church which is to be erected, at a cost of 8,500*l.*, at the corner of Tetherdown and Queen's Avenue, Muswell Hill, was laid on Saturday afternoon.

WHILE repairing a roof at Earlestown, John O'Neill, slater, about sixty years old, fell from a ladder just as he was climbing on to the roof. He had only started to work about half-past ten, the accident occurring a few minutes afterwards.

THE contract for rebuilding the Seaborne Coal Wharf at Bermondsey Wall, from the designs of Mr. Henry Adams, M.Inst.C.E., has been let to Messrs. Holliday & Greenwood, of Loughborough Park Works, Brixton.

A MASON named Thomas Mallinson (35), of Berry Brow, Huddersfield, sustained serious injuries on Tuesday by falling from a mill which is in course of erection at Longwood. He was admitted into the infirmary.

LADY OSBORNE MORGAN on Tuesday last laid one of the foundation-stones of a new schoolroom in connection with the Bradley Road Baptist Mission chapel, Wrexham. The schoolroom will cost 800*l.*

WHILE working a day or two since on a roof in the Gray's Inn Road a plumber named Walters, of Kentish Town, slipped and fell through a glass skylight to the ground, sustaining severe internal injuries.

THE corner-stone has been laid of the new church of St. Ambrose, situated on the Bournemouth West Cliff. The portion of the new edifice which it is now proposed to erect will cost between 8,000*l.* and 9,000*l.*, and will seat about 700 people.

THE sewerage committee of Aberdeen Town Council have resolved to apply to Parliament for the necessary powers to carry out the following works:—High level sewer, 11,000*l.*; Girdleness outfall, 47,750*l.*; low level sewer, 7,670*l.*; Ferry Hill storm-water culvert, 8,200*l.*; Tile Burn storm-water culvert, 5,500*l.*; other storm-water overflows, 1,025*l.*; connecting sewers at Hutcheon Street, Millburn Street and Torry, 8,100*l.*; Don Valley outfall, 10,500*l.*; total, 99,765*l.* An amendment by Bailie Taylor anent a scheme costing 187,105*l.* was defeated by six votes to two.

THE foundation-stone of the Belfast new City Hall was laid on the 18th inst. in the presence of the Viceroy, when a new departure was made, as in the cavity beneath the stone, in addition to the usual records, newspapers, coins, &c., there was deposited a wax phonograph-cylinder, of the ordinary type, used for the Edison-Bell phonograph. On this cylinder were engraved a few appropriate sentences spoken by the lord mayor, Alderman W. J. Pirie, and the Town Clerk of Belfast.

THE foundation-stone of the new Whitefield's Tabernacle, in the Tottenham Court Road, was laid on Friday last by Dr. Parker. The architectural designs for the new church have been prepared by Mr. Rowland Plumbe, and show a spacious and handsome building in red brick and white stone dressings. It will seat 1,150 persons, while the hall beneath will accommodate 800. The new church will be the third on this site, the second having been built in 1831, and it was then the largest Nonconformist church in the kingdom.

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A PORTION of the roof of one of the departments of the Malleable Steel and Iron Works at Stockton fell in while upwards of thirty men were at work. With the exception of two men—Thomas Littlefair and Edward Cain—all escaped unhurt. Littlefair was badly cut upon the shoulder, while Cain was knocked on to a hot steel plate, where he was held fast for some time.

AT the statutory meeting of the British Clayworkers' Mutual Insurance Corporation, held at the offices, 43 Essex Street, Strand, on the 20th inst., Mr. John C. Hill, the chairman, stated that the result of their mutual insurance scheme, which was started in June last as a protest against the excessive charges of the tariff insurance offices, had proved an amazing success. They had a capital of something over 16,000*l.*, and up to that time had paid in claims only 100*l.* The corporation was formed for the insurance of brick, tile and pottery makers in this country, under the management of Mr. H. Greville Montgomery, 43 Essex Street, Strand.

IN Dumbarton Sheriff Court on Friday last, Sheriff Gebbie and a jury held an inquiry into the death of a Dumbarton labourer named Joseph Connolly, who was killed in the Leven Shipyard on October 10. From the evidence it appeared that the deceased, along with some fellow-workmen, were shifting iron in the shipyard on the evening in question. Deceased's work was near a pole from which was suspended an electric lamp, and attached to the pole was a wire stay. When work was proceeding Connolly was heard to scream, and on the workmen proceeding to his assistance he was found with his hands clenched to the wire stay. They tried to detach him, but sustained electric shocks, and so they had to remove the deceased from the wire with a piece of wood. He was then unconscious, and shortly afterwards died. The jury unanimously found that Connolly was accidentally killed in consequence of his seizing hold of a wire charged with electricity while employed and at work in the Leven Shipyard.

AT the parish offices, Putney, on the 21st inst., Mr. A. Braxton Hicks resumed his inquiry with reference to the death of John Bernard Winch, aged fourteen, a bricklayer's apprentice, lately residing with his father at 43 Ram Square, Wandsworth, who was killed on the 12th inst. through falling from a scaffold 52 feet high. Mr. Jasper Redgrave, H.M. inspector of factories, represented the Home Office. The deceased's father, himself a workman on the same building, recalled, said the scaffold was unprotected. It was usual for such lofty scaffolding to be protected. The deceased was pointing the brickwork. John Coker, a general labourer, of 23 Lifford Street, Putney, said he and two other men erected the scaffolding. He did not know who was responsible, but supposed Peach, the general foreman, was. It was not intended to be used for pointing brickwork. He told the deceased's father so. Winch emphatically denied this. The coroner and some of the jury at this juncture having inspected the scaffold, Coker admitted that he removed a plank to enable the deceased lad to work on the scaffold. Henry Roffey, of Guildford Works, Putney, the contractor for the work, stated that he was on the scaffold on the morning of the accident, but he did not notice that the north side was unprotected. He did not walk round that side. James Peach, the foreman, admitted that if he had seen that the scaffold was unprotected he would have had a guard put on it. Witness did not consider himself responsible after he had given orders for the erection. The jury, after some deliberation in private, returned a verdict of accidental death, and added a rider to the effect that Mr. Roffey was greatly to blame for not employing practical scaffolders, and for not himself seeing that the scaffolding was safe.

VARIETIES.

NEW Baptist Sunday schools have been formally opened at Tenterden Street, Bury. A new chapel is nearly completed.

THE Archbishop of Canterbury took part on the 20th inst. in the opening and consecration of the new parish church at Swansea, which has been built at a cost of 26,000*l.*

THE roof of a church in the Faubourg de Santa Lucia, Verona, which was undergoing repairs, fell on Sunday morning. The accident was attended by serious consequences, and five lives were lost.

THE Academy erected at Leith Links by the School Board was formally opened by the Right Hon. Lord Reay, in presence of a large company of ladies and gentlemen and a representative gathering of pupils, on the 22nd inst.

THE contract for the construction of forty-eight huge lifts, capable of carrying 120 passengers, for the Central London Electric Railway, has been given to an American company.

ON the invitation of the Lord Provost, Magistrates and Council of Edinburgh, a large company of citizens assembled at the Calton Hill on Monday night on the occasion of the opening of the City Observatory.

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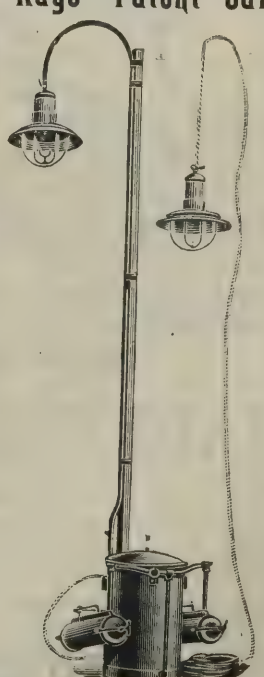
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ILLUSTRATIONS.

CATHEDRAL SERIES—ST. ALBANS: LOOKING ACROSS NAVE.

EASTCOTE, PINNER.

ST. GEORGE'S CHURCH, STOCKPORT.

THE new police-station for Poplar, which has for some time past been in course of erection in the East India Dock Road, is now complete and ready for occupation. The building is a large structure of red brick with stone dressings, and is designed very much on the lines of New Scotland Yard, while the internal arrangements and sanitation of the interior are as perfect as possible.

THE Auld Brig of Ayr has been again closed for traffic. It was observed that a large piece of the up-river buttress of one of the middle piers was hanging out, probably caused by the heavy floodings of last week. Only pedestrian traffic has been allowed across the structure for many years, and it was deemed advisable to exclude the public from the thoroughfare till the extent of the damage had been ascertained.

THE parish church at Kilymaenllwyd, in Carmarthenshire West, has been reopened after restoration. It has undergone a thorough renovation. A new porch has been erected at the west end, the only previous entrance being a door in the chancel, so that the worshippers had to pass through the altar rails before reaching their seats. The total cost amounted to about 530*l.*

THE twentieth annual trade gathering in connection with brewers, maltsters, distillers, mineral-water manufacturers, &c., will open at the Royal Agricultural Hall, Islington, N., on Saturday, the 29th inst. No efforts have been spared to make the show an interesting one, and many more firms are exhibiting on this occasion, the whole of the ground floor and galleries being fully let. The list of awards in the malting barley competition has been considerably added to and the number of classes extended, and cash prizes and diplomas are also being offered for English hops. These contests have done much to further the joint interests of farmers and brewers, and the entries are again reported to be most satisfactory. The railway companies are affording the usual facilities in the way of special excursion trains from all parts of the country.

A SERIOUS accident occurred on Monday evening at the Princess of Wales's Theatre, now in course of erection in Kennington Park Road, by Messrs. Wallis & Co, for Mr. Robert Arthur. It appears that about 6 o'clock on that evening, after most of the workmen had left, some men were left behind engaged in the construction of the stage. Two large joists, 12 inches by 6 inches, had been placed in position but not fixed. Some of the men were bringing in timber to be used in the work, and when they were crossing one of the joists it suddenly gave way, and both men and timber were precipitated to the ground below. Others who were doing carpentering work, hearing a crash, saved themselves by creeping under the other joist, but three men appear to have suffered injury. One, named McFee, received a serious blow on the side of the head, and was knocked senseless. One of the others was hurt on the back, and a third received injuries to his legs.

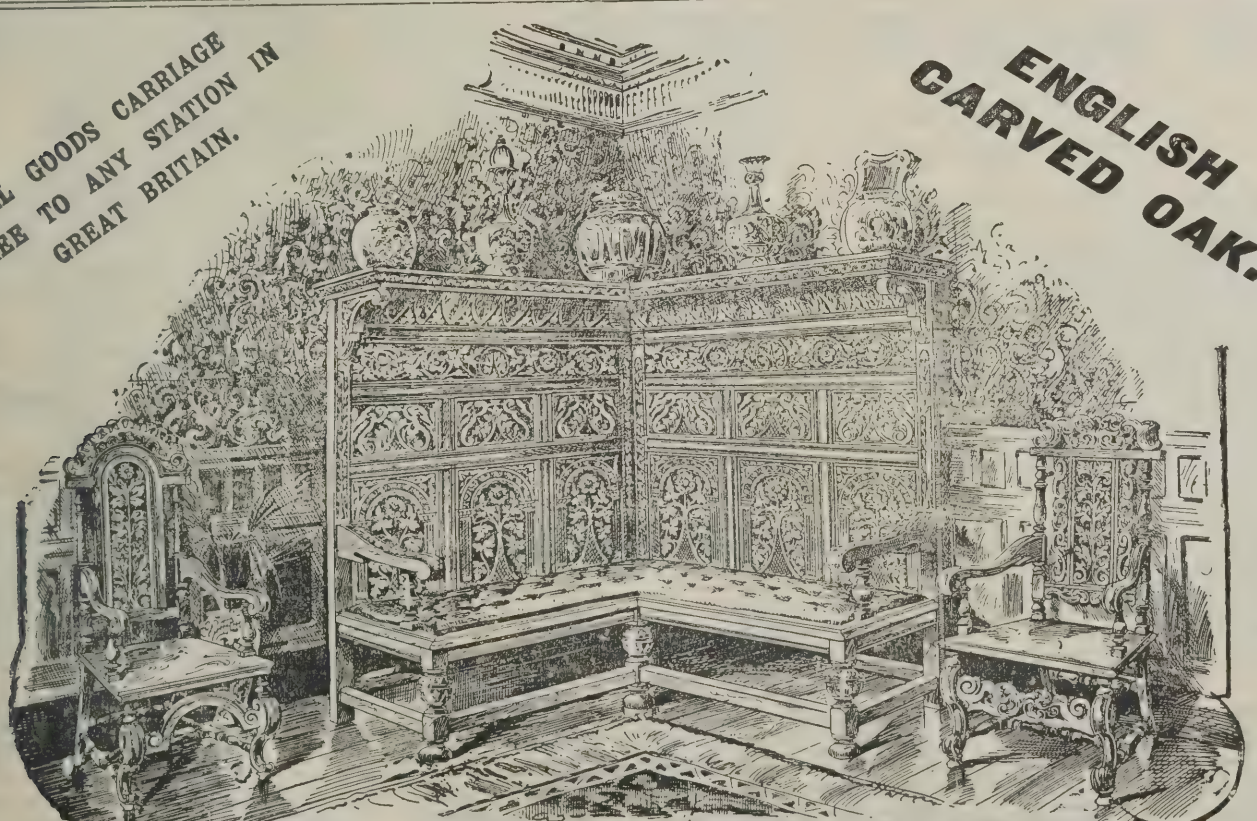
AN arbitration case, involving the rateable value of the Oxford Music Hall in face of the forthcoming widening of Tottenham Court Road under the L.C.C. Improvements Act, came on for hearing on Wednesday at the Surveyors' Institution, with Mr. Green sitting as arbitrator. Mr. Young, surveyor to the London County Council, estimated that the highest value of cubic area in any part of the property was not more than 3*s.* per foot and not less than 2*s.* Other evidence to the same effect was given, and the arbitrator reserved his judgment.

OF the ancient castle at Sandgate, which was erected in the reign of Henry VIII., and was visited by Queen Elizabeth in 1573, very little now remains, and that little is threatened with destruction, the heavy gales of late having completely undermined the foundations. A survey made by the Government officials yesterday morning showed that the damage is very extensive, and unless prompt measures are taken the ancient buildings will collapse. The sea wall at Sandgate has also been badly damaged.

THE prestige of the Alhambra Theatre, which at one time seemed to be seriously on the decline, is now again, thanks to the indefatigable efforts of Mr. C. Dundas Slater, firmly re-established, and a crowded audience again nightly applauds the excellent turns of a lengthy programme, among the prominent features of which may be specially mentioned the doggy sketch called "Dad's Treasure," in which the wonderfully-trained canine artistes go through their performance with an accuracy and a *verve* which is hardly surpassed by their human associates. Then the charming "Charmion" still delights with her graceful, if somewhat *risque*, disrobing scene and her finished performance on the trapeze. The Rappo sisters,

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Russian dancers, give an exhilarating series of their national dances with grace and *entrain*, and the same may be said of the Spanish dancers, the Hermano Morenos. Among the other artistes are Hurgini (juggler), the Bonhairs (acrobats), Miss Lena Verdi, ballad singer, and M. Henri Leoni, French baritone, "Jack Ashore," which is described as "an unpretentious sketchy divertissement," still goes as brightly as ever. The latest arrivals, Les Boxeurs François, display a marvellous amount of agility in their exposition of the French idea of the "noble art," and the *coup de savate* gives rise to a good deal of lively argument.

The Meffan Institute, the gift of the late Miss Meffan sister of a former Provost of Forfar, was opened in Forfar last week. In it is provided gratis accommodation for the free library (20,000 volumes), library committee-rooms, a hall capable of holding 300 people, a reading-room to accommodate sixty readers, a reference-room to seat twenty-four, and a museum, the nucleus of which already exists and is held by the Town Council. The building is also endowed to the extent of 2,000*l.*, the interest of which will pay for a caretaker and repairs, and any surplus is to be devoted to the purchase of newspapers and periodicals. The institute will doubtless be much appreciated in Forfar, where such an institution has been a long-felt want.

On Tuesday morning a joint deputation from the Bradford City Council, the Bradford Chamber of Commerce and the inhabitants of West Bowling, a suburb of Bradford, waited upon the board of directors of the Lancashire and Yorkshire Railway at Manchester. Mr. G. J. Armytage (chairman) presided over a full attendance of directors. The deputation comprised Mr. Speight (mayor), Mr. H. Sutcliffe (president of the Chamber of Commerce), Ald. Holdsworth, Mr. Amos Crabtree, Mr. Thomas Suddards and Councillor Dixon. Their mission was to ask that a passenger station might be erected on the company's line at West Bowling, about a mile and a quarter from the station in Bradford. Statistics were given to the board showing that a considerable increase of population had taken place in the neighbourhood within recent years, and that just recently 450 new houses had been built there.

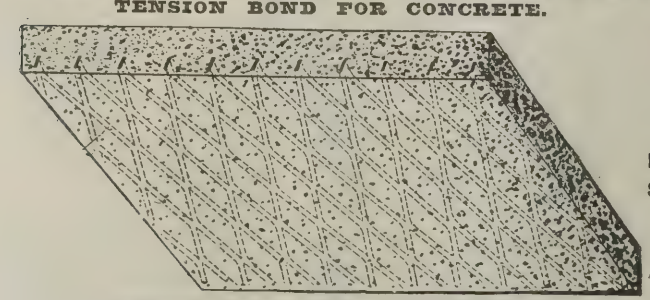
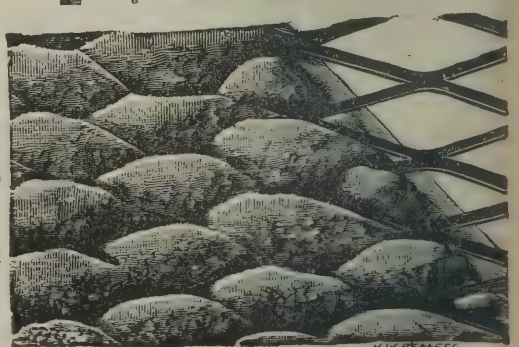
At a special meeting of the Sheffield City Council on Wednesday, the Lord Mayor moved a resolution that the whole of the markets of the city be purchased from the present owner, the Duke of Norfolk. The total area of land included in the sale is 43,392 square yards. The gross income from the markets and other premises during last year was 18,866*l.*, and the expenditure for the last ten years averaged 6,380*l.* per annum. The price to be paid is 530,000*l.* The resolution to purchase the markets was carried, and the Parliamentary committee was instructed to prepare a bill in Parliament for next session.

At a meeting of the Hawick Archæological Society on the 25th inst. a paper was read by the president (Rev. W. A. P. Johnman) on "Archæology in Orkney and Shetland," with special reference to the chambered mound of the Maeshowe, near Kirkwall. He said it strongly resembled Hawick moat in size, shape and general appearance. The chief point of difference was that it had been explored, and Hawick moat had not. The Maeshowe was chambered, and its wonderful architecture was an open book to multitudes who annually visited it. Inside were found mysterious Scandinavian writings, said to date from the twelfth century. In Orkney there were many such chambered cairns. Near by were the colossal standing-stones of Brogarn, while those of Stenners were only a mile and a half distant. Some archæologists held that these remains were the sepulchres of Druidical kings, while others were of opinion that they were places of worship. Mr. Johnman was thanked for his address.

The town clerk of Stirling has received a communication from the directors of the North British Railway Company intimating their agreement to the proposals of the Caledonian Company for the erection of a new station at Stirling, and the work will now be proceeded with. There will be five platforms, ranging from 50 to 100 yards in length, the ground to the east, presently occupied by shunting sidings, being utilised for the new works. The whole of the present buildings on both sides of the main line are to be taken down and a handsome new structure erected with all modern conveniences. No arrangement is made for a new entrance from the Shore Road, but it is expected that this concession will be made, which will prove a great convenience to the residents in that part of the town. Every effort will be made to complete the work before the Highland Society's Show in 1900. General satisfaction is expressed in the town that this long-delayed improvement will at length be carried out.

On the 24th inst. Sir W. H. Broadbent, of London, opened the new Municipal Sanatorium which has been erected at Mill Hill, Dalton, one of the outlying portions of the borough of Huddersfield. The site of the hospital is about two miles from the centre of the town, and the buildings are erected on the pavilion principle. From the administration block there is a

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covered way leading to the three ward pavilions, each of which will provide accommodation for thirty patients. There is also an isolation block in course of erection. Further, there are the receiving and discharge blocks, laundry, disinfector blocks and other buildings. There are 90 beds, which, with 70 at the Birkby establishment, 20 in the smallpox department at Mill Hill, and 10 in the additional isolation blocks, gives a total of accommodation of 190 beds.

NEW CATALOGUE.

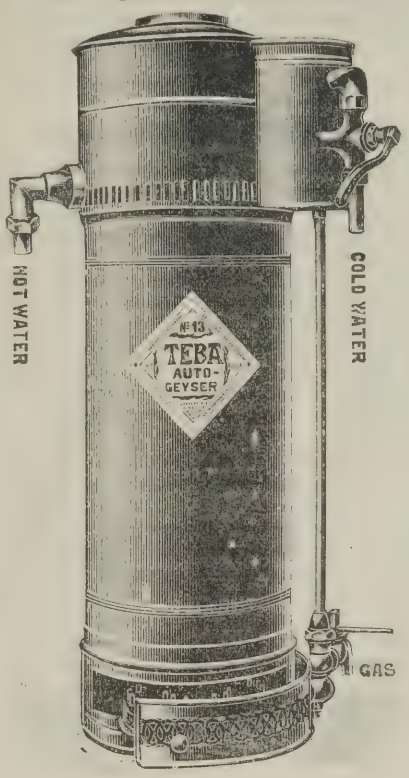
We have Messrs. R. G. Ward & Co.'s (of 5 Laurence Pountney Hill) new catalogue of blue lias hydraulic lime, Portland cement, blue Staffordshire bricks, pressed and wire-cut gault bricks, red and white facing bricks, red and blue roofing and ridge tiles, red, blue and buff paving tiles, blue garden edging tiles, chimney-pots, pans and traps, sanitary pipes, sinks, &c. As these are all depicted in well-sketched illustrations carefully printed, selection is greatly facilitated, and the book will be found of considerable value for reference, especially as in many cases prices are given.

THE "TEBA" AUTO-GEYSER.

The Maughan geyser system of heating bath water is well known, and has for a score of years been a source of comfort in many households ; in fact, it is said that there are at the present moment no less than 12,000 in use ; but, good as it has proved, it has at last been improved upon, and the "Teba" auto-geyser will no doubt speedily oust it from its present eminence. In the old system, the necessity of manipulating the apparatus when hot water is required has limited their use to situations where this is convenient.

The "Teba" auto-geyser overcomes this drawback, and combines the advantage of the best form of geyser with the convenience of the "circulation" system, is automatic, and the mere opening of a tap in any part of the house below the level of the geyser sets it in action and provides an immediate and unlimited supply of hot water so long as the tap remains open. When the tap is closed the geyser is automatically put out of action, the cold water supply shut off and the gas reduced to a small pilot jet.

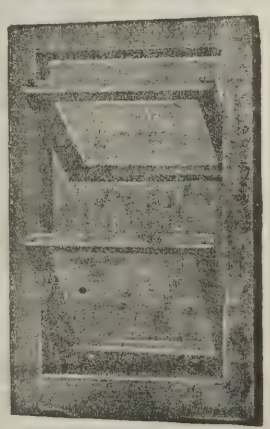
The "Teba" auto-geyser is fitted in any convenient place in the upper part of the house, and requires gas and cold water supplies only. No return pipe or hot-water cistern is required, the water being heated as it flows through the geyser, and there being no circulation of water the deposit of lime or "fur" from hard water is reduced to a minimum. It can be fixed by any plumber at a small expense, and easily removed if desired. If



hot-water pipes are already arranged, the auto-geyser can usually be connected to them and thus act as a substitute for, or auxiliary to, the "circulation" system. The automatic arrangements are extremely simple—no weights, springs, valves or diaphragms being employed, and are not likely to get out of order.

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THE SANITARY INSTITUTE.

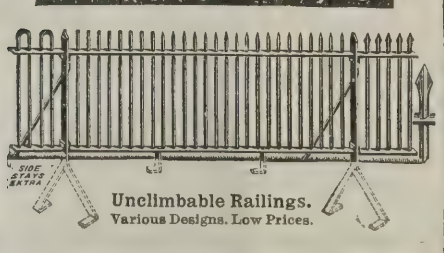
At the Sanitary Institute Sir Douglas Galton delivered the introductory lecture to the twenty-sixth course of lectures and practical demonstrations in sanitary science for sanitary officers and students. The lecturer explained that the passing of the Public Health Act, 1875, was the first effort which the Legislature made to deal with the health of the country as a whole, and that Act had been supplemented by numerous other Acts as well as by by-laws. One of the first problems which occupied the attention of the founders of the Institute was that of improving the knowledge, and through that the status of the sanitary inspectors. In the Public Health Act of London, 1891, Parliament required that sanitary inspectors should possess a certificate of competency for the performance of their duties from some examining body approved by the Local Government Board. That Board had determined that in future there should be a single examining body, and that that body should be composed of delegates representing the Sanitary Institute, the medical officers of health, the municipal and county engineers, the Royal Institute of Public Health, the National Health Society and the Carpenters' and Plumbers' Companies. The Institute, however, would continue to hold examinations generally for persons who desired certificates of proficiency in sanitary knowledge without reference to any official posts in London. The lecturer impressed upon sanitary inspectors the necessity of using tact in the performance of their duties, and in conclusion said he would like to see sanitation made a branch of elementary education.

SANDEMAN PUBLIC LIBRARY, PERTH.

The new Sandeman Public Library, Perth, was opened on Saturday by the Earl of Rosebery. The library is the gift of the late Professor Sandeman, Owens College, Manchester, who left the residue of his estate to provide a library for the citizens of Perth. The net amount of the bequest is 33,000*l.*, and of this about 14,000*l.* has been spent on the building and furnishing, and 2,200*l.* on books, leaving an endowment of about 17,000*l.*, which is at present burdened by the payment of annuities to the extent of 400*l.* The building, which was erected from the designs of Messrs. Campbell, Douglas & Morrison, Glasgow, occupies a central position in the city, and has all the advantages of a corner site. It is Italian Renaissance in style, and built of red freestone, and having four polished granite pillars in the centre of the front elevation in Kinnoull Street, presents a very handsome appearance. The site is an oblong one, with a north and an east frontage, extending from Mid Street on the north along Kinnoull Street—a new thoroughfare—half-way to the High Street. The main door is in Kinnoull Street about the centre of the building, and on its entablature is a carved shield with the city arms in relief, and immediately over this in front of the fanlight is a wrought-iron grille with the Sandeman arms in bronze. The door opens into a spacious vestibule, the walls of which are treated with a facing of rich marble with good effect, the dado being of rouge griotte, and the upper walls pavonezza, a cream-veined marble, while the floor and steps are of white Sicilian marble. On one of the walls of the vestibule is a memorial brass, commemorating the late Mr. Sandeman's gifts, placed in a beautifully carved setting of alabaster, with four heraldic shields in the corners, including the Sandeman arms and the city arms. Passing from the vestibule, the entrance hall is reached, from which access is gained to the lending department on the left at the south end of the building, the librarian's room opposite the entrance, the main staircase and the general reading and juvenile rooms to the right. The ground floor, on which the foregoing apartments are situated, is 4 feet above the street level, and the ceiling is 17 feet 6 inches in height. The entrance hall and the space for the public in the lending room are floored with cream mosaic, with borders in rich colours. The other floors are laid with red pine in narrow boards. The lending library is a handsome apartment, 53 feet by 35 feet, giving accommodation for about 25,000 volumes. The space for the public, with the service counters and indicators, is in the centre of the room, on the north side; and the bookshelves, of Kauri pine, are arranged round the walls, with standard bookcases—Messrs. Lucy & Co.'s, of Oxford—placed with their ends to the windows, which give light on south, east and west. The ceiling is richly moulded in

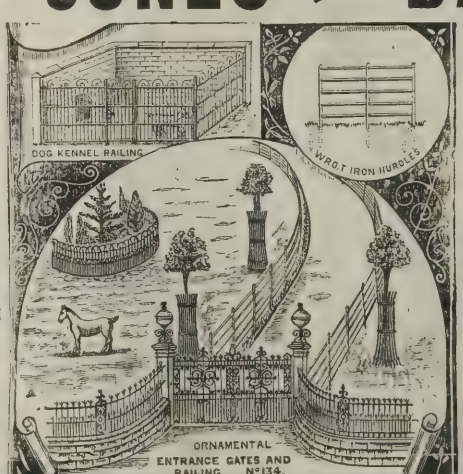
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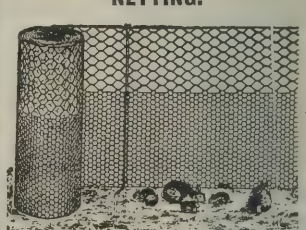


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plaster. This section of the library—usually the most popular one—is most easily accessible, whilst the counters and indicators are so arranged as to enable Mr. Minto, the librarian, and his assistants to serve the public with the least possible delay. The general reading and juvenile rooms are the next section of importance on the ground floor. The former, which is 57 feet long by 35 feet wide, has a light on three sides. The juvenile room, 21 feet by 20 feet, is between the reading-room and the entrance-hall, and is accessible from both. Both rooms have a high dado of tiles of a rich greenish colour with a red marble base. In each room the reading tables and newspaper stands are placed at right angles to the walls and opposite the windows, and together give accommodation for 110 readers. Ascending a spacious and handsome staircase the first floor is reached, on which is placed the reference department, book store, ladies' room, committee-room, &c., and there is a private door to the librarian's house on the same level. The reference-room, 37 feet by 35 feet, to the north of the building is lighted from the roof on all sides. The ceiling is coved and panelled in plaster-work, and the average height is about 21 feet. The lower walls are panelled in yellow pine, and the upper walls are divided by panelled pilasters with enriched capitals, carrying the main beams of the roof. Adjoining the reference-room on the west is the ladies' room, 30 feet by 18 feet, with a private lavatory, &c. It is finished similar to the reference library with a richly-moulded ceiling. These two rooms give accommodation for eighty-eight readers. The tables are so arranged as to have the maximum of light, and to face the attendant's desk at the doorway, with the book store, 30 feet by 20 feet, immediately behind. The book store also is roof-lighted, and with wall shelving and standard bookcases gives accommodation at present for about ten thousand volumes. To the right of the staircase is the committee-room, which is 22 feet by 17 feet, richly decorated and furnished. A private door leads to the librarian's house, but the main entrance is from a staircase at the south end of the building. On an upper floor, over the south section of the building, is the picture gallery and museum, 53 feet by 35 feet. The room is roof lighted, and the ceiling is coved and panelled similar to the reference library, and has an average height of about 20 feet. The walls are wood-lined with a curved surface, for the better exhibition of the pictures, and are painted a rich vermilion. The gallery is approached from the main stair of the building, and has an emergency exit to the south staircase, which leads direct to the street. The basement floor is 4 feet below the street level, and contains receiving room, workshop, rooms for male and female attendants, newspaper store, heating chamber, &c., and also a public lavatory placed convenient to the main stair. The lavatory, &c., is finished with cream and buff-coloured glazed tiles, and the floor is laid with red and black Ruabon tiles. The whole building has been constructed with concrete floors and steel roof couples, and fire hydrants are placed on each landing, the building being, as far as possible, fireproof. Externally, as already stated, the design is Italian Renaissance. It is simply treated. The windows are necessarily large, and are so arranged that the maximum of light falls on the tables, reading stands and bookcases. The library is designed to be worked easily and with the minimum of labour, which is an important consideration. The reading tables are made of walnut and birch, the book shelves and counters of Kauri pine, and the other finishings are principally of yellow pine. The woodwork generally is of a superior quality, and has been stained and varnished. The upper walls of the upper rooms are painted in plain colours, with the columns, pilasters and window mouldings relieved in lighter tints, while the cornices and ceilings are painted in various shades of harmonious colouring. The ceilings of the entrance hall, vestibule and committee-room are decorated with a rich design of Tynecastle; and the entrance hall, staircase and upper landings have a high dado of Lincrusta A discriminating use has been made of leaded glass, slightly tinted, sufficient to give a sparkling effect here and there, but otherwise all the doors have clear bevelled plates, and the side lights and glass screens generally are of clear plate for the better supervision of the apartments. The heating is by means of low-pressure hot-water pipes and radiators, combined with an ample supply of fresh air to the pipes, and at a higher level at other points. The vitiated air is extracted at the four corners of the principal rooms on the ground floor by fireclay flues built in the walls, leading to shafts on the roof, on which are placed exhaust ventilators. The upper rooms are ventilated at the centre of the coved ceiling. The building has been wired for electric light, but meantime brass pendants and brackets have been fitted up throughout, arranged in relation to the position of the bookcases and reading-tables, &c., the supply of gas to the various sections being controlled by valves in the entrance hall. At the north-east corner is a turret, with stair leading from basement and other floors to the roof. Above the roof the stair terminates in a stone-roofed clock tower having a three-dialed timepiece.

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COLLEGIATE CHURCH, JERUSALEM.

On October 18 the Collegiate Church at Jerusalem was consecrated. The Collegiate Church of St. George the Martyr at Jerusalem is part of a larger building known as the Anglican College at Jerusalem. This consists of a bishop's, or warden's, house, a clergy-house and library built of white stone in the Gothic style, resembling one of the smaller colleges at Oxford or Cambridge. The architect is Mr. George Jeffrey. The site, which is on the road to Damascus from Jerusalem, about half a mile to the north of the city wall, close to the tombs of the kings, bears the name of "Tell el-Keniseh," or "Hill of the Church." It was acquired by the present Bishop of the Church of England in Jerusalem and the East in 1893, and is freehold. It is protected and assured by an Imperial firman of the Sultan of Turkey, and has been declared "Wakoof"—*i.e.* dedicated for ever to religious purposes. It is now vested in the council of the mission.

The church is built on the eastern side of the quadrangle of the college, which is 100 feet square. Offerings have been made to it from many quarters, but the most important are the grant of 1,000*l.* from the Colonial Bishoprics Fund, a font of white Carrara marble, the gift of Queen Victoria, and placed in the baptistery in the chapel of St. Michael, on the south side of the church, which will be used for the daily services, and the Litany desk, with a beautifully-carved panel representing Moses, Aaron and Hur, designed by Mr. J. Arthur Reeve, the gift of the present Archbishop of Canterbury.

AUCTIONEERS' BENEVOLENT FUND.

The annual meeting of the Incorporated Auctioneers' Benevolent Fund was held recently at the Mart, Tokenhouse Yard. Mr. Daniel Watney (treasurer) presided, and among those present were Mr. Alderman Samuel Green, Mr. Edward Tewson, Mr. F. Eiloart, Mr. C. R. Foster, Mr. G. F. Francis, Mr. E. T. Galsworthy, Mr. E. W. Rushworth, Mr. H. Wood (members of the committee of management) and Mr. W. Cudlipp (secretary). The Chairman, in moving the adoption of the report, deplored the fact that since their last meeting they had lost two of their prominent members by death, namely, Mr. R. C. Driver and Mr. C. Oakley. The amount of the grants made during the past twelve months was about 400*l.*, in addition to which some 300*l.* was paid away to annuitants. Any auctioneer who had held a license for seven years was eligible for assistance, and he thought that for this reason the fund was entitled to more liberal support from the profession than it at present received. The committee had granted a fresh annuity during the year and increased the amount of another from 20*l.* to 26*l.* Since July 1 last 80*l.* had been voted in relief of necessitous auctioneers or widows and children of auctioneers, and it was to be hoped that their resources would so increase as to enable them to give even more help in the future than they had been able to do in the past. He added that the sum distributed in annuities represented their income from investments. Mr. Green seconded the motion. Mr. Tewson remarked that no deserving applicant was ever refused aid. The Chairman said that was so, but in some cases a larger grant was needed than they were able to give. The report was adopted.

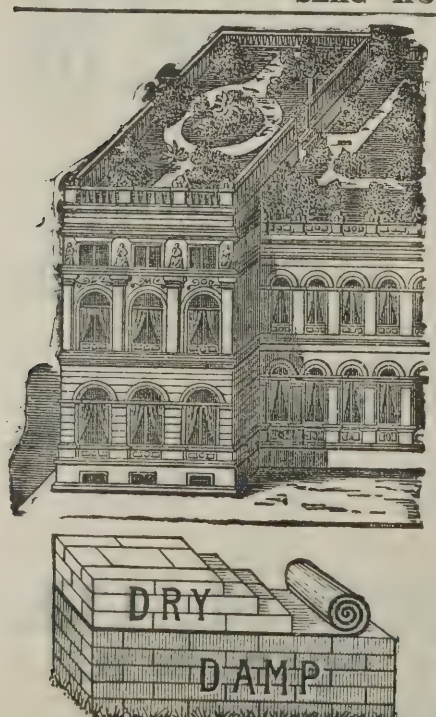
SLEDMERE CHURCH.

We recently reprinted from the *Leeds Mercury* a statement relating to Sledmere Church. A correspondent of the same journal has given the following view of the transactions which is taken from another point of view :—

May I be allowed to join issue with your reporter in several of his assertions as reported. First, as to what he terms the "Sykes's folly" and the waste of money thereon. I will pass this by, cursorily remarking that I cannot claim to be a "plain man gifted with but an ounce of common sense," inasmuch as I fail to see "the stupendous piece of folly and sad waste of money"—as characterised by your reporter—in the reproduction of some of the most beautiful Mediæval sculptural work extant by a wealthy gentleman to the beautifying and ornamentation of his surroundings, and in the erection of which much labour and "waste" money has been expended, whereby the "builders and hewers of stone," at least, have benefited financially. Far better is it that a man should spend his surplus wealth even on such monumental objects as "Sykes's folly," although perchance not reproductive from a utilitarian point of view, than squander it in gambling and riotous living.

Secondly, as to the old church which your reporter speaks of as having "stood for centuries, and which was so comfortable, &c.," I may inform him the same was an ugly, "barnlike" erection of the middle of the eighteenth century (built circa 1745), with not the slightest pretensions to any architectural

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beauty or design. The present most beautiful fabric is built on the site of a much more ancient edifice, the foundations of which were revealed on excavating for the foundations of the new church.

Thirdly, as to the legality or illegality of the action in demolishing the old "barnlike" structure, that question may safely be left to the Archbishop and Sir Tatton. I think his Grace may be credited with being "gifted with that ounce of common sense" of which your reporter writes.

Fourthly, as to the screen with its "five figures and cross surmounting," &c., to which the worthy baronet—after erection—appears to have taken objection, much to the "consternation of the architect"—well, such things do happen; but it is generally conceded that the man who "pays the piper should choose the tune," and as the worthy baronet has paid, and paid handsomely, he was entitled to have his way, and in this instance it is to the vicar's credit he did not intervene, as he asserts he might have done. Pity that he has not subsequently pursued the same non-intervening policy, in which case it would now have been "peace" and not "candlesticks" between the baronet and his reverence, and "temporal" supplies would not have been "cut off" as they appear to have been.

Fifthly, as to the paucity of seats in the sacred edifice to accommodate the "mythical" congregations, I can only say, from my personal experience of country churches, that it is generally the "other way about." A "plethora of seats and a paucity of congregation" is the rule, and from all accounts Sledmere Church is no exception, and not likely to be as long as the present vicar is "in office."

Lastly, as to the late vicar (the Rev. Mr. Mant) being extremely "ritualistic" in his tendencies, this he may or may not have been; but he was certainly respected by all, irrespective of sect. If he held Romanistic views, he did not protrude them nauseously upon his parishioners. There is an old and trite adage, "Those who live in glass houses should not throw stones." Had your reporter made one of the congregation at the afternoon service, or, to be more correct, "Romish function" which was celebrated on the day of the consecration of the new church a few weeks ago, he would have been treated with such an "odoriferous and spectacular" exhibition of Romish ritual, "pure and simple," as would have satisfied him for the term of his natural life. And this performance was enacted under the "ægis" of the present vicar, aided and abetted by several of his clerical brethren. The late vicar having assisted at the morning service, wisely absented himself, although "imbued with such Romish proclivities." Why did not the Rev. Mr. Romestin and his clerical confrères indulge in the "swinging of incense" and "vestments," &c., at the principal service in the morning? Why, indeed. Because, like "naughty boys," they dare not. The master was there (the Archbishop); in the afternoon the "cat was away, so the mice could play," and they did so, to the disgust of many who were unwilling spectators and who would have left the sacred edifice—as some did—could they have done so without creating a disturbance.

Whatever "remarks" the visitors to Sledmere may make relative to the church and its history, and which "remarks" the vicar "wishes were more audible," I can assure the rev. gentleman that the many, varied and not very complimentary "remarks" I have heard during the last few weeks with reference to himself and his actions have been most distinctly emphatic and audible.

I must apologise for this lengthy epistle, and my excuse must be "fair play." Sir Tatton Sykes has done much—very much—in building and restoring the churches on the Wolds at an enormous cost, and he has been a most generous patron and friend to the clergy at the same time. I am certain that the worthy baronet has the sympathy of the neighbourhood with him in what I hope may be but a "temporary friction" between him and the Vicar of Sledmere.

GERMAN TESTS OF CEMENT.

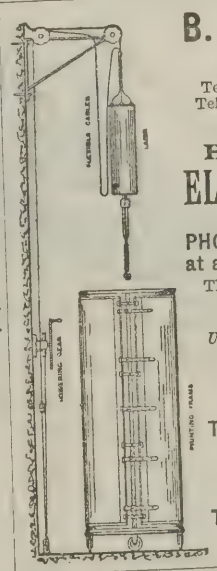
THE American Society of Civil Engineers lately issued a series of questions in order to collect the views of manufacturers and consumers about the tests of cement. The *Baumaterialienkunde*, the official organ of the International Society for the Unification of Tests of Materials, has published replies to the questions from a German point of view. It is stated, however, that very different opinions are held, even in Germany, regarding some of the methods of testing, and it is suggested that those who object to these answers should bring forward their conclusions, so that ultimately an agreement regarding standard methods may be reached. Appended are the questions and a translation of the answers:—

Sampling.—*Q.* What method is used in taking samples, and how many are taken from each shipment? Does the number of samples depend on the kind of work and on the reputation of the cement? Do you mix cement from several

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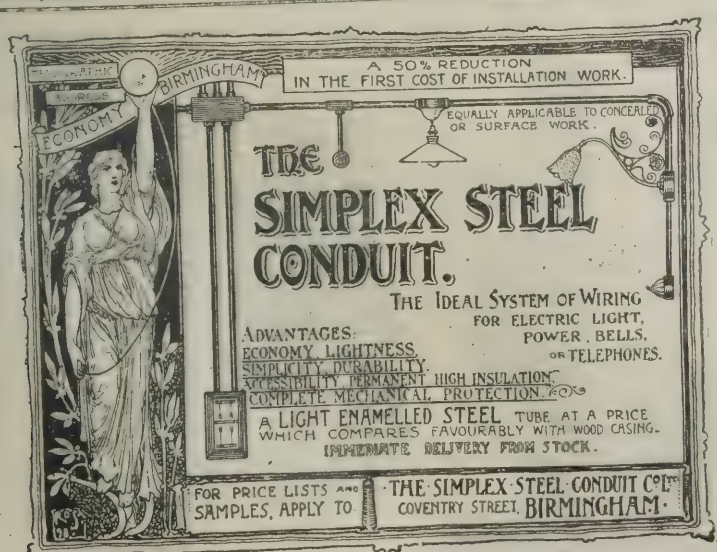
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packages, or are the samples from the several packages kept separate?

A. The sampling should depend upon the purpose for which the tests are made, and upon the previous tests that have been made with the same cement. Samples should be taken from different packages of each shipment, and as near as possible out of the middle of the barrel or bag.

Chemical Analysis.—Q. When do you consider a chemical analysis essential or desirable? What elements or compounds should be determined? What are the best methods of determining these compounds with sufficient accuracy.

A. Chemical analyses should be made when it is suspected that magnesia is present in large amounts, or for mixed cements. The complete analysis should be made and the limits of error should be those assigned by Fresenius. Methods should be left to the chemist.

Microscopical Tests.—Q. Are microscopical tests of value, and if so, when? What power microscope should be used, what observations made and what are the indications?

A. The petrography of Portland cement and its microscopic properties are not sufficiently developed, so that engineers and architects can use the microscope to obtain results of value.

Fineness.—Q. What sizes of mesh should be used in testing fineness of Portland cement? What for natural cement? What should be the diameter or sizes of the screens? How large a sample should be tested? Should a machine for shaking be used, and if so, what form; and what should be its manipulation? How long should the shaking be continued? Should there be any difference in manipulation for fine and coarse screens, or for different kinds of cement?

A. German standards require for Portland cement that not more than 10 per cent. shall remain on a sieve having 900 meshes per square centimetre; this requirement is now satisfied by nearly all cements, and it might well be specified that not more than 20 per cent. shall remain on a sieve having 3,000 meshes per square centimetre, and that all should pass through the sieve with 900 meshes. The diameter of a particle just passing through the sieve of 900 meshes is, since the thickness of the wire is one-half that of the clear opening, 0·22 millimetres. Plates with round holes are to be preferred to wire screens, but it is difficult to manufacture them. The weight of the samples should be 100 grammes. Mechanical shaking has not been found satisfactory, especially for fine cements, and shaking by hand is to be preferred. The shaking is to be continued until no cement is seen to fall upon a sheet of white paper held below the sieve. All kinds of cement should be treated alike in the shaking process.

Density.—Q. Is the test of weight per cubic foot a valuable one, and what apparatus do you prefer and how should it be used? Is the test of specific gravity a valuable one and what is the best apparatus?

A. The weight per litre should be found both for loose samples and those firmly shaken down, and the mean of these be taken; the inclined plane of Bauschinger and the glass litre measure should be used, and uniformity in filling and striking be observed. The test for specific gravity is of some value in dealing with one brand, but its determination is not absolutely necessary; when made the apparatus of Erdmenger and Mann is to be preferred.

Standard Sand.—Q. What kind of sand should be used in tests of mortars—a natural sand or crushed quartz? What fineness should be specified, and what degree of variation in fineness of grain should be allowed?

A. The natural sand from Freienwalde, near Potsdam, has always been reliable, while crushed quartz of equal uniformity cannot be obtained. The size should range between those of sieves having from 60 to 120 meshes per square centimetre, but deviation of 3 per cent. for coarse and 10 per cent. for fine grains may be allowed.

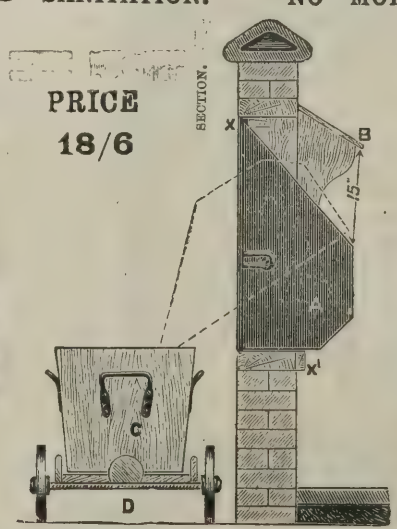
Preparation of Pastes and Mortars.—Q. Should the same method of preparation be used for each test? How should the proportion be stated? What should be the consistency for the various tests, and how may this be specified so that the same results may be obtained by all operators? What should be the temperature of the materials used in mixing? What should be the temperature of the air at mixing?

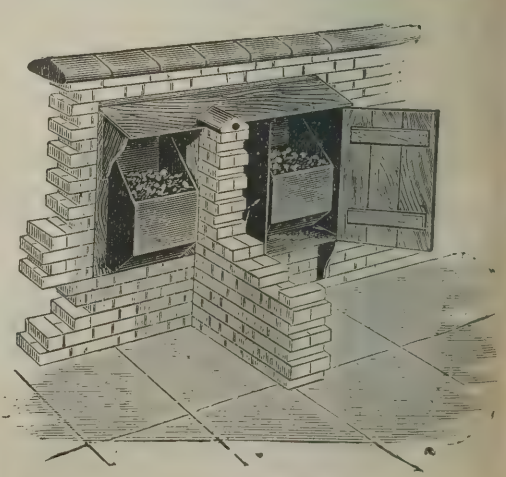
A. The methods for the determination of the amount of water to be used in the pats for investigating constancy of volume, and those for filling the moulds in making briquettes, have not yet been definitely established, and hence the question must be left open. The temperature of the air and of the water used in mixing should be closely the same and be between 15 and 20 deg. Centigrade, and this should be noted in the record. The relative humidity of the air should also be observed and recorded.

Q. How should the quantity of water used in mixing be defined? What should be the method of mixing? Do you prefer hand or machine mixing? What is the best machine? How long should the mixing be continued? Should this be

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defined by stating the time or by reference to the character of the resulting mortar?

A. The amount of water should be expressed as a percentage of the amount of dry cement. For the pats the mixing is best done by a broad knife in a cylindrical tin can; for the briquettes by a large spoon in a bowl, by a trowel on a table or by a machine. The mixing must be uniform in tests which are to be compared with each other. The Steinbrück mixer is generally used for mortars; it has the advantage of doing the work in very short time, and does not break the grains of sand. This machine should make twenty revolutions at the rate of eight per minute for 2,000 grammes of cement and sand, with the necessary water added.

Time of Setting.—Q. What is the best method? How shall the beginning and end of the set be defined? Should this test be made on neat cement or on mortars? What should be the consistency? What should be the temperature? How shall the pats or briquettes be made and treated? What should be the temperature of the water in which the pats are placed?

A. At present the best method is the Vicat needle; other devices have not been sufficiently tried. Cement begins to set when the vertical needle sinks to about 5 millimetres above the bottom of the cake, and it has finished setting when the needle refuses to penetrate the surface. This test should be made only on neat cement. A quick-setting cement should be stirred one minute and a slow setting one three minutes, using sufficient water to make a stiff paste. The Vicat needle should be loaded with 300 grammes, and the cakes be made in hard rubber rings of 8 centimetres diameter and 4 centimetres thickness; these are filled with the cement paste and tapped gently once or twice. During the setting the cakes should be kept in a damp and warm room of uniform temperature, be protected from draughts of air and from jarring; they should not be placed in water.

Constancy of Volume.—Q. What do you consider the best test for soundness in the case of Portland cement? What in the case of natural cement?

A. German practice has led to the conclusion that there is but one reliable method of testing constancy of volume, and this is the established standard test, which is too well known to be described here.

Tensile Strength.—Q. What proportions of cement and sand should be used in mortar for tensile tests? Do you advocate adhering to the form of briquette recommended by the American Society of Civil Engineers; if not, what form do you prefer? Is your preference based on comparative experiments, or is it the result of satisfactory experience with one form?

A. The briquettes should be made of one part cement to three parts of sand by weight. The American form of briquette is inadvisable, because rupture often does not occur at the smallest cross-section. The German form is to be preferred, as experience has shown.

Q. Upon what sort of a surface should the briquette be made? Should it be finished with a trowel on both sides? What should be the consistency of the mortar? What method of filling the moulds do you advise? Do you recommend a machine for moulding, and if so, have the results been satisfactory?

A. The surface of the mixing table should be glass or smooth iron. For neat cement the briquettes should be finished on both sides with the trowel; for mortar only, on the upper side. The consistency should be such that the briquette, after a certain degree of working, exudes some mortar on its top surface. The hammer apparatus of Böhme is recommended above all other machines for filling the moulds on account of its ease of operation and its uniformity. Many years of experience with this apparatus have given very satisfactory results.

Q. How should the briquettes be treated during the first 24 hours after moulding; how during the remainder of the time? If placed in water, how often should it be renewed? Is it important that the water should be maintained at a constant temperature? What should that temperature be?

A. The briquettes should be taken from the moulds within 20 minutes after they are made, and then be kept in damp air for 24 hours and be protected from dust. They may be kept in the air until tested, or be placed under water. The water should be renewed weekly, and be kept at a temperature of about 17 deg. Centigrade.

Q. At what age should briquettes be broken for acceptance tests in ordinary work? Under what conditions would you deem it essential to make longer time tests? Will weighing briquettes before testing give information of value, and if so, what?

A. They should be broken at the end of seven and twenty eight days. Longer tests are of value when it is desired to learn the rate of hardening. Weighing is of value in determining the weight per cubic unit, and gives information regarding density which is useful in making comparisons.

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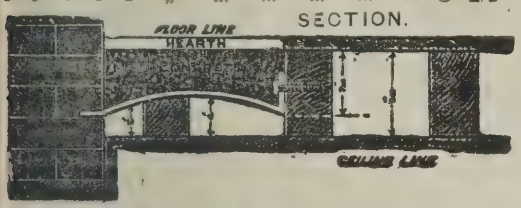
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Q. What form of clip do you prefer? What should be the distance between opposite gripping points of the same clip? What should be the rate of applying the stress? What style of testing machine do you prefer? Can you suggest any desirable modifications to machines now in use? What special precautions are necessary in breaking briquettes?

A. The clips should be so rounded that they do not touch the specimen over its whole thickness, but only in the middle. The Michaëlis machine has proved to be a good one; if no better method of applying the stress is known, it should be done by shot or by water. The shot should be 3 millimetres in diameter, and should flow with uniform velocity.

Compressive Strength.—Q. Do you advise compressive tests, and if so, why? What form and dimensions of test piece do you prefer? Should the test piece be treated differently as regards manipulation of mortar, mixing or setting, from tensile specimens? How should the specimen be prepared for the testing machine? What form of testing machine do you recommend? What should be the rate of applying the stress?

A. Compressive tests are indispensable, because compressive strength is required in practice and because such tests give more reliable results than tensile experiments. The specimens should be cubes, having each face about 50 square centimetres in area; they should be prepared like the tension briquettes, but be left in the moulds twenty-four hours. The cube is to be so placed in the machine that the pressure comes upon two lateral faces and not upon the top and bottom faces. The 30-ton machine of Amsler and Laffon is recommended.

Transverse Strength.—Q. Do you advise bending tests; if so, under what conditions, and how? What form and dimensions of test piece do you prefer? What span? Should the specimen be prepared differently from tensile specimens? What form of testing machine should be used? What should be the rate of applying the load?

A. Bending tests are to be recommended as well as those of tension and compression. The form and dimensions of the specimens will depend upon the purpose of the test, but should be as large as possible. They should be made in the same manner as the tensile briquettes. A special machine for transverse tests has not yet been introduced, but the lever apparatus of Michaëlis may be noted as applicable.

Miscellaneous.—Q. Under what conditions are the following tests necessary or advisable?—Adhesion, abrasion, resistance to freezing, resistance to action of sea water.

A. Tests for abrasion are recommended for cements to be used in floor construction and street pavements, and tests for resistance to frost are desirable for cements which are to be exposed to the weather. For abrasion the method of the laboratories in Munich, Zürich and Berlin is reliable; this consists in grinding the specimen with emery on a cast-iron wheel. Adhesion tests may be valuable in some cases, but no agreement has been reached as to the method of procedure, and many difficulties will be found in making them. Tests for resistance to the action of salt water must be arranged according to local circumstances.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

21,273. Benjamin Cock Gliddon, for "Compound levelling rings for the setting up of gun-mounting theodolites or other scientific instruments or structures."

21,302. Herbert Pike Pease, for "Fuel-ore blocks or bricks for smelting."

21,480. Carl Axel Wilhelm Huttman, for "Improvements in or relating to channel tubes and wells for underground electric conductors and the like."

21,533. Thomas William James, for "Imitation mica marble and stone."

21,584. Ernest Homan, for "Improvements in or connected with fireproof floors, ceilings or the like."

Specifications Published.

29,020. Smith, for "Construction of bricks and other moulded building materials."

14,579. Turner, for "Tenement buildings."

15,623. Kempshall, for "Tile-making and punching tables."

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THE WEEK.

THE Society of Oil Painters is an old acquaintance with a new title. At present success in it is supposed to depend on the quality of the work, but in a little time the usual course will be followed. The Society will become "royal," and the adjective will, in Piccadilly as elsewhere, be taken as a protection for inferior pictures. This season's exhibition is unusually satisfactory. Never before have we seen so many examples of honest brushwork. Mr. WATTS has shown his sympathy by sending a couple of amorini which are as vigorous as if the flesh tints were laid on by a trowel. There are several works which are qualified to be hung near it. As usual, the majority of the 465 paintings are landscapes, and the few portraits appear out of place on the walls. Architects will be attracted by Mr. FULLEYLOVE'S *Acropolis from below the Pnyx, Athens*, which, although rather dry, is accurately drawn. Sir J. D. LINTON has adopted modern costume for his *Summertime* and portrait of a lady. In the figure pieces the tragic is wisely avoided by most of the artists. Mr. J. C. DOLLMAN has a nude figure of a Christian martyr stretched on the sand of an arena, but as there is no sign of violence, how he met his death is doubtful. Mr. CECIL REA in his *Echo and Narcissus* reveals admiration for one of the modern French styles. The influence of France is unusually marked this year in figure scenes and landscapes. Mr. STOCK'S principal work is a portrait of a young astronomer drawing aside a curtain to display the stars, but there is little of a nocturnal effect within the room. Mr. BUNDY'S *The Word* is a party of Puritans wrestling with knotty points; the figures are skilfully characterised, and the effect is enhanced by the light passing through a green curtain. In his *Hareem in the House of the Sheikh es Sâdât, Cairo*, Mr. FRANK DILLON shows detail of woodwork with as much care as if he were rivalling J. T. LEWIS. Mr. HALES'S *Siren* is a new version of the old legend, for we see a mermaid luring a Greek boat to a dangerous reef.

THERE is much variety among the landscapes. Mr. F. G. COTMAN again suggests fleeting phenomena in light and shade. Mr. YEEND KING is not only successful, but has gained imitators. Mr. EDWIN HAYES has found waves off Tarifa, which, if more deeply blue, are as powerful as those of the north. Mr. PILLEAU has well rendered a calm day on Venetian waters. Mr. JOSEPH KNIGHT has a carefully executed evening scene, and Mr. E. H. FAHEY shows the play of light on leaves and water. There may not be as many representations of incidents as the public usually desire, but altogether the exhibition augurs well for the future of the Society, and deserves liberal patronage.

THE late Mr. LATIMER CLARK, who died on Sunday in his seventy-sixth year, was for the greater part of his life connected with applications of electric power. He was for a long time chief engineer of the Electric Telegraph Company. He became a partner with Sir CHARLES BRIGHT and was consulted about many enterprises, and as a partner in the firm of CLARK, FORDE & TAYLOR had to do with the manufacture and laying of thousands of miles of cables in various parts of the world. Mr. LATIMER CLARK was one of the last survivors of the band of engineers who aided ROBERT STEPHENSON in the construction of the Britannia and Conway Tubular Bridges. His brother EDWIN was the principal resident engineer, and in the excellent volumes he wrote on the structures acknowledged that he was "indebted to his brother, Mr. LATIMER CLARK, for much assistance in the descriptive portions of the work and for the interesting chapter on the Tides." LATIMER CLARK was engaged on the construction and erection of the tubes. He was one of the first to realise the future possibilities of electric force, and gave up bridge-work to devote himself to its application.

IT is not often the anticipations of an auctioneer when selling land are so exactly realised as was the case at the Mart on Friday last when two blocks forming part of the Bridge House Estates were sold. One contains 22,786 square feet and the other 18,391 feet. There are frontages to Finsbury Circus and London Wall. The lease was for a term of eighty years. The Corporation decided to offer the land in one lot, although probably there would be more satisfaction if the number was twenty. Before any bids were invited Mr. BAKER, the auctioneer, told the assembly that the letting value of ground which possessed so many advantages was 17,000*l.*, a statement which by some of the experts was heard with incredulity. The first offer was 10,000*l.*, and the amounts gradually rose to 17,000*l.*, at which sum Mr. LUDWIG NEUMANN, of Warnford Court, carried off the prize. That rent may now appear rather high for a site, but eighty years hence it is likely to be considered as moderate.

THE death of Mr. ANDREW USHER on Tuesday makes the indecision of the Edinburgh Town Council appear more remarkable. That gentleman, as our readers are aware, offered 100,000*l.* for the erection of a City Hall some years ago. He has now passed away without having the satisfaction of knowing that one stone of the foundations was laid. The citizens have occupied themselves with a battle of sites, and it can hardly be said to have ended. Last week it was decided to apply to Parliament for powers to erect the hall at Athol Place. But the committee rooms of the Lords and Commons will allow opportunities for the numerous opponents to renew the struggle. Mr. WATERHOUSE is an impartial and competent judge, who was able to consider the relations between a building and its surroundings. He decided in favour of the Meadows. But the Town Council scarcely read his report when it was resolved to set aside his recommendation. That course was not fair towards the architect, and the expenditure of money in obtaining a report which was not to be followed was not fair to the citizens.

THE London County Council propose to have a dual course to follow in obtaining a water supply for the Metropolis. It is proposed to purchase the undertakings of the water companies, and that within six months they can be vested in the Council. Another arrangement for which prompt action is required will be the connection of the mains of the various companies so that they may form a joint supply. In that way the local inconvenience which is occasionally suffered by the inhabitants of East London would be prevented. The price to be paid for so valuable a property could hardly be determined in a period of six months unless both sides are inspired by a common desire to arrive at a conclusion by agreeing to the same principles of value as a basis. Compensation for compulsory purchase is to be neglected. The suburban districts are apparently to be placed on a similar footing with the metropolitan area. If the companies' works can be acquired there will be no immediate need of a new supply, but the possession of the Wye and Towy watersheds cannot fail to affect the prices which will have to be paid to the owners of the existing works.

THE announcements of the high prices which are given for books that originally cost a trifle have induced a great many people to join in the chase after treasures. The sport has the advantage of inspiring hope, and, moreover, it enables a man to fancy he is one of the learned and to convince simple souls of his scholarship. With a little tact it is surprising what can be done by a knowledge of title-pages towards gaining esteem. Book-hunting is likely to gain votaries through the influence of Mr. J. HERBERT SLATER'S volume on "The Romance of Book Collecting" (ELLIOT STOCK), which contains general discourses entitled "In praise of catalogues," "A comparison of prices," "Some lucky finds," "The forgotten Lore Society," "Some hunting-grounds of London," "Vagaries of book-hunters," "How fashion lives," "The rules of the chase," "The glamour of bindings," "The hammer and the end." Mr. SLATER is a genuine bibliophile, and as editor of *Book Prices Current* he has peculiar opportunities for learning the fortunes of books. All the pages of his "Romance" can be read with interest.

THE PARIS OF THE MOUSQUETAIRES.

[By a Correspondent.]

IT is not unlikely that the theatrical season which has commenced may be marked by the number of performances of dramas which are derived from the great series of Alexandre Dumas, in which he has recorded the feats of D'Artagnan and his companions. Already one action in the law courts has arisen about a non-performance, and there is no better method of advertising literary and dramatic works. But who is there in England who is not familiar with the deeds of the heroes, or is not prepared to join in Thackeray's tribute to the author who was one of the world's benefactors? "O thou brave, kind, gallant old Alexandre!" he wrote. "I hereby offer thee homage, and give thee thanks for many pleasant hours. I have read thee (being sick in bed) for thirteen hours of a happy day, and had the ladies of the house fighting for the volumes." Thackeray was not ashamed to acknowledge how he relished the works of Alexandre the Great, and thrilled over the "Three Musqueteers." Every reader whose mind is in a healthy state would agree with him. That is inevitable. The musketeers correspond with the romantic elements which are somewhere in every mind, and which, however carefully suppressed, are always ready to display themselves. The musketeers were a law to themselves. In England we are all law-abiding and reverential to common and statute law, but the crowds of old and young folks that Mr. Punch always attracts is a proof that a fictitious rebellion to laws is not without interest. An architectural Punch who would show defiance of the Local Government Board, its by-laws, borough surveyors, district surveyors and all the myrmidons who make war on taste in the shape of projections, would have more success at the meeting of an architectural society than any exhaustive paper. It is no doubt very blameable, but men because of their weakness enjoy the conflicts between the royal mousquetaires and the cardinal's guards in Paris, and are gratified when D'Artagnan proves that he is a more able diplomatist than Richelieu and can foil Mazarin. We may not with all our admiration wish that Charles I. had adopted the stratagem of the dauntless four and slipped into the hole excavated beneath the scaffold; but in a great many countries where there is no hero worship of Cromwell, readers must agree it was a pity the king had not the courage to make use of so simple and effectual a resource. However, great and small people in London were too dull for such fine fellows as D'Artagnan & Co., and the streets were not well adapted for their peculiar adventures. That they were able to do so much among us was due to their genius.

The streets of Paris, on the contrary, were as suited to the needs of roystering bands as if they had been specially arranged for the display of agility like the scenes in old-fashioned pantomimes. It would be absurd to consider the descriptions of the streets and houses in Dumas's pages as archæological documents. But there is enough confirmation by contemporary authors of what he says. For instance, the "Vicomte de Bragelonne" commences in May, 1660. Now the sixth Satire of Boileau bears that date, and it reveals in a very concise form the condition of Paris at the time. The poet evidently was thinking of Juvenal's experience in Rome when he wrote the verses. He speaks of the noises which kept him awake at night. If he rushed into the streets they were so narrow and overcrowded he was almost crushed to death. He could not walk in one part, for he was likely to be killed by waggons; elsewhere there was the danger of slates and tiles falling from the roofs. If a cart-horse fell the street became blocked. If rain fell the street became a pond, and it needed a strong head to cross on the narrow rickety planks which were balanced on a couple of paving-stones. When the poet found he must once more return to his house, it was with fear he walked through the streets, for robbers went about in parties of four. It was vain to attempt to sleep. His windows were broken by bullets which pierced the shutters, and he could hear cries on all sides of "Au meurtre! On m'assassine!" Sometimes the cries were of a different kind, and announced that one or more houses near him were on fire. According to Boileau it was only the fortunate people who possessed a large house with a garden around who could expect to sleep and live undisturbed amidst the turmoil of Paris.

In 1660 Louis XIV. may be said to have commenced his reign, and the wild days of the musketeers were ended. If possible in the preceding period the condition of Paris was less like the modern city. But in reality there was little change. Paris was not in those days often subjected to improvements. The municipal authorities did not care about the condition of the streets, and the uncertainties of a State made up of conflicting elements made people who owned houses indisposed to lay out money on them. One of the first efforts of Colbert, when he became a minister, was to compel the outlay of 137,000 livres or francs in one year on the paving of the city. Care was taken to avoid so much extravagance, and a third of the sum was supposed to be a liberal allowance for keeping the streets in a condition that would facilitate traffic.

It might be supposed that with streets which presented innumerable obstacles to unwary travellers, an attempt would be made to utilise efficient lighting in order to diminish the risks for those who walked as well as those who were carried. Not until 1688 was there any systematic arrangement for lighting the streets. The means were even then of the simplest. It was decreed that lanterns, each having a candle, should be provided at the expense of the different quartiers. The transformation from darkness to light was so remarkable, Louis XIV. utilised it as an opportunity for having a medal produced with his likeness and the legend *Securitas et nitor*. At the end of the century the number of lanterns was calculated to be 6,500. But although limited, the citizens considered them to form one of the most gratifying of all the king's innovations.

The candles alone could not have wrought so remarkable a change if there was not another factor no less important. The musketeers were always able to find armed men on whom to test the sharpness of their swords. All who liked could carry arms. Most gentlemen considered it was their privilege to have armed servants, and a great many rogues and vagabonds contrived to wear long swords. An order for the prohibition of weapons unless the bearers were licensed was treated with indifference. It became necessary to hang some valets, in spite of the protests of their masters, before the feudal practice was set aside. Still there were insults committed from time to time by swashbucklers, who were insolent by the operation of the law of heredity. Towards the end of the century an edict had to be issued which prohibited all domestics from entering the public gardens of Paris, and it was only by that sort of rigorous action the desired order was insured.

It will be asked, Had Paris no guards to prevent disorders? The protectors of the public in London in the seventeenth century were a different race from the excellent constables who now keep order in the streets. We must not therefore blame the French if in their capital the guardians of the peace resembled wolves in charge of sheep. Most of the robberies and disorders which occurred at night were ascribed to soldiers of the royal guards and cavalrymen from different garrisons. The former were notorious thieves. There were bands of criminals who claimed to have privileged districts or sanctuaries. Readers of Victor Hugo "Notre-Dame" will recollect the Cour des Miracles. It continued to be a refuge for truands until the time of which we are speaking. A military attack was made on it, and the defenders were three times summoned to surrender. They refused, and forced the assailants to retreat. The place was then besieged in regular form. An opening was made in the walls and possession of the cour was taken. But those who held it were allowed to escape, and a great feat was supposed to be accomplished when the walls were demolished.

The vagabonds had many other haunts, such as the enclosure of the Temple, and they claimed a right to some of the ground on which St. Germain des Près stood, which was a heritage of the scholars of Paris. It was also claimed by the owners of the Hôtel Soissons, near St. Eustache, that they were able to offer an asylum to all sorts of outcasts. But more remarkable still was the curious circumstance of the royal palaces of the Louvre and the Tuileries serving as cities of refuge to criminals. Through

COLBERT'S perseverance and courage all those asylums were closed against outlaws.

For exterminating the dangerous classes there is no more effectual way than improvements of streets on an extensive scale. LOUIS XIV., although a lover of architecture, does not appear to have cared much about the improvement of his capital. He preferred to give his attention to places like Versailles, where he could reign in all his glory. In the king's name, however, COLBERT contrived to execute many important works. He constructed an academy of architecture, but, as VOLTAIRE shrewdly says, "C'est peu d'avoir des VITRUVES, il faut que les AUGUSTES les emploient." The greatest works which were raised in Paris during the reign of LOUIS XIV. were the Invalides, the colonnade of the Louvre, the arches of Saint Denis and Saint Martin.

The improvements of streets few people care to trace, but they were less welcome to the citizens of Paris than those of HAUSSMANN a couple of centuries afterwards. Who can now realise there was a *butte* or hill near the spot where the church of St. Roch was erected? The removal of it was supposed to be costly and troublesome. Consequently, when the pig market was removed to make room for the Palais Cardinal, now the Palais Royal, and the skinners' and tile makers' yards were changed into the gardens of the Tuileries, the *butte* was left. An order was made to level it in 1667, but the work was not thoroughly done, although several years were occupied with the task. That one improvement led to several, and access to the Tuileries and Champs-Elysées became easy. The latter place received its mythological title from LOUIS.

In the reign of LOUIS some lengths of quais were constructed. Although they now appear an indivisible part of Paris and one of the elements of its amenity, they were not much admired at first. The Parisian loves liberty, and his beloved river appeared to him to be entitled to follow its own course. Our fathers, says LAVALLÈE, forgave the Seine its caprices, storms and floods so long as they were enabled to enjoy the verdure of its willows and reeds. It was easy for them to float on its surface, their houses and mills were washed by its waves, the river was allowed to approach their tan-yards and bleaching-fields as a friend. For a long period they never attempted to do more than erect a few *palées* or rows of stocks and some timber *estacades* when the Seine was compelled to be restrained.

When it was found that the Court and Ministers had taken up the improvement and extension of Paris the citizens were alarmed. In those days history was supposed to afford examples of warning; accordingly it was concluded that as in many ancient cities splendour was the prologue to ruin, Paris was doomed to decay if it adorned itself or sought after enlargements. COLBERT under the guise of royalty was not to be scared; open spaces like the Place Vendôme, the Place des Victoires and the Carrousel cannot be called immense, but they appeared as omens of destruction at the end of the seventeenth century.

If His Majesty bore the expenses of the metamorphosing of the old city there might be less grumbling. But a most oppressive innovation was found in decrees of 1672 and 1678, which compelled those who benefited by the improvements to recoup the expenses. It was also decided that in all new streets a regular line of frontage was to be laid down and respected. A plan of Paris was preserved which was to serve as a guide for those who wished to rebuild. The king announced how he intended that Paris should present an appearance which would make strangers realise how great was the kingdom of which it was the capital, and how happy were the inhabitants with such a king as then reigned. Yet, at the close of the seventeenth century the severest punishments were necessary to put down bread riots, and the worst culprits were the ravenous soldiers of His Majesty's army. Then, as now, splendour and starvation were closely allied in Paris.

D'ARTAGNAN'S versatility, according to ALEXANDRE DUMAS'S chronicles, was fabulous. By the officer's own account he was rather staid, and that is the impression we derive from Madame DE SÉVIGNÉ'S reference to him in connection with the FOUQUET trial. But as a man who could play many parts he changed his residence from time to time, and they all appeared to be adapted to the work he had to do. When out of favour he was despondent, and imagined he was growing an old fogey, and could therefore recall his early days in Paris. "When I think," he said, "that we used to be besieged in our houses, like PRIAM and HECTOR in Troy. How the women wept and the walls rejoiced. Five hundred rascals clapped their hands and yelled 'Kill! kill!' although they could not hurt one of the musqueteers." The rickety old houses to D'ARTAGNAN'S mind ought to be happy for having a part in the scrimmages. In MAZARIN'S time, when he was lieutenant, he lived in the Rue Tiquetonne in an attic. He was not more surprised when he found a man breaking in through the window in order to escape arrest than was Captain COSTIGAN in Shepherd's Inn when JACK AMORY came to him along the gutter. The Rue Tiquetonne, which once was known as Quiquetonne, is a very short but ancient street off the Rue Montmartre, and near the Halles Centrales. There was a market in D'ARTAGNAN'S times, but it was very different to that now existing, which, according to EDMOND ABOUT, is, as an example of construction, more remarkable than the Hanging Gardens of Babylon, the Parthenon and the Louvre. In the seventeenth century part of the site was occupied by the pillory, which was a structure that revolved, and was therefore more disagreeable than the English appliance. The church of St. Eustache was also in the neighbourhood, and close to it was the column constructed by JEAN BULLANT to enable CATHERINE DE MEDICIS from the summit to pursue her astrological investigations. In our time a gentleman who lived in the Rue Tiquetonne would make his way as quickly as he could to the boulevard, but in the seventeenth century that was not a place of resort. The boulevard was then a survival of a rampart which was raised in 1536 as a protection against the English. The wall which strengthened it had fallen into ruin, and by order of LOUIS XIV. was demolished, with the exception of the two triumphal gateways. D'ARTAGNAN occasionally accepted hospitality from his former servant, who had become a grocer in the Rue des Lombards. That street is on the other side of the Halles, and derived its name from the Lombards who were the usurers of Paris. It bore other names, but only temporarily, in order to save the reputation of the street. From either lodging it was no great distance to the Palais Royal, which in those days was the centre of government. DUMAS was not a stickler for the accuracy of his backgrounds, but the adventures of the musketeers are described by him as happening in parts of Paris where they would not be out of place. DUMAS had sufficiently studied the topography of Paris to be able to keep within the bounds of probability.

ST. ALBANS CATHEDRAL: THE SHRINE.

ABOUT forty years ago the Rev. Dr. Nicholson, who was rector of St. Albans, discovered during some operations in the lady chapel a great many fragments of carving, which he supposed were a part of the shrine of St. Alban, which was destroyed after the Reformation. On February 8, 1872, a similar discovery of about 300 pieces in Purbeck marble was made in the south aisle of the church during the works which were carried out under Sir Gilbert Scott's direction. It was found there was affinity between the two collections of fragments, and a search for more was rewarded. The discovery was then made that they all belonged to the ancient shrine, and drawings were prepared with their aid to suggest the work as it appeared. The discovery excited, as might be expected, unusual interest among architects and other archæologists. The following description of the shrine by the late E. W. Godwin, F.S.A., was printed in *The Architect*, and suggests the appearance of a work which was the principal attraction of St. Albans Abbey:—

The sixteenth abbot of St. Albans, Geoffrey de Gorham, who ruled from 1119 to 1146, was a man of mark in the art world. Among the very many works which he encouraged, foremost in artistic interest was the new châsse which he caused to be made for the relics of St. Alban. De Gorham's successor stripped this work of all its valuables and sold them. Luckily, however, he was compelled to resign in favour of the nephew of Gorham. This was in 1151. The artist (a goldsmith) who made or designed the châsse was now a monk of St. Albans, and the abbot commissioned him to renew the work which had been removed. The shrine was not completed until the next abbot ascended the chair. During his time, between 1167 and 1183, it was finished and raised, so that its splendour might have a greater effect.

And here it may be as well to make clear to our readers the

combination popularly called a shrine. First of all is the architural base pedestal or stand, the common form of which was that of a canopied or honeycombed altar-tomb, occupying the centre of the space immediately behind the altar. Sometimes the canopy was in the form of a roof, and sometimes it was flat-topped. So far the work was fixed and architectural, and was nearly always built up with stone or marble. The second thing to note is the feretrum. This was usually the most magnificent feature in a church. It was often made of metal, and was usually enriched with precious works in silver and gold, jewels and enamels. This was placed either under the roof-like canopy, or on the top when the canopy was flat. In the latter case, however, it would always either have a canopy of its own, still more elaborate than the one below, or a cover (coopertorium) raised by ropes over pulleys fixed to a beam or the ceiling of the church. Indeed, this cover or case might be used with or without a fixed canopy. The third and last object was the châsse, which was enclosed or enshrined by the feretrum. This châsse was nothing more than a coffin of stone, wood or metal, containing the mortal remains of the person for whom the shrine was erected.

It was the châsse which Abbot Geoffrey de Gorham caused to be made (1119-46); it was the châsse which was stripped of its valuables by his successor; it was still the châsse which Robert de Gorham (1151-66) had restored; but it was the feretrum and the architectural pedestal with which Abbot Simon's (1167-83) name is identified.

This feretrum was formed with a top like a simple gable roof. On the sides were gold and silver figures in high relief, representing scenes in the history of St. Alban. At the west end was the decollation of St. Alban, and above it in the gable an image of the Blessed Virgin, throned, having on her lap a figure of the Holy Child. The whole of the east end was occupied by a crucifix, with the figures of the Blessed Virgin and St. John. All this work was in high relief and set with jewels and ornaments of gold. On both sides of the roof the story of the martyrdom was continued, and the ridge was finished with a crisp cresting. The feretrum was raised upon a lofty pedestal or altar-tomb, and protected by a canopy of considerable height, supported on pillars covered with plates of gold, and made hollow like small towers pierced with open arcades and decorated with bosses of crystals. At the time when the shrine was finished the days were peaceful and pleasant, but before long the abbey suffered from bad rulers. The fever of rebuilding attacked the house, architects and masons came in with bad advice and the monastery grew embarrassed. The new works were suspended and quickly became a ruin, and, worse than all, John was king in England. The evil day passed and a new art era began. The central figure of this happier time (artistically speaking) was one Walter de Colchester, sacrist, whose works in painting and sculpture were the objects of constant praise. The influence of this artist, supported as he was by Mathew of Paris, by the Treasurer and the Keeper of the Seal, must have tended to establish a reverence for all art work, and must have contributed in no small measure to the final elevation of that central feature which was the very *raison d'être* of the abbey itself. It was in their time, just about six centuries ago, the builders of some work then in progress discovered the old tomb of the martyr. We are told that there was much rejoicing on this happy occasion. It brought a train of devout, and possibly curious visitors, and one distinguished ecclesiastic went so far as to grant so many days' indulgence to those who were fortunate enough to be present at the find. What amount of indulgence this liberal prelate (had he lived till now) would have granted to the Rev. W. S. Lawrence, to Mr. G. G. Scott, to his clerk of works, Mr. J. Chapple, or to that indefatigable foreman, Mr. Jackson, for the parts they have taken in the discovery and piecing together of the broken and battered fragments of the last shrine pedestal of St. Alban it is impossible to say; for a Mediæval churchman might have regarded the work of restoration which has lately been accomplished as performed by the help of something other than human hands or mortal brains. Whether they would have been canonised or the reverse, certain it is that nothing we have it in our power to offer can repay the labour of love which has been bestowed in the discovery and reunion of the fragments of the architectural pedestal which was erected on the completion of the new works in the presbytery to support the feretrum above noticed.

Already the greater portion of this pedestal has been exhumed and put together *in situ*. To describe it as a canopied altar-tomb would be wrong, for what would constitute, in common parlance, the slab of the tomb is occupied by longitudinal, transverse and diagonal partitions 2½ inches thick, cutting up what might have been a single canopy into ten perfectly distinct niches. It is, therefore, more correct to speak of this fabric as the pedestal of the shrine of St. Alban. It consists of two stages about 9 feet high from the floor. The main structure measures 8 feet 6 inches from east to west and is 3 feet wide; it is divided in its length into four bays, and one bay or compartment occupies each end. Between each compartment, and also at the ends, are square piers about 4 inches by 2½ inches thick, standing a few inches clear of the main structure, and united to it at the top by flying buttresses and by intermediate transomes, crested and trefoiled. The lowest stage of the pedestal, which is 3 feet 2½ inches from the floor, is composed, first, of a step 4 inches high, at the edge of which, on the north and south sides, were three columns of a trefoil plan and triple-twisted. Upon this step is a plain plinth, also 4 inches high; and upon this stands an exquisitely moulded base, 3½ inches high, having fourteen spurs similarly moulded, each measuring 9 inches by 6 inches. These receive at their ends the panelled piers of the flying buttresses. The compartments of the lowest stage are occupied by large, elaborately-moulded quatrefoils, each foliation being again trefoliated. The side quatrefoils are regular, and are enclosed within squares, but those at the end are irregular, being of greater width, and are extremely ugly in consequence. Nor is the case improved by the addition of a dividing mullion. The upper stage is honeycombed with niches separated by 2½-inch partitions. The sides and back of each niche are covered with panelling of mullions and tracery, the sides in two severies, the back in four. These are coloured alternately red and blue in the tracery and vaulting; gold fleur-de-lis, the lions of England, some gold stars and a powdering composed of six dots round a centre dot form the coloured decoration of the upper part of the niches. The vaulting is carved out of solid clunch through the entire thickness of the pedestal. The fronts of the niches are spanned by cinque-foliated arches, the foliations being again trefoliated. Above each arch is a sharply-pointed crocketed pediment, having its finial in the foliage of the cornice. In the tympana of the side pediments are masses of carved foliage and in the wall space between the pediments are throned figures, 14 inches high, of kings and abbots, supported on small brackets. In the eight half spaces at the four angles are standing angels censing; the side ones are 11 inches and the end ones 15 inches high. We have seen that the width of the end being greater than one of the side compartments, the panel in the lower stage has been somewhat grossly broadened in order to fill up the space. In the ends of the upper stage there is no such shirking of the difficulty; here, as at the sides, we have the arch beneath the pediment; but the artist has divided the opening by a mullion and made a two-light opening of it; in the spandrel thus formed under the head of the main arch is introduced at the east end a throned figure of king Offa, whilst in the tympana above we have in the east the scourging and in the west the decollation of St. Alban. The cornice, which is 6½ inches deep and 4⅛ inches in projection, comes immediately on the top of the heads of the figures on the wall space, and the lower member of the cornice forms the necking of the finials of the pediments. The greater part of the cornice consists of a great hollow filled with foliage marvellously undercut, and on the top of this cornice rests a slab about 5 inches thick, having its edge wrought in low relief, and close to its edge on the top a series of holes 5½ inches apart, and all a quarter of an inch in diameter, with six exceptions; these six holes are at the four angles and centres of the sides, and are three-quarters of an inch in diameter. With the exception of the clunch already mentioned, all the work is of Purbeck marble and exquisitely wrought. It will give some idea of its delicacy when I say that in ribs 1 inch thick there are no less than seven mouldings (two hollows, two beads, two ogees and a fillet); nor is this an exceptional bit. The whole structure is replete with a delicacy and crispness which suggests metal rather than stone, whilst the design, especially that of the isolated parts, indicates an unmistakable metallic parentage.

Such, then, is the general description of this pedestal. But there remains to be noted two or three special features. Beautiful as is the work, instances have been discovered of even the Mediæval workman's forgetfulness; small junctions and intersections have been forgotten, and tiny bits subsequently let in and fixed with pitch. Again, in the carving of the crockets, there is a most extraordinary change: those at the east end are more modelled, rounder and later looking than the others; those at the west end look as if made in separate pieces of wrought-iron, and then turned to marble. Then, too, the floor of the niches is sunk 1¾ inch below the front string-course, so that any object within the niche could not slip out; and the top slab which rests upon the cornice, and in which is supposed to have been fixed the metal canopy of the feretrum, is designed in the most distinctive early thirteenth-century style, or a century earlier than the rest of the work.

There are also three kinds of figure sculpture. The throned figures, the angels and the groups. There can be no hesitation in assigning the figure of Offa in the eastern arch to the first rank. Closely following this are the seated figures at the side, especially the headless one, holding a spear in his right hand, where the drapery is most delicately arranged and rendered; but in the angels there is a certain crudeness visible, which

culminates in the groups. And here, again, there is an unmistakable look of cast metal and of an earlier type of figure.

To sum up—the pedestal appears to have been either made from a design for, or models of, metal, or to have been executed by men accustomed to work in metal. There is evidence of two very different kinds of handling in the sculpture and carving, and I take it, therefore, that the design is the work of a goldsmith, and that the designer himself probably executed the best bits. The top slab appears to be of a much earlier character than the rest. It possesses the characteristics of early thirteenth-century carving, and has nothing in common with the other part of the structure, except its dimensions. It is just possible it may have been copied from the crest of the earlier feretrum; but if not, can it have had anything to do with the shrine? Is it too late to be a part of Abbot Simon's completion? It is clearly too early to be anything else. Abbot Simon died in 1183; and bearing in mind the position of the abbey geographically, politically and otherwise I am disposed to venture the opinion that we have in this important discovery the whole of the last pedestal and a fragment of the second, that once upheld the body of our proto-martyr.

I may add that the general work of restoration, so far as it has gone, has been highly conservative, and that Mr. Miskin, the contractor, is executing his work in a manner alike satisfactory to the architect and antiquary.

The history of the shrine, &c., may be briefly given as follows :—

A.D.
286. St. Alban scourged and beheaded.
c. 430. His grave opened by Germanus to receive relics of other saints.
790. Offa, king of the Mercians, admonished by a dream to seek the body and place it in a shrine.
A ray of fire (very suggestive of the Star in the East) points out the burial-place.
A shrine or châsse is made, and, enriched with plates of gold and silver, receives the body; Offa placing a circle of gold round the scull incribed with his name and title. The châsse is then set up in the first church of St. Alban.
930. The châsse is broken open by the Danes; some of the bones are carried into Denmark, and there placed in a costly shrine.
c. 994. Danes ravaging. The châsse and relics secured in a chest, and hid in the walls of the church.
1077. The abbey rebuilt.
1115. The church consecrated.
1129. A new châsse made, and the relics translated. The bones taken out singly and numbered. The artist was a goldsmith, named Anketill.
1146-51. Anketill's châsse despoiled, and its valuable and curious work sold.
c. 1152. The chasse restored by Anketill.
1167-83. A feretrum (bier) made to contain the châsse, and an altar-tomb erected on which to place it, the whole covered by a canopy decorated with plates of gold and crystal. This is the work Mathew of Paris saw and described as the most splendid he had ever beheld.
c. 1230. Improvements in the buildings going on. Walter de Colchester, artist.
1257. St. Albans tomb discovered by workmen under the pavement, between the altar of St. Oswin and that of St. Wulstan. In it was a piece of lead inscribed, "In this tomb was found the venerable body of St. Alban, the first martyr of England."
In the same year the bier or feretrum was carried to the church of St. Mary-in-the-Fields, to stay the plague of rain, and the usual miracle was performed—the rain ceased.
1302-08. John de Marinis, abbot. He caused the tomb (*i.e.* the pedestal) and feretrum of St. Alban to be removed from the place where it stood, and the marble tomb (pedestal) we now see to be constructed at a cost of 820 marks (Thomas of Walsingham).

BUILDING ON THE CHRIST CHURCH SITE, BIRMINGHAM.

ARRANGEMENTS have now been completed, we understand, says the *Birmingham Post*, for the granting of a building lease of the important Christ Church site, which comprises 2,475 square yards, and is bounded by New Street, Paradise Street, Colmore Row, Waterloo Street and Christ Church Passage. Messrs. Bloxham, Smythe & Etches, the solicitors to the Colmore Trustees, advertised about a year ago for tenders for letting this land on building lease, and a number of schemes and offers were considered, with the result that one submitted by Mr. Oliver Essex, architect, with whom is associated Mr. H. Travers Edge, solicitor, and several other influential local men, has been accepted. The lease will be for a term of 150 years from Lady Day next, at a progressive ground-rent, the maximum rent being attained forty years hence. Possession of the site will be given at once, and the lessees will commence to remove the present church fabric forthwith, so that building operations may commence early next spring.

The site also includes several shops in New Street and Christ Church Passage, now let on leases expiring in June, 1902; but it is expected that arrangements will be made to acquire these at an earlier date, with a view to completing the whole of the building at one time. Should there be any difficulty in this respect, the greater part of the building will be proceeded with, and the small portions temporarily omitted will be finished as soon as possession can be obtained.

The lease contains a covenant by the lessees that no building erected on the land shall at any time be used as a place of worship (other than in connection with the Established Church of England), or as a licensed place of public entertainment, or as licensed premises to be used as a public drinking bar, or for the purpose of carrying on any other than retail trades or business, or for working thereon any machinery. With this exception, that the lessees shall not be restricted from using the area now occupied by No. 3 Christ Church Passage, and Nos. 72, 73, 74 and 75 New Street, for the purpose of a restaurant, hotel or other fully-licensed premises. A design has been submitted by Mr. Essex to the Colmore Trustees and approved of by them. Mr. Essex has been engaged upon this scheme since February, 1897, when he formulated a design for dealing with the church site only. But at that time the site was acquired by the Colmore Trustees, who subsequently added to it the part occupied by the shops in New Street, so he has now extended the plans to cover the larger area.

The present scheme provides for handsome shops in New Street and Colmore Row, while the ground-floor treatment in Waterloo Street and Christ Church Passage will be suitable for insurance and professional purposes. The upper floors will be devoted to high-class professional and other offices. Availing himself of the considerable difference in the levels surrounding the site three distinct entrances are provided, which will be situated in New Street, Colmore Row and Waterloo Street, each of which will enter the building on a different floor. The one from New Street will enter a large hexagonal courtyard covered with an ornamental glass roof and constituting a lower ground floor, the surrounding rooms being under the shops and serving as show and stock-rooms, which can either be let with the shops or independently. The basements to the shops are on a lower floor still, and approached by an inclined way from Christ Church Passage, forming an entrance into a lower courtyard for the distribution of goods in connection with the shops. These store-rooms will be reached from the shops by staircases separated from, but passing through, the intermediate floor. The plans also provide for a high-class restaurant at the corner of New Street and Christ Church Passage. A mezzanine floor is formed over the shops in New Street, which will be either available as show-rooms or offices. The building will be provided with two electric lifts, one near to New Street and the other next Waterloo Street, with spacious entrance-halls, in connection with which there will be rooms for attendants, inquiries, parcels and telephones. The offices are so constructed that self-contained suites can be let with strong rooms and separate lavatories.

The exterior design, which will be executed in stone, with grey granite base and red granite columns, will be in a free Renaissance style of architecture, aiming rather at original treatment rather than following any particularly stereotyped form, with as monumental a character as is consistent with a building of this commercial class. The prominent features in the New Street and Colmore Row façades will be large central gables, supported by turrets finished with copper cupolas. The circular front facing Paradise Street will have a colonnade of granite pillars running through two storeys above the shops, over which there are two other storeys, the whole being surmounted by an imposing dome. Stone bay windows will also be largely used in the principal elevations.

Considering the importance of its position in proximity to the council house, town hall, &c., and the desirability that the building should be worthy of such a site, application will be made to the public works committee to treat it as a special building as far as the projection of bay windows, cornices and architectural features is concerned, instead of being limited by the exceedingly small projection now allowed by the city by-laws. With a view to meeting any difficulties which may arise owing to the vexed question of rights of light, the design has been so contrived that portions of the upper storeys can be recessed, in the form of terraces, with ornamental balustrades, without interfering materially with the general effect of the design, and so that these omitted parts can be afterwards added when such rights of light have become extinguished by the expiration of leases which have only a comparatively few years to run, as satisfactory arrangements are now being completed with the freeholders of the property in question.

These buildings, which it is estimated will cost upwards of 80,000*l.*, will be carried out under the superintendence of Messrs. Essex, Nicol & Goodman, architects.

OPEN AIR SANATORIA.

A MEETING was held in York on the 27th ult. for the purpose of making arrangements for erecting a sanatorium near the city in connection with the National Association for the Prevention of Consumption.

Sir William Broadbent said that until quite recently the idea had been that consumption ran in families, that it was a manifestation of the hereditary tendency with which there was no dealing, and that a cure was a thing to be obtained under quite exceptional circumstances, and those who could afford it had gone to the Riviera, Switzerland, in fact, all over the world. As he had already said in another place, it was not any particular air that was required for the cure of consumption. It was simply air, and there could be no doubt whatever that if, in all parts of the country—in Yorkshire, as elsewhere—if these homes were managed on the principle of treatment by fresh air, the very best possible results would be obtained. Edinburgh could not be said to have a better climate than Yorkshire. At Edinburgh the results of the open-air treatment, which had been going on for years, had been admirable, much surpassing anything that could be obtained in the best consumptive hospitals not managed on this principle. What one hoped, then, what one desired, was that there should be in every important centre of population an institution for the open-air treatment of phthisis. Certain requirements were necessary—dry soil, the minimum of moisture in the atmosphere and freedom from dust. But these were conditions which could be met with more or less perfectly in all parts of the country. Therefore in all parts of the country consumption could be treated with much greater success than had hitherto attended its treatment. It had been the realisation of this idea that consumption could be cured, and the further knowledge at the same time that it could be treated successfully—even more could be done for its prevention—which had led to the formation of the Society which he came there more or less to represent. At present it was only in the early stage, and he was simply chairman of the organising committee. But the Society has already attracted a considerable number of adherents and a great amount of attention. One of the great objects was to promote local efforts, such as were being made there for the provision of local sanatoria for the treatment of consumption.

Mr. Malcolm Morris said the first open-air sanatorium was founded in Germany in 1874, that practical nation, even before the facts were proved, beginning to treat people in the open air. They began to recognise the fact that when people were shut up, every crack and crevice shut up, and people kept in a superheated room, they die with enormous rapidity. And they found when they opened the windows and doors and ventilated the whole place, or treated the patients in a tent, they began to recover. So they went on quietly working up to the time when the great pathologist, Koch, discovered the microbe which caused the disease. When the facts were proved the Germans set to work and built more sanatoria, and the merchants of Frankfort had built a hospital for the reception of these cases, which had been a great success. It was not a passing doctor's fad. It was an established fact that when people were treated in the open air they got well more quickly than when treated in their own homes. They did not want these buildings to be run up all over the country simply because there happened to be a cry on the subject at the present moment. There must be the most careful selection of soil, protection from the north and east; they must have every protection taken. One of his personal fads was that it would be of the greatest advantage if they could obtain permission from the County Council to erect these buildings of wood, and not of stone or brick. It would be such an advantage to have cheap buildings so that alterations might easily be made, and the cost of wooden sanatoriums would be only about one-quarter of the cost of more substantial erections. There were objections as regards fire, but his idea was to put up small buildings to accommodate forty or fifty beds, because it was contrary to the spirit of the English people to be crowded together in big buildings. They wanted to make these places as bright and cheerful and as much like home as possible, for it would be a disadvantage if they did away with the home element.

They could also set the example of never shutting their bedroom windows at night, and they could influence employers of labour to ventilate their workshops. He saw a clergyman before him, and he hoped he should be pardoned when he said that there were no places where tuberculosis was spread so much as inside churches. They were never ventilated, or very rarely. They could not enter a church or cathedral without perceiving a stuffy, damp odour, which meant want of circulation. He was certain that if they could make people open their windows and ventilate more, there would be very little consumption in the country.

Sir James Crichton Browne said these sanitoria, when established, would be of inestimable benefit. They would obviate that expatriation, that banishment, which added to the pangs of home sickness and separation from friends and developed the effects of the disease; they would give home comforts which could not be obtained abroad, and would keep amongst the people large sums of money which were now spent in foreign health resorts and that would be an economical benefit to the country. They were not there to represent to them that there was only one system of treatment of consumption, sanitoria or any other, which was of universal application. On the contrary, they held that there were various groups of consumption that required entirely different kinds of treatment, and every individual case required individual adaptation; but they held that there were conditions of life and environment which were essential to the successful treatment of the disease.

THE LATE SIR J. T. GILBERT.

IN the *Irish Monthly* the subjoined list is given of the larger works and official publications of the late Sir J. T. Gilbert, LL.D., F.S.A., M.R.I.A., the Irish archæologist:—

Historic Literature of Ireland, 8vo., 1851; Celtic Records of Ireland, 8vo., 1852; History of the City of Dublin, 3 vols. 8vo., 1854-59; Public Records of Ireland—Letters by an Irish Archivist, 8vo., 1863-64; Ancient Historical Irish Manuscripts, 8vo., 1861; History of the Viceroys of Ireland, 8vo., 1865; History of the Irish Confederation and War in Ireland, 1641-49, 7 vols. 4to., 1882-91; Contemporary History of Affairs in Ireland, 1641-52, 4 vols. 4to., 1879-80; Jacobite Narrative of War in Ireland, 1 vol. 4to., 1892; Documents relating to Ireland, 1795-1804, 1 vol. 4to., 1893; Narrative of Maria Clementina Stuart, 1719-35, 1 vol. 4to., 1894; "Crede Mihi," the most Ancient Register of the Archbishops of Dublin before the Reformation, A.D. 1275, 1 vol. 4to., 1897; An Account of Parliament House, Dublin, 1 vol. 4to., 1896. (N.B.—The above thirteen works were published at the author's expense.) Calendar of the Ancient Records of Dublin, in possession of the Municipal Corporation of that City, A.D. 1171 to 1730, 7 vols. 8vo., maps and illustrations, 1889-98; Leabhar Na H-Uidhre, Royal Irish Academy, Facsimiles Manuscripts, 1 vol. fol., 1870; Leabhar Breac, Royal Irish Academy, Facsimiles Irish Manuscripts, 1 vol. fol., 1876; Historic and Municipal Documents of Ireland, Master of the Rolls series, 1 vol. 8vo., 1870; Chartularies of St. Mary's Abbey, Dublin, Master of the Rolls series, 2 vols. 8vo., 1884; Register of the Abbey of St. Thomas, Dublin, Master of the Rolls series, 1 vol. 8vo., 1889; Facsimiles of National Manuscripts of Ireland, published by command of Her Majesty Queen Victoria, 5 vols. fol., 1874-84; Account of Facsimiles of National Manuscripts of Ireland, published by command of Her Majesty Queen Victoria, 1 vol. 8vo., 1884; Historical Manuscripts Commission Reports, 1870-98, viz.:—(1) Irish Corporations; (2) Marquis of Ormonde; (3) Trinity College, Dublin; (4) Lord Emly; (5) O'Conor Don, M.P.; (6) Duke of Leinster; (7) Marquis of Drogheda; (8) Earl of Fingall; (9) Marchioness of Waterford; (10) Dr. Lyons, M.P.; (11) R. T. Balfour, Esq.; (12) Earl of Charlemont; (13) Charles Halliday, Esq.; (14) Earl of Rosse; (15) Earl of Leicester, Rinuccini Manuscripts at Holkham, Norfolk; (16) Irish Franciscan Manuscripts, Louvain and Rome; (17) Earl of Granard; (18) Lord Talbot de Malahide; (19) Richard Caulfield, LL.D.; (20) Viscount Gormanstown; (21) Manuscripts of the Irish Jesuit Fathers; (22) General Dunne; (23) Sees of Dublin and Ossory; (24) Sir R. O'Donnell, Bart.

In addition Sir J. T. Gilbert was a contributor to various periodicals, and to the transactions of archæological societies.

ARCHITECTURE IN NEW ZEALAND.

AFTER an absence of two and a half years in New Zealand Mr. R. Mackay Fripp, F.R.I.B.A., has returned to Victoria, British Columbia. He has given the following description of architectural conditions in the colony he left:—I went to Auckland about two and a half years ago and found building in a very extraordinary condition, particularly in the direction of domestic work, which is extremely expensive and entirely without interest from an architectural point of view. Nearly all buildings are covered with mean little hip and valley roofs of galvanised iron which gives a very abject appearance to the town. The detail is entirely "stock" manufactured by the mills. Front doors are of a few stereotyped patterns. Inside doors, windows, skirtings and architraves, even verandah posts and mantel-pieces, are all repeated hundreds and thousands of times; shingles applied to walls and gable ends and the thousand and one uses to which they are turned in this country are (or until I showed them how they might be used) practically unknown. Shingles split and uncoloured are used for roofs, and soon turn black and twist, but galvanised iron is fast driving them out. The method of framing is much the same as in Canada, but timber being very costly, as much as 30 dols. per mille for plain sawn stuff, it is used with greatest economy,

there being no such thing as shiplap beneath the weather boards and finished floors, which are laid direct on the stud and joist respectively. Partitions and inside surfaces of walls are lined with rough boards 8 to 10 inches by ¼, ⅝ and ½ inch; though all sold as half inch in thickness, it varies tremendously. Scrim, a very coarse open-webbed material like sacking, is stretched, taped and tacked before the skirtings, architraves or wooden cornices are fixed. On the scrim, wallpapers, for the most part very commonplace in character, are laid. The ceilings are mostly composed of ½-inch by 12-inch boards with a moulded batten (mill stock, of course) nailed over the joints, and these flimsy, ugly mushrooms cost about twice as much as a well designed and carefully detailed house costs here. The labour is slow, the methods antiquated, and the architects being not quite but almost entirely drawn from the ranks of the builders, not frequently the architect cares nothing about his work beyond the interesting fact that a commission more or less reduced to meet the demands of his employer is attached to the "job." Such a state of affairs is hopeless, so much so that though a man of some ability occasionally finds himself in New Zealand, he almost invariably soon leaves in disgust.

During my sojourn in Auckland I imported fine red roofing tiles made on a French system in Sydney. I also obtained a few thousand bunches of redwood shingles, and advertised for and found a couple of men who knew how to cut a shingled arch, lap a hip or an angle, and dip the shingles before laying. By refusing to use any stock door, sash, moulding or turning, and by designing everything myself, and seeing it made too in many cases, I succeeded in breaking through the stereotyped style of work, though not without some fierce opposition on the part of the builders, and less open but not less bitter resentment of many of the architects.

To give you some idea of the very great difficulty I experienced in getting work executed in New Zealand, I may mention that I made twenty-four sheets of detail drawings for a house that would not cost more than 5,000 dols. here. Now that the ice is broken, so to speak, I hope and believe that the younger architects will keep the fight going and gradually improve matters.

THE BOADICEA STATUE.

THE London County Council having by its General Powers Bill of this year obtained power "to erect and maintain or contribute towards the provision, erection and maintenance of works of art in London," will shortly proceed to erect upon the approved site, at the extreme end of the Victoria Embankment wall, by the corner of Westminster Bridge, the Boadicea statuary group by the late Mr. Thomas Thornycroft, which has been presented to the Council by Mr. J. I. Thornycroft. The highways committee having approved of the arrangements intend to ask for the sum of 1,100*l.* to cover the cost of placing the group in position and the expense already incurred in putting up and removing the temporary platform upon which a plaster cast of the group was recently exhibited. Mr. T. G. Jackson, R.A., who has been in communication with the Council's architect on the matter, has submitted a sketch, which has been approved by the highways committee, of a pedestal for the group. The height of the base of the group is shown upon this sketch to be about 11 feet 2 inches above the top of the Embankment steps—that is, 5 feet higher than the temporary platform for the plaster model. A joint report from the Council's engineer and architect suggests that the inner portion of the pedestal should be constructed of brickwork, and the upper part faced with Portland stone and the lower part with granite, as this mode of construction would be less expensive than the use of granite throughout; and that the cover of the pedestal upon which the group will stand should be bronze. The estimated cost of this mode of construction, which the highways committee adopt, will be 1,000*l.*

THE LATE THOMAS FULLER.

THE late Thomas Fuller, formerly chief architect of the Public Works Department of Canada, the intelligence of whose death at Ottawa last month was received, says the *Canadian Architect*, with widespread regret, was born in Bath, England, March 8, 1823, and was educated in Bath and London. His first large work (when only twenty-two) was the cathedral at Antigua, West Indies, the erection of which he superintended. He came to Canada in 1857 and commenced practice in Toronto with Chillion Jones of that city. In 1859 designs for the parliament buildings, departmental buildings and Governor-General's residence were invited by public advertisement. His designs were awarded for the parliament buildings first premium and for the departmental buildings and Governor-General's residence second premium. On December 2, 1859, he was appointed architect for the parliament buildings, and the work under his supervision was formally commenced on December 20, 1859.

In 1862 a Royal Commission was appointed to report on all the Government buildings then in course of erection at Ottawa. In 1863, it having been decided to proceed with the works, new contracts were made with the former contractors, and Thomas Fuller and Charles Baillarge were appointed joint architects for all the buildings. In May 1865 the services of Mr. Baillarge were dispensed with, and from that period until 1867 the whole duties devolved on Mr. Fuller, when the buildings were completed, with the exception that the completion of the library and upper part of the main tower remained in abeyance for four years, and were then carried out by the officers of the department in accordance with Mr. Fuller's original designs.

In 1867 he entered into a competition for the State capitol at Albany, New York State, and was awarded first premium. In a second competition he associated himself with Mr. Augustus Laver and prepared a joint design, which was accepted.

Their design for the city hall, San Francisco, Cal., was awarded first premium, and being accepted, Mr. Laver then left to take charge of the work, Mr. Fuller remaining at Albany until a change of politics brought a change of architects.

In 1881 he was asked to return to Ottawa to accept the position of chief architect of the Dominion Government. Having accepted this position, he remained in charge until he was superannuated in 1897. During his term of office there were erected from his designs 140 public buildings, which include six drill halls, the Langevin block in Wellington Street, the printing bureau, all the experimental farm buildings, and many other prominent buildings.

He was elected a Royal Canadian Academician by Lord Lorne, and his original design for the parliament buildings and Governor-General's residence are now in the National Art Gallery.

In 1853 he was married to a daughter of Mr. W. Green, J.P., of Bath, England, who survives him. Mr. Fuller also leaves three children, all of Ottawa:—Mrs. Greene, wife of Mr. George M. Greene, barrister; Mr. T. W. Fuller, architect, Department of Public Works; and Mrs. Moore, wife of Mr. W. H. C. Moore.

TRURO CATHEDRAL.

THE annual conference of the diocese of Truro was opened at Truro on the 27th ult. The diocesan cathedral committee reported that they had requested Mr. F. L. Pearson to act as architect of the work to be carried out in accordance with his father's designs for the completion of Truro Cathedral, and he was preparing working drawings of the whole of the nave. When the drawings were completed tenders would be asked for. After paying 1,983*l.* for the cost of foundations there was a sum of 26,673*l.* available for the continuance of the work. The Earl of Mount-Edgcumbe said the lowest estimate of the cost of the nave was 40,000*l.*, and they had the alternatives of attempting to begin the work with a deficit of 15,000*l.* or 20,000*l.*, of reducing the character of the work, or of waiting until more money came in. The Bishop moved a resolution encouraging the building committee to proceed with the work next spring, on the understanding that the sum of 8,000*l.*, in addition to the 27,000*l.* already subscribed, would be sufficient to build the nave. Colonel Tremayne said the interest felt in the county in the cathedral was not waning, but he thought it was waning outside. This was the more to be regretted because the nave would be the memorial to Dr. Benson, the late Archbishop of Canterbury. The resolution was carried.

GLASGOW INSTITUTE OF ARCHITECTS.

THE newly-elected Council of this Institute held their first meeting on the 27th ult. in the office of Messrs. MacLean, Fyfe & MacLean, 115 St. Vincent Street, when the following office-bearers were elected, viz.:—President, Mr. David Barclay; vice-president, Mr. Alexander Petrie; auditor, Mr. W. Forrest Salmon; secretary and treasurer, Mr. C. J. MacLean, writer, 115 St. Vincent Street. The various committees for the year were appointed, including a committee on architectural education and on public architecture and competitions. A special committee was appointed to consider the subject of general conditions of contract, including certain grievances brought forward by the Building Trades Exchange. The Council agreed to hold a special meeting on the 3rd inst. to consider recommendations for the Fellowship of the Royal Institute in terms of the supplemental charter of that body.

The second ordinary meeting of the Liverpool Architectural Society will be held at the New Law Library, 41 Castle Street, on Monday next, November 7, at 6 P.M.

NOTES AND COMMENTS.

It is a common remark of late years that the seasons have changed in England, and not many years ago the atmospheric disturbance which startled Camberwell on Saturday would be considered as a special visitation for the punishment of some inhabitants. Apparently there is a like experience in Canada of departures from the old-fashioned meteorological arrangements. From the last number of the *Canadian Architect* we learn that marked changes are taking place, particularly in the North-West and Ontario. As a rule the winters are shorter and less severe than a quarter of a century ago. In the North-West the much-dreaded early frost has to a large extent disappeared. These favourable changes are no doubt rightly attributed to the cutting-down of the forests and the increased area of land under cultivation. Climatic changes of a less agreeable and beneficial character have likewise been induced. Prominent among these are lessened rainfall and increased wind pressure, developing on occasion into hurricanes and cyclones, like to that which last month devastated a portion of the town of Merritton. It is to be hoped that wind storms approaching in velocity the one referred to are not likely to occur at frequent intervals in the future as the result of changed climatic conditions. At all events it would seem that increased wind pressures are likely to characterise the climate of this country in the future. Architects would do well, therefore, to take this new factor into account in the designing of their buildings, and exercise greater care than hitherto in the design and construction of roofs and projections, such as chimneys, towers and spires.

A very large sum of money was expended by the late Sir Benjamin Lee Guinness on the restoration of St. Patrick's Cathedral, Dublin. It is now apparent that in parts signs of decay are again apparent, especially on the exterior of the eastern chapels, which were restored in 1846 by Dean Pakenham under the direction of an eminent architect of that day. According to Mr. Thomas Drew, R.H.A., dilapidations had not in 1864, eighteen years afterwards, when the greater restoration was effected, reached such a stage of decay as to demand attention. Portions of the old stone used in 1255, a remarkable Somersetshire oolite, are in sound condition. The soft Caen stone, unfortunately employed in the restoration in 1846, is now everywhere perishing. Its disappearance, of course, must affect the stability of the great buttresses, but does not affect the safety of the chapels themselves, the beautiful interiors of which are in no danger. The exterior of the other cathedral in Dublin (Christ Church) also unfortunately demands a like reparation from like cause. The Caen stone mistakenly used at Christ Church in 1874 in restoration and replacement of the ancient stone—also the Waterbourne stone from Somerset—is in advanced stage of dilapidation. No care on the part of conservators could have stayed this inevitable decay. In every other respect, Mr. Drew says, the maintenance of the fabrics of the two historic cathedrals by their respective boards and benefactors has been thorough and vigilant.

Wooden conduits for water supply are in this country considered to be relics of an age that was not advanced. In some of the towns of the United States there is a desire to employ them in preference to metal pipes. A couple of weeks ago it was explained before the American Society of Civil Engineers that stave pipes could be made and set in concrete for 10 dols. per foot length, while cast-iron cost 19 dols. One member said he had seen in California wooden pipes as good as new after thirty years' service. He considered they required to be continually saturated and would certainly decay if painted inside. The pipes should be hooped with elliptical iron, because that offers less surface for corrosion, and the hoops should be manufactured and applied with great care. In New York wooden pipes were found which had been in the earth for a century, and they were perfectly sound. According to another member, the pipes are objectionable on account of the growth of grass roots between the staves, and from the distortion which diminishes the sectional area. A 30-inch circular pipe is an ellipse with a vertical axis of 26 inches and horizontal axis of 34 inches. The general conclusion was in favour of wooden pipes. This is the more remarkable because Americans are supposed to turn out iron and steel pipes at rates which are surprisingly low.

On Wednesday a meeting was held in Peterborough in support of the Cathedral Restoration Fund. According to the dean's statement the work commenced in 1883, and up to 1894 the sum of 32,464*l.* was raised for the fabric itself. The great storm of March compelled them to resume operations, and since that time a further sum of 9,357*l.* had been raised. They were now engaged in completing the restoration of the west front and other parts of the fabric, to complete the whole of which about another 10,000*l.* would be required. The Bishop of London said it had been his lot to live near great buildings in Carlisle, Durham, Oxford, Cambridge and Worcester. And in all these cases he found, on looking back upon his experience, that those buildings had the strongest and most powerful influence upon him. About no building did he feel more strongly than Peterborough Cathedral. There was no building that had more influenced the constructive ideas of his life than had the associations that were connected with that place. He was very thankful to think that the greater part of the money which had been raised for the restoration had been expended underground, and that the building itself had not been altered in any way whatever. Its old features had never been tampered with, and none of them had disappeared; the building had simply been put into substantial repair and been protected against the ravages which partly time and the works of man had threatened to work in the security of its tenure. The Bishop pointed out the disastrous effects which the modern drainage of the district had had upon the building, causing the foundations to give way and necessitating the many works of restoration. Considering how much had already been done it was a comparatively small sum that was required to really finish the work and to leave the whole structure absolutely secure. Peterborough came into existence round its cathedral, and though it had become a busy place, still the greatest glory was its ancient cathedral, which was also dear to the whole diocese because of its greatness, its dignity and its importance. Mr. Bodley, A.R.A., finally gave his testimony about the admirable manner in which the work of restoration was carried out.

"Business premises" are in several towns becoming of more importance than the municipal buildings. When, for example, the designs for the City Hall, Belfast, were seen, the inhabitants of the Ulster capital considered they were too grandiose. What did they want with big domes and lofty towers? There is now some alarm that, owing to the character of the new buildings near it, the City Hall will not be sufficiently expressive of the importance of the Council who deliberate within it. There will be four towers at the angles, each 100 feet high, and a dome, of which the summit will be 150 feet from the ground; but the average height of the block is 56 feet. Immediately in front will be, however, an "emporium" of an average height of 85 feet, with a tower of 150 feet. An insurance office is also to be erected, with a height of 82 feet and a tower of 140 feet. It may also be assumed that efforts will be made to have larger and higher buildings, which will symbolise the commercial importance of Belfast.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: WEST FRONT.

THE BRITISH LINEN BANK, EDINBURGH.

PROPOSED METHODIST CHURCH, WESTON-SUPER-MARE.

THIS design was submitted in a recent limited competition. The plan embodied narrow aisles for use as passages only, thus obtaining the æsthetic effect of arcades without any obstruction to sight. The more ordinary type of Nonconformist chapel, with galleries and cast-iron columns, was, however, preferred by the trustees. The design is by Mr. H. Dare Bryan, architect, Bristol.

DESIGN FOR MUNICIPAL BUILDINGS, OXFORD.

THIS design was exhibited in the Royal Academy for 1898, the author being Mr. G. W. Webb, F.R.I.B.A., Market Place Chambers, Reading.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last at 9 Conduit Street, W., the president, Mr. G. H. Fellowes Prynne, in the chair.

A vote of thanks was unanimously passed to Mr. Arthur Cates for his presents of office fittings, books, &c., and to all those who had in any way assisted to make the annual conversazione such a success.

The following were elected members of the Association:—Messrs. David Good, A. R. Brown, E. A. Agutter, Leonard Judge, P. J. Turner, F. G. Allsopp, T. B. Bull, H. R. Bird, E. D. Ford, H. J. Gravenor, R. Knott, J. Mansell, H. J. C. Marshall, E. J. Martin, G. J. Morriss, C. P. Moss, J. Myers, S. V. North, W. Paice, jun, A. G. A. Quibell, R. M. Reeves, F. V. Rider, W. H. Rogers, G. L. T. Sharp, G. S. Simpson, M. Skinner, C. F. Skipper, W. Thornton, J. E. Tindall, H. M. Whiddington, C. S. Yates, C. E. Simmons, C. H. Smith, A. Durst and E. Brantwood-Muff.

Mr. John E. Newberry, A.R.I.B.A., read a paper on

Excavations at Thebes.

When the committee of the Architectural Association asked me to read a paper on "Excavations at Thebes" I accepted without much thought of the great range that such a generalised title might be taken to embrace, for the site of ancient Thebes is the place of all others in Egypt where digging for antiquities has been carried on from the earliest times. Professor Petrie remarks that what we now find are but the last leavings of a hundred generations of incessant pillage. But this paper will only deal with the excavations that I personally assisted in making during two seasons' work for the Egypt Exploration Fund, and by the kindness of the committee of that Society I am able to show you a series of lantern slides from photographs taken whilst we were unearthing the Temple of Hatshepsut, now known as Deir-el-Bahari, or the Convent of the North. The result of this excavation, to quote an article in the *Edinburgh Review*, "has been to give back to the world a temple which, though ruined in some parts, unfinished in others, is, perhaps, the most beautiful, certainly the most original in Egypt, and the earliest of those now standing on the plain of Thebes."

I propose to divide my paper somewhat as follows:—

First, a description of the site and surroundings of our work, with a few slides in illustration. Second, a brief sketch of the vicissitudes that this temple has passed through, which, to be intelligible, must include a recital of a few of the facts of ancient Egyptian history.

Then I will endeavour to describe our mode of work, the architecture of the building and its details, and finally will show you photographs of a few of the antiquities that have been discovered there.

The site of the ancient city of Thebes in Upper Egypt is now marked by Arab villages, the principal being Luxor, Karnak, and Gournah, some 450 miles from Cairo by the river. When I returned from there in 1894, the railway alongside the Nile from Cairo only extended to Sohag, but now it passes through Luxor and Assuan, on the way to Khartoum.

But no one should attempt a first visit by train if he can possibly afford the time and extra expense of going by steamboat or better still by dahabiyeh. The *Edinburgh Review*, in the article which I have already quoted from, aptly remarks that "One cannot journey into the past of some four thousand years ago in thirteen hours of noise and dust. Five days on the Nile post-boat give a more fitting preparation, with their uninterrupted hours on a glassy water, through a landscape monotonous enough, but with a strange incomprehensible fascination of its own."

To continue the quotation in the writer's own poetic words:—"As one goes further south, the colouring becomes more vivid; the hills are no longer tinted with pale pink and purple, but glow at evening with the colour and transparency of a sunset cloud, or like snow peaks with their rose light and aerial blue shadows. At last, where the hills, no longer flat-topped, but with sharp peaks and jagged outline, open out round a fertile plain deep in corn, one comes to Luxor. It is sunset when one arrives by the post-boat; the sky glows behind the Libyan hills, the water towards the west is a sheet of gold and crimson, the pylons and obelisks of Karnak rise black on the left. Under the hills on the west bank one can faintly trace the white terraces and colonnades of Deir-el-Bahari; the Colossi are no more than two misty points against the hill; the giant pillars of Luxor stand out against the purple sky where night rushes up from the east; and Thebes is reached."

To give a clear conception of the position of our work and its relation to the surroundings, I have here a map of a part of the Theban district taken from Lepsius's Denkmäler." It will be seen that on each side of the Nile stretches a belt of fertile land; it is much wider on the east side, extending for perhaps 4 miles from the river to the mountainous desert of the Arabian hills beyond. Here by the river are the remains of the mighty temples of Karnak and Luxor, created for the worship of Amon, and the work of many generations. On this side stood the ancient city of Thebes. It will be seen that the map shows the cultivated land on the west side to be only a narrow strip, which ends as abruptly at the foot of the barren limestone cliffs as a lawn adjoining the gravel walk in a garden. Egyptian tombs were always placed in the desert, partly that they might be beyond the reach of the Nile and partly because every inch of cultivated ground was and is so valuable. The hills here are regularly honeycombed with tombs, and this western side is simply one vast necropolis, the biggest in the world. The northernmost cliffs, known as the "Drah abu'l Neggah," contain the earliest tombs. To the south-west is the entrance, a narrow gorge, to the natural amphitheatre of cliffs in which the temple of Deir-el-Bahari is situated. Beyond in the desert is the wonderful valley of the Tombs of the Kings, approached either by a ravine north of the Drah abu'l Neggah or by a steep mountain path over the cliffs. On this side of the river are also the Ramesseum, the temples of Seti I., Medinet Habu, Der el Medineh, as well as the famous Colossi. Lepsius believes that the temple of Deir-el-Bahari was formerly connected with Karnak, since the axis of the prolonged dromos would lead straight to the great Temple of Amon. The remains of the Sphinx Avenue, from Karnak to Luxor, can be traced, and in places the ram-headed monsters are still to be seen.

The ancient Egyptian name of the city is read as Uas and its scriptural name was No or No Amon, the city of Amon; no satisfactory explanation has been given as to why the Greeks called it Thebes, a name borne by cities in Bœotia, Attica, Thessaly, Cilicia, Asia Minor, &c.

It will be convenient here to briefly remind my audience that Egyptian history is divided into dynasties:—These are grouped into the Ancient kingdom, including the first to sixth dynasties, the Middle kingdom, twelfth to sixteenth, and the New empire, seventeenth to twentieth, which is dated at 1600 B.C. to 950 B.C. Following this is the period of foreign domination, twenty-first to twenty-fifth., or 950 B.C. to 663 B.C.; the late Egyptian period, twenty-sixth to thirtieth, or 663 B.C. to 332 B.C.; and the Græco-Roman time, which includes the Ptolemies, the Romans and the Byzantines, from 332 B.C. to 640 A.D.

The history of Thebes under the Early empire is veiled in uncertainty, but it is known to have been the capital of a nome or province, and was ruled by princes of its own. A sixth dynasty tomb has lately been discovered in the Drah abu'l Neggah by my brother, Mr. Percy Newberry. In the Middle kingdom, Thebes rose to a more commanding position; but its greatness dates only from the beginning of the New Empire, or, say, 1600 B.C. The liberation of the country from the Hyksos and the reunion of the kingdoms of Upper and Lower Egypt was directed from Thebes, and for centuries it continued to be the favourite seat of the Pharaohs. Historically the interest of Thebes centres on one of the most fascinating periods of Egyptian history—the eighteenth and nineteenth dynasties, being the time of the Amenhoteps, Hatasu, or, more correctly, Hatshepsut, the Thothmes, Seti, the Rameses, and Merenptah, of Israelitish fame.

But the sun of Thebes began to set when the royal residence was transferred to Lower Egypt in the twenty-first dynasty. Alexander the Great and the Ptolemies probably found Thebes still a great though decadent city, but they assisted to embellish it, as some buildings of this period attest. After many rebellions the great city revolted for the last time in 30–29 B.C., taking part in the insurrection of Upper Egypt against the oppressive taxation of the Romans. Cornelius Gallus, the prefect, overthrew the rebels, and is said to have utterly destroyed the ancient town.

From this time Thebes is only mentioned as a goal for inquisitive travellers, who, under the Roman emperors, were attracted to the Nile by two monuments in particular, the Pyramids and the musical Colossus of Memnon. The introduction of Christianity and the edicts of Theodosius were followed by the destruction of many pagan statues and the obliteration of countless inscriptions. Later the rock-cut tombs, at first occupied by Christian hermits, were converted into peasants' dwellings; Christian churches were erected in the temple halls and mud-brick houses built between the columns of the Temple of Luxor. Carefully worked blocks and slabs were removed from the monuments, which were used as quarries, and much beautifully carved limestone has been burnt for making lime.

In considering the history of the Temple of Deir-el-Bahari we must first glance at what we know of the reign of its great founder, Queen Hatasu, or Hatshepsut. In the first excavation of the temple it was not at once discovered that she was its founder, as in nearly all the inscriptions the name of her successor, Thothmes III., has been substituted for that of hers. But further observation has shown that, although she is always depicted on the reliefs in male attire, the personal pronouns in the inscriptions are feminine, and the names of the king were

incised deeper than the surrounding hieroglyphic signs. Such usurpation is not uncommon among the Egyptian kings, but the persistence with which every trace of the queen's reign has been erased seems to point to something more than the mere desire for fame. This destruction is attributed to the queen's nephew, Thothmes III., and the reason may be found in the history of the succession. Professor Petrie in his "History of Egypt" says that the father of Hatshepsut, Thothmes I., died before he had a son old enough to succeed him on the throne. Some five or six months before his death, and whilst he was probably in failing health, he associated his daughter with him, as she was the heiress in the female line, in which royal descent was specially traced. She was then about twenty-four years of age, and of great capacity and power. Two or three months later the king married her to his eldest son, Thothmes II., who would otherwise have had no claim to the throne, being the son of Mutnefert, who was not a royal princess. Ten weeks later Thothmes I. died. His son, who was now king in name, was but seventeen years old, appears to have shown no abilities, and must have been a weakling; for he did not go on any campaigns, undertooks no wars, in fact, did no great work of any kind, and at thirty he died. During his life his sister probably entirely organised public business, and at his death she was left sole legitimate ruler at about thirty-seven years of age; the only person who could challenge her power being her little nephew, Thothmes III., then, perhaps, nine years old. He had no claim to the throne, being the son of a woman named Isis or Aset, who was not of royal blood. But Professor Petrie considers that his aunt did all she reasonably could be expected to, for she associated him with her in the kingdom, public dating of documents was carried on in his name, and she married him to her second daughter Meryt-ra as soon as might be, and thus gave him the position of heir. If she held on firmly to her royal prerogative, she only did what any other capable ruler would have done.

No doubt it was galling to a very active and ambitious young man to be held down to peaceful pomp and routine. But, to quote Professor Petrie again, all things come to him who waits. Egypt developed greatly during this twenty years of peace and progress, and at the queen's death, Thothmes III., now thirty-one years old, succeeded to the full power. He was then able to launch into that mighty series of campaigns which mark the highest extent of Egyptian power and which gloriously occupied twenty-eight years of overflowing energy.

We can now form some idea of the force of character and ability of Queen Hatshepsut by the fact that she is, as far as we know, the only woman in the great historical period that overcame the prejudices of a changeless people and broke the male line of succession. By one means or another she kept her throne, and only after many years could her mighty nephew wreak his vengeance on her monuments.

But Hatshepsut's temple suffered at other hands than Thothmes III. Amenophis IV., Khuenaten, or, as the name is now read, Akhenaten, the so-called heretic king, hacked out here, as everywhere, the figures and names of Amon-Ra, and the inscriptions and reliefs were left thus mutilated until the time of Rameses II., who restored them, though in a style unworthy of the first hand. For centuries after the temple remained practically unaltered, though there are evidences that the unfinished northern colonnade was used by a colony of embalmers as early as the twenty-second dynasty, and many burials have been discovered in this part of the twenty-sixth dynasty. Under Ptolemy Euergetes II. a few minor restorations and some important additions were made. On the introduction of Christianity a community of monks established themselves and founded a Coptic convent, known to the Arabs as Deir-el-Bahari, which was built with bricks brought from an edifice of the twenty-sixth dynasty at the Assasîf. The chambers of the temple were converted into chapels, and the "heathen" representations on the walls barbarously defaced.

The earliest detailed description of the place is given in the account of the French expedition of 1798, and later on we read of it in the works of Wilkinson, Lepsius and Mariette, the latter of whom undertook important excavations in 1858, and published a monograph on the temple.

But it was reserved for the Egypt Exploration Fund, under the able guidance of M. Naville, to bring to light one of the most interesting temples of Egypt, of which up to 1892 two-thirds were covered by mounds of rubbish that reached to a height of 40 feet in many places.

As I am addressing an architectural audience I cannot do better than begin my description of the temple with a ground plan. This only reaches as far east as the lower colonnade, the excavation of the lower part not having been commenced when the drawing was prepared.

The plan is very remarkable, quite different from all other temples in Egypt, and was probably suggested in great measure by the site.

It consists of three great terraces or platforms cut out of the east slope of the mountain, and rising one above the other from the level ground, the upper platform being backed against the vertical cliffs, which here rise to a height of 384 feet. Centrally placed sloping ways, or inclines, lead from terrace to terrace, and along the front of each terrace the ceiling stones of the one above were carried over on the top of a double colonnade, thus forming a kind of cloister underneath. The upper and part of the middle platforms are terminated by a series of chambers, excavated and then built into the solid rock.

The sphinx avenue, some 24 feet wide, with trees planted at intervals, led from the plain, or perhaps the river, to the gateway of the lower court, or entrance to the temple precincts, and formed a continuation of the axis of the temple, running approximately east and west. Only the scantiest traces remain, but these are enough to show that the gateway was flanked with great granite obelisks, which stood on pedestals. This first court, or lower platform, measures about 325 feet by 263 feet wide, and the excavations have proved that it was treated as the garden or orchard of the temple; round pits cut in the rock some 10 feet deep have been discovered full of Nile mud with the stumps of palm or apricot trees still in them. The western colonnades are in ruins, but we can see that they each consisted of twenty-two pillars, arranged in double rows. The back row were sixteen-sided, and the front row seven-sided at the back and square in front.

The top of the stone ceiling of this colonnade formed the floor of the court above, the middle platform, which is at a level of 21 feet higher up. It measures roughly 279 feet by 250 feet wide. On the west it is bounded by a double colonnade, each side consisting of eleven pairs of square pillars. Two steps at the north end of the colonnade descend to a hypostyle hall, in which are twelve sixteen-sided columns arranged in three rows, which support massive architraves and a flat stone ceiling. Three steps lead up to the shrine of Anubis, consisting of three small chambers with elliptical vaulted ceilings. On the north side of the court is a colonnade of fifteen sixteen-sided columns, and in the wall behind are four small vaulted chambers. The south side of the middle platform is supported by a retaining wall ornamented with wide, flat pilasters, surmounted by alternating hawks and urasi of colossal size.

To the south-west of this court, and at the same level, is the little shrine dedicated to Hathor, goddess of the dead. It has since been found that this was reached only from below by a flight of steps, of which a few traces still remain. The innermost chambers are hewn out of the rock, and are preceded by two covered vestibules, which are now in ruins. The first had sixteen-sided columns and four square pillars, with semicircular attached shafts, terminating in Hathor-headed capitals, the remains of which are now lying shattered on the ground. The second vestibule, at a slightly higher level, has four central columns, with round shafts and sixteen-sided columns on either side. The shrine proper is raised two steps, and consists of three chambers, each with several niches surrounding it.

Here we find conformity with the same law which prevails in hypæthral temples, and which M. Perrot has named "the law of decreasing dimensions." Thus from portico to sanctuary the dimensions of the building decrease in every way and the floor itself rises. The innermost room contained the sacred emblem of the goddess, perhaps a golden cow enclosed in a tabernacle or shrine. The sacred boat which bore the tabernacle was probably kept in the room immediately preceding. The various lateral niches were used, it is supposed, as store chambers, to serve for offerings, the divine vestments and all the sacred furniture.

We now ascend to the level of the upper platform, which is again 21 feet higher up. The terrace in front of the central court had a row each of square pillars and sixteen-sided columns, as remains show on the north side. A granite doorway leads to this central court, 83 feet by 121 feet wide, which it is now considered had a double row of columns around it. The ruins of the porch to the sanctuary are of Ptolemaic date, and lead to a hall with semicircular vaulted roof and two chambers beyond; the westernmost chamber is a restoration by Euergetes II., in which the reliefs and inscriptions compare very unfavourably with the masterly sculptures of Queen Hatshepsut. The western wall of this central court is built against the steep cliff of the mountain, and pierced with a series of niches. In the northern wall is a doorway leading to a vestibule which had three sixteen-sided columns in it. Opposite the door is a small niche, the upper part and ceiling of which had been displaced by falls from the cliffs above, and which I have rebuilt. To the west of the vestibule is an open court, in which is found the only altar that has come down to us from Egyptian antiquity. A door in the north wall of this court admits to the funerary chapel of Thothmes I., consisting of two chambers built into the cliff. The Hall of Amon, to the west, is approached only from the upper court, and part of its flat ceiling still remains in position.

On the south side of the central court are several chambers, now in ruins, and a well-preserved sacrificial hall with a portion of the semicircular vaulted roof still standing. This part of

the temple was not completely cleared until the season after I left, and I am unable to describe it completely.

All the excavations in Egypt are regulated by the Governmental Department of Antiquities. The permit granted to M. Naville on behalf of the Egyptian Exploration Fund, I believe, stipulated that the Society should undertake to completely uncover the whole temple, and also do any building work that might be necessary for maintaining or re-erecting the old walls.

This is not the usual method in which private excavations are carried on in Egypt. A series of trenches is often all that is required to explore an ancient site and discover all the antiquities that may be buried upon it. But in our case it was necessary to remove the rubbish and dust, accumulations of centuries, to a considerable distance from the temple ; and it was also found that when the support of the surrounding earth was taken away from some of the walls that they required strengthening.

Owing to the kindness of M. de Morgan, the then director of the Department of Antiquities, we had all facilities granted us for carrying on the work ; and he placed at M. Naville's disposal a quantity of Decauville trucks and quite half a mile of tram lines, with all the necessary curves and points for making a complete railway.

The general view of the temple taken before our excavations will show that the mounds rose very considerably towards the west ; it was, therefore, necessary to arrange a system of tram lines on three different levels, each of them having only a slight gradient, and some 20 feet above one another. The rubbish was taken in trucks from the highest mounds and tipped on to the next level ; from thence it was loaded up again and tipped down to a lower level, where another system of trucks carried it some quarter of a mile away from the temple to a natural hollow called by the Arabs "birket," or lake. During the two seasons that I was in Thebes a matter of 6,000 cubic metres of rubbish and stones were thus carried away from the temple, a feat that would have been impossible without the aid of a tramway.

This arrangement, necessitating the loading up of our trucks three times over, was criticised by some of the visitors that came to the temple, but I do not see how it could have been much improved upon. A steeper gradient would have been dangerous with such workmen as we had to deal with, who, in spite of all warnings, would push their trucks too fast and thus run them off the rails, damaging themselves and our rolling stock at the same time.

Here at Deir-el-Bahari the diggers, drawn from Theban villages, have many of them been tomb-robbers from their infancy, and consequently have lynx eyes for small antiquities. The actual digging is done by men with an implement like a short hoe or adze, called a "tooriyeh," with which they scoop the dust and rubbish into their palm-leaf baskets. Boys then carry these baskets to the trucks, which are drawn up close by, and bring them back to be filled again. Three or four men were in charge of each truck and pointsmen were stationed at various places. These latter posts were a good deal sought after, as the man in charge had only to push or pull the rail with a hooked stick. He could thus pass his whole day seated and smoking. We employed on an average 250 men and boys a day, with eight reises or overseers, one head reis to manage the railway—a clever Pyramid Arab—and a Coptic scribe who entered the names each morning and kept the account. The wages were for a day lasting from sunrise to sunset—boys, 1½ piastres (3¾*d.*) per day ; men, 2 piastres (5*d.*); and 3 piastres (7½*d.*) for the reises. Occasionally the order was given to search each man before he left the works, as a preventive against their stealing small antiquities, but we did not succeed in finding anything concealed upon them.

Another general view of the temple, taken after our excavations in 1895, shows the magnitude of the work and the degree of success that has been attained.

It may be interesting to note here that the great tomb cave in which the celebrated find of royal mummies was made is always spoken of as being at Deir-el-Bahari, but it is nearly half a mile to the south, between the hills of Sheikh Abd-el-Gournah and the cliffs of the Libyan mountains. In the twenty-first dynasty, during a time of political trouble, it was resolved to protect the royal mummies from the chance of robbery by interring them altogether in this tomb cave. Corpses of the ruling dynasty were also placed here and all left in peace until 1875, when some Arabs discovered the well-hidden resting-place. The fellaheen kept their secret until 1881, when they were traced, and Brugsch Bey had all the mummies conveyed to Gizeh. A few yards north of the court is a square well-shaft forming the entrance to the common tomb of Theban priests of the seventeenth to the twentieth dynasties, which yielded a rich treasure to the Gizeh Museum in 1891.

During our first season M. Naville and myself lived in an Arab house in the village of Gournah, a good mile from the temple. This was found to be very inconvenient, and as the work was estimated to take several years for its accomplishment, the Egypt Exploration Fund decided to build a house quite close to the temple, which should be the headquarters of the staff. I accordingly designed a building which had a central courtyard with a dining-room overlooking the temple, five bedrooms, two storerooms, kitchen and bathroom arranged around it. The foundations were of rubble stone laid in Nile mud mortar, the walls of mud brick, some of them being brought from the monastic buildings that we had to pull down to clear the temple. These in their turn had been pilfered from a twenty-fifth dynasty building some 500 yards away. We found a few of them bearing the name-stamp of an officer of the twenty-fifth dynasty, known from an inscription at Karnak as "the fourth prophet of Amon, the Prince of Thebes, the Governor of the South, Mentuemhat." The bricks measured 12 inches by 6 inches by 4½ inches thick, and probably only one in every hundred or thousand was stamped. The roofs were flat and ceiled with rafters and boarding on which was laid a layer of mud bricks on chopped straw, and the whole plastered over with mud mortar. The walls were roughly plastered inside with a mixture of lime, sand and chopped straw, the lime having been burned in a native kiln, which I had made close by. The floors were of ancient red brick, floated over and set with a mixture of powdered burnt brick and lime. The joinery, with a few exceptions, was entirely of native make, the doors and windows being hung on wooden pivots, the former being fastened with beechwood locks and keys. As the house has been used every season since it was built in 1893 by members of the staff of the Egypt Exploration Fund, it has well justified its existence. The great work of copying all the reliefs which cover the temple walls is not yet finally completed, and Mr. Carter, the artist, has already taken up his abode at Deir-el-Bahari for another season's work.

In considering some of the details of the temple, we may begin with the lower terrace, on a part of which are a few stones depicting the transportation of two great granite obelisks. Various fragments belonging to this most interesting scene have been discovered in the Coptic buildings which had to be removed, and it is now possible to piece them together sufficiently to show that the obelisks were placed on a great, boat-like barge. This was towed by thirty large rowing-boats, arranged three abreast and in lines of ten. There were thirty-two oarsmen in each boat, so that, adding officers and steersmen, the crew which towed these obelisks from Assuan to Thebes numbered quite 1,000 men.

A diagram showing a partial restoration of this scene, drawn by Mme. Naville, appeared in the "Archæological Report of the Fund" in 1895-96.

Whether these obelisks were destined for Karnak, this temple or elsewhere I cannot say. One of Hatshepsut's obelisks at Karnak is still standing ; it weighs about 300 tons, and the inscriptions mention that these two monoliths were quarried and erected complete in seven months. Professor Petrie believes the pair at Deir-el-Bahari to have been put up by Thothmes III., and identifies the top of one of them at Constantinople. He calculates the weight of each obelisk at the enormous figure of 800 tons.

We now ascend to the middle platform and examine first the sculptures on the southern half of the terrace. The twenty-two square pillars which supported the ceiling are of a slightly tapering form with delicately-rounded arrises. The scenes on the walls commemorate an expedition to the Land of Punt, which is supposed to lie on the west coast of the Red Sea, corresponding with the modern Somali coast. Incense, panther skins, ivory and ebony were among its chief exports to Egypt. A village in Punt is shown, the houses of which are built on piles over water, amongst palms and incense trees, and ladders lead up to the doorways. We see the Egyptian fleet setting sail, and above, its arrival in Punt. Further on the queen, followed by her guardian spirit, dedicates to Amon the spoils of the expedition. Cattle are shown feeding beneath delightfully conventional trees. Gold and electrum is weighed and incense is measured in the presence of the gods.

On the corresponding northern half of the same terrace the scenes refer to the birth of the queen, but unfortunately in every case the figure of Hatshepsut has been defaced, though that of her mother Ahmes has been respected. Her admirable portrait is probably the finest piece of work remaining in the whole temple. Though, like all the sculpture, it is in very low relief, the admirable modelling of the delicate and refined features, and the smiling expression, give to the face a beauty which bears witness to the skill of the Egyptian artist, and makes one regret that so little has been left of the original work.

A great feature in this temple are the so-called proto-Doric columns. Those in the hypostyle hall are sixteen-sided, measuring 2 feet 7 inches in diameter just above their shallow circular bases, and they are 15 feet 9 inches in height, tapering to an upper diameter of 2 feet 4 inches. The abacus is square and flush with the shaft, and a simple band of hieroglyphics appears on one face. Prototypes of this form are to be found in

the rock-cut tombs of Beni Hasan, which differ only in having fifteen of their sides fluted like a Greek Doric column and one left flat to receive the dedication inscription.

This hypostyle hall, which forms a vestibule to the shrine of Anubis, is in a very perfect state; the flat stone ceiling, resting on massive architraves, and the supporting columns are all intact. The ceiling is painted blue and powdered with yellow stars. The spacing of the columns is wider in the centre, so as to form a better approach to the chambers beyond.

The granite doorway leading to the central court is one of the most striking features of the upper platform. It is specially interesting in that it shows clearly the erasures around the cartouches which bore the queens' names, "Ma-ka-ra, Hatshepsut," but which now read "Ra-men-Kheper, Tehutimes," the names of Thothmes III. Where these alterations occur one can see plainly that the surface of the granite has been rubbed down to admit of new signs being inscribed. But, irrespective of erasures, Egyptologists are able to prove that the queen's cartouches must have been there by the fact that the surrounding inscriptions are in the feminine gender. That great doors were once hung here is shown by the pivot and bolt holes on the inside.

A somewhat similar granite portal on the further side of the central court leads to the Sanctuary, a narrow hall with a semi-circular stone roof. These curved vaults occur in several parts of the building, and are not true arches, but built with horizontal joints, forming really a series of corbels curved on the inside. Nevertheless, it appears quite certain that the Egyptians understood the principle of the arch, and used it in brick buildings. The so-called granaries of Rameses, behind the Ramesseum, are notable instances of arched constructions of the nineteenth dynasty; but last season Professor Petrie unearthed a mastaba, or built tomb, at Denderah, with three ring brick arching to it, which belonged to a prince named Adu, who lived under Pepy II. of the sixth dynasty—at least 4,000 and perhaps 5,000 years ago.

The great stone altar which stands in the middle of the Altar Court is one of our most interesting finds. It is a rectangular structure of fine white limestone, measuring about 16 feet by 13 feet. At the western end is a flight of ten steps leading to its upper surface, 5 feet 2 inches above the floor. It is crowned with the usual bold cornice so common in Egyptian architecture, consisting of a large bead and cavetto moulding, and a similar bead to that on the cornice is worked on each angle of the altar mitreing with the cornice bead. The proportions of the steps leading up to the altar are worth mentioning, having a rise of 6·2 inches and a tread of 19·1 inches; but the treads are not level being "kilted," or inclined as much as 1·85 inch. The height of each riser is thus only 4·25 inches. The Altar Court was evidently always open to the air, and its walls are consequently uninscribed and quite plain. They are built to a batter, as are most walls in the temple, and were finished with an overhanging cornice. I carried out some considerable repairs here, consisting of rebuilding portions of walls and altar and forming rough retaining walls against the loose and friable cliffs on the north.

In the middle of the north wall of the Altar Court is the doorway leading to the funerary chapel of Thothmes I., a chamber at right angles to the court and measuring 17 feet 3 inches by 5 feet 2 inches wide, and roofed with a curved ceiling of elliptical form with horizontal joints. At the north end is a stone seat, and above it is a much mutilated scene. It represented on the left a shrine, in which stood the symbol of the god Anubis, a skin on a pole. Before the shrine stood the queen, now completely defaced, and behind her Thothmes I., her father, whose cartouche reads "Aa-kheper-ka-ra." In the upper part of the scene were two jackals, also emblems of Anubis, each couchant on a shrine. In the centre is the cartouche of the queen, "Ra-ma-ka," or "Ma-ka-ra," as it is now read. At the north end of the chapel and on the western side is a niche for the reception of offerings.

In the passage between the southern enclosure wall and the retaining wall of the middle platform, not far from the Hathor shrine, an inclined plane cut in the rock was discovered, leading to the entrance of a large tomb. The rubbish was here quite untouched, and when the doorway was cleared disclosed a large shaft well cut in the rock and opening into a larger chamber. In the middle was a square space for a stone sarcophagus, but instead of the surroundings of an important burial there was only a poor wooden coffin with bones in it, which seems to have been disturbed. No inscriptions or ornament of any kind were to be seen except a few hieratic signs. M. Naville thinks it probable that this tomb was prepared by Hatshepsut for herself, but was never used owing to the hatred of her nephew, Thothmes III.

In this same passage a large foundation deposit was discovered in a rock-cut pit, about 3 feet deep. It was covered with mats, under which lay first a few pots of common earthenware, then about fifty wooden objects, models of an implement which, for the want of a better name, have been called winnowers. M. Naville says that they may be sledges used for threshing corn. Each bears the cartouche of the queen. Lower down were fifty wooden hoes, four bronze plaques, a hatchet, a knife, eight wooden models of adzes, and eight larger adzes with bronze blades; at the bottom were ten little pots of alabaster and ten baskets, stands for the pots. All these objects were, as usual, buried in fine sand.

In every Egyptian temple the sanctuary contained a shrine or naos, in which were hidden the emblems of the god to whom the temple was dedicated. They were generally made of wood, so that they could be moved and either placed on sacred boats or carried by means of staves, as was the ark of the Israelites.

All the wooden shrines have perished, except a very small one, but a foot high, which is now in the Turin Museum. During our first season we found one side of a large ebony shrine, the panel measuring 5 feet 7 inches, 3 feet 7 inches wide and 1 inch thick; also one leaf of the doors of the shrine, which is 2 feet 5 inches high, 12½ inches wide and ⅞ inch thick.

On the inside of the shrine one can see the mortises and part of the adjoining panels. As ebony can only be obtained in small sizes, the whole is pieced together of little bits, and held by pegs of the same wood. The angles or styles are cut out of solid pieces, 2½ inches square, to which are framed the top and two middle rails of the same width as the angles, but only 1 inch thick, thus dividing the whole into three panels. The bas-reliefs represent Thothmes II. making offerings to Amon-ra, the erasures being probably owing to Akhenaten. Underneath are a series of magical signs, arranged in pairs, and the symbols of stability and duration. At the bottom is a range of the so-called false or "Ka" doors.

Externally the panel is divided into six divisions, two of the rails being only thin pieces of ebony pegged on, forming what we should term a sham. Rows of the same emblems are arranged in the panels, and the styles or rails are beautifully carved with dedicatory inscriptions of Thothmes II., part of which reads, "He made a sacred shrine of great value of ebony of the mountaineers (of Nubia)." On each side of the horizontal lines it is stated that Thothmes is a worshipper of Amon-ra, who dwells in "Serui," the ancient name of the temple.

The small leaf of the double door is also made of irregular-shaped pieces of ebony, dowelled together and having eleven small ledges pegged on to one side, each of them about ⅞ inch by ¾ inch and rounded on the back. The pivot side of the door is also rounded and the bolt side rebated for the other leaf. Four bronze staples for the bolts are still in position.

A description of this temple, however slight, would be incomplete without a reference to its celebrated architect, Senmut. It seems that though Hatshepsut, like Queen Elizabeth, was not beloved of her relations, yet she had the same power of drawing to herself great men. Of such a man, Senmut, the architect of her temple, we have many records. To quote the *Edinburgh Review*, "The many sidedness of Michel Angelo was nothing compared to that of Senmut—the queen's architect—who himself superintended the quarrying and carving of the queen's obelisks; was tutor to the queen's daughter Neferura; he was keeper of the Temple of Amon; keeper of the granaries of Amon; royal seal-bearer; keeper of the palace; keeper of the heart of the queen (to which title Petrie compares the keeper of the king's conscience or Lord Chancellor); priest of Aahmes; keeper of the queen's cattle." Besides his great work at Deir-el-Bahari, he directed the erection of Hatshepsut's two granite obelisks at Karnak and superintended architectural work at the temples of Karnak, Mut Luxor and Erment. A kneeling statue of him was discovered by Miss Benson in 1896 at her excavations at the Temple of Mut. The inscription states that it was "presented by favour of the queen," and some further interesting particulars of his life will shortly appear in her book on this temple.

My brother had the good fortune to discover his tomb high up on the north-east of the Gournah hills. It had been very magnificent, but the painted facing of the walls is now almost entirely destroyed.

A clear white glass bead, inscribed Senmut, was found at Deir-el-Bahari, as well as a fragment of a statue of him. My brother has a carefully-worked piece of black marble inscribed with his name, which appears to have been a paint muller, and may have been used by him for mixing up his Indian ink.

It is recorded that he was a man of the people, for "his ancestors were not found in writing," and his portrait-statue gives no very high-bred features, but an ugly, capable, complacent face.

In conclusion, I must acknowledge my indebtedness to the various publications of the Egypt Exploration Fund, by M. Naville, which I would refer you to for further information on this interesting and beautiful temple; also to Professor Flinders Petrie's "History of Egypt," and Professor Steindorf's edition of Baedeker's "Guide to Egypt," 1898.

Mr. R. PHENÉ SPIERS: I have been looking forward with considerable interest to Mr. Newberry's paper to-night, to see how far I should recognise old acquaintances. It is more than

thirty-two years since I stood on the site of the temple which Mr. Newberry has described, and were it not for the fact that I made many drawings there, which have from time to time refreshed my memory, my recollection of it would be more like a dream. The series of views of the excavations and of the remains now exposed have shown us that we owe a debt of gratitude to the Egyptian Exploration Fund, to M. Naville and to Mr. Newberry. At the same time I am not quite able to agree with Mr. Newberry that what he has shown us was "brought to light" by M. Naville, if by that remark he means the discovery of the remarkable plan of the temple. Mr. Newberry has quoted the several authorities who have published the results of their researches before M. Naville in 1893, but he has by inadvertence neglected to quote the one authority who more than any other revealed the actual arrangement of the temple. It is possible that between 1866 and 1893 many of the walls and columns exposed in the former year had been covered over again by the fleeting sand, but it is quite certain that many of them said to have been buried 20 feet or more were seen by me. The authority to whom I refer and whose name is not on Mr. Newberry's list, is M. Emanuel Brune, grand-prix of the Ecole des Beaux-Arts of Paris of 1863, who in 1866 made a complete survey of what was then to be discerned, and in 1867 sent in to the Institute of France his drawings of the plan as found, and a restored plan and perspective view which created quite a sensation at Paris, not only on account of the research displayed, but of the splendid drawings in which it was set forth. These drawings were seen by M. Mariette, who borrowed them for the purposes of publication, and published them in 1877; the plan of the buildings as found being put forward in the text as his own work, referring to the restoration drawings only as being M. Brune's. This plagiarism was not the only one practised by M. Mariette; in 1875 he had already published Brune's plan of Karnak as his own and without Brune's name attached to it, and it was not till 1877, when he published his work on Deir-el-Bahari, that he acknowledged he had reproduced M. Brune's plan. Fortunately, M. Brune's work was well known in Paris, and MM. Perrot and Chipiez, in their "History of Ancient Art: Egypt," published in 1882, note p. 425, say:—"The plan which forms plate 1 in the said work" (referring to Mariette's "Deir-el-Bahari") "was drawn in 1866 by the architect M. Brune, who is now a professor at the Ecole des Beaux-Arts. M. Brune succeeded, by intelligent and conscientious examination of the remains, in obtaining the materials for a restoration which gave us for the first time some idea of what this interesting monument must have been in the great days of Egypt."

In 1866 the north angle of the upper terrace was covered to the depth of 20 feet, and therefore the one important discovery made by M. Naville—viz. that of the great altar—was inaccessible. But M. Brune had not the assistance of a single spade. Mr. Newberry has informed us that 250 workmen have been employed for nearly two years. Naturally, therefore, some fresh discoveries might be expected, otherwise all the other architectural features are in Brune's plan, including the hypostyle hall—where, by the way, I worked for two days. Fortunately, I have in my possession two tracings which I made from M. Brune's sketches when we were imprisoned doing quarantine in the lazaretto of Syra in July of the same year, one taken from his sketch plan, the other from an imaginary restoration which he drew out in Thebes. In claiming for my old comrade of the atelier at Paris and travelling companion in the East (who died, I am sorry to say, ten years ago) the credit of having been the first to give some idea of the splendour of this temple, I do not wish to detract from the great services rendered by the Egypt Exploration Fund, M. Naville and Mr. Newberry, because they have uncovered and made known the bas-reliefs and sculptures which decorate this temple; and M. Naville's fame as an Egyptologist need not have been dimmed by the acknowledgment of the discovery of those architectural dispositions which were measured and drawn out by M. Brune. I have much pleasure in proposing a vote of thanks to Mr. Newberry for his most interesting paper and for the admirable illustrations with which it has been set forth to us, and I am sure we are all proud to learn that one of the members of this Association was entrusted with the task of working out the drawings, and, what is more important, taking all those precautions necessary to preserve the remains from still further ruin.

The vote of thanks to Mr. Newberry was seconded by Mr. Alex. Payne, and supported by Messrs. C. H. Brodie and Alexander Wood, M.A.

A vote of thanks was also passed by acclamation to the Egyptian Exploration Fund for the loan of diagrams, which were exposed on the walls during the lecture.

A Meeting of the Society for the Promotion of Hellenic Studies was held on Thursday, when the following papers were read:—"A Characteristic of Thucydides," by G. Beardoe Grundy; "A Vase with Death of Polyxena," by H. B. Walters.

INSTITUTION OF CIVIL ENGINEERS.

THE Institution of Civil Engineers held the first meeting of its eightieth session at its rooms in Great George Street on the 1st inst., when the new president, Mr. W. H. Preece, C.B., F.R.S., took the chair.

The President, in his inaugural address, expressed his gratitude for the honour done him, and said he was very proud not alone for the sake of that branch of the profession to which he specially belonged, but also because he was a member of the great Civil Service of this country. Twenty-eight of his forty-six years of professional work having been spent in the service of the Crown, he could speak with some authority and experience when he asserted that that service deserved a recognition for zeal, industry and the conscientious determination to do its duty far greater than that usually accorded it by Parliament, the public and the press. Since 1859 the members of the Institution had increased from 894 to 7,088, who were scattered over different parts of the world, over 70 per cent. being home members, over 20 per cent. colonial, and about 8 per cent. foreign members. It was not alone in numbers, however, that growth was shown. It was more so in the business of the engineer. The field of the profession had extended in all directions by the advances of practical science, and by a process of evolution and agglutination. The introduction of the steam-engine, the development of the railroad, the invention of the paddle and the screw, and the evolution of the ocean greyhound; the conversion of iron into steel and the demand for ores; the opening of coal and oil fields and the production of gas; the sanitation of our dwellings and our towns, and the demand for pure air and pure water; the applications of electricity and the annihilation of distance; the rifling of ordnance, the improvement of explosives and the armouring of great fighting, floating, moving machines; the enormous growth of manufactures and their distribution over the face of the earth; the pursuit of wealth, the roving propensities of our race and the industrial competition of nations—all these had contributed to break up the profession into special branches and into individual groups, with their separate organisations and with their independent homes. Thus they had the railway engineer, the mechanical engineer, the naval architect, the mining engineer, the sanitary, the gas, the hydraulic, the electrical, the chemical, the marine engineer—species of one genus; the civil engineer, whose home was in that building, whose Institution, like a good mother, tried to keep them all under the protection of her wings, and who was prepared to make any sacrifice to advance the knowledge of engineering, and to maintain the solidarity and reputation of the profession. The Engineering Conference held by the Institution in 1897 was undertaken in the furtherance of that aim, with results so successful as to call for its repetition in the approaching spring of 1899. The foundation of engineering was science, which was a knowledge not only of the facts of Nature, but of the development of her laws. It was, in the language of Huxley, organised common sense. The engineer must be an educated man, educated not necessarily so much in the languages, arts and history of the past, as in the changes and properties of ever present matter, and the forms and behaviour of never-failing energy, changes and transformations directed by his will, controlled by his knowledge and applied by his hands. Tredgold's great definition wanted modification. It should read, "the profession of an engineer is to apply the great principle of work to the use and convenience of man," and his title should be rather that of energeer than engineer. A knowledge of matter and of energy was the foundation of all the engineer's action, and this, combined with the power of thinking so as to enable the brain to direct and assist the hand, was the root of technical training. There was a fashion for technical education just now in Great Britain, and enormous sums of money were being spent. It was well that the country had awakened from its conservatism and apathy, but was it putting its schools in order on a true issue? Our trade was suffering even in our own colonies from the competition of our Continental neighbours, who were said to be beating us by their technically superior hand labour. But was this the true cause? Were we not rather suffering from the superior commercial skill of the principals at home and the accomplished polyglot traveller abroad, as well as from a financial system that was more moral and sound than that rampant in England through the gross abuses of the Limited Liability Act of 1862? In Germany financial support was readily subscribed for a new industry by the generous and enlightened policy of its banks; in England a syndicate, a pioneer company, and, finally, an appeal to the public for an enlarged limited company were required. The industry was established, but with a capital overloaded by the harpies sprung from the operation of that Act. The same industry could be established in Germany with probably half the capital, the manufacture would be supervised with greater skill, and it would be developed as a business by better-trained agents, for educational methods had begun at the wrong end. We ought to teach the masters first and then the men; moreover, we had to teach the teachers and

those who had control of the purse-strings. The county councils of England were scarcely qualified as yet to discharge the very serious duty of properly dealing with a question so few of them understood, though many of them had tackled the matter manfully, especially the London County Council through its Technical Education Board. We were suffering from a lack of competent teachers. A teacher who had had no training in the practical world was worse than useless, for he imparted ideas derived from his inner consciousness or from the false teaching of his own abstract professor, which led to mischief.

Day by day we were startled by some new development of energy in the form of electricity. The president said he learned from Faraday to regard electricity as the result of the play of the atoms and molecules of matter; that it was a mere form of motion, and that its influence through space was due to the existence and operations of a medium—since called the ether. Maxwell crystallised Faraday's views into mathematical language, and deduced the magnificent generalisation that light and electrical waves were of the same kind, moving through the ether with the same velocity and differing from each other only in degree Hertz proved the existence of these waves and measured their lengths, and Marconi had now applied them to the practical purposes of telegraphy. The first practical application of the science of electricity was for the protection of life and property. Franklin, in 1752, showed how to secure ourselves and our buildings from the disastrous effects of a lightning stroke. Very little had been done since to improve on his plan. A mischievous and baseless delusion was prevalent that protectors actually attracted lightning, and might be sources of danger. Every exposed building should be fitted, but a well-protected dwelling-house was the exception, not the rule. Even when protectors were fixed apathy led to their imperfect maintenance. Their failure to act was always traceable to the neglect of some simple rule. Carelessness was the direst disease we suffered from. Telegraph and telephone wires which spread all over our towns and country were very much exposed to the influence of atmospheric electrical effects. Every instrument was now protected. Every telegraph-pole had a lightning-conductor. Accidents were rare, and the system itself was a public safeguard. In some countries like California and South Africa thunderstorms were very frequent and very severe, but their effects had been tamed. The engineer had answered Job's conundrum, "Canst Thou send lightnings, that they may go, and say unto Thee, Here we are?" in the affirmative. He (Mr. Preece) sat on June 12 last in a cable hut on the Welsh coast, near Nevin, with a telephone to his ear, and heard flashes of lightning in Ireland, Scotland, England and Wales on the same afternoon. The sound emitted by a telephone receiver when a discharge took place in the neighbourhood of a telephone circuit was distinctive and characteristic. It was a signal as clear and as comprehensible as the words, "Are you there?" or "Here you are." In 1837 Cooke and Wheatstone showed how electricity could be practically used to facilitate intercommunication of ideas between town and town and between country and country. The first line was constructed in July of that year upon the incline connecting Camden Town and Euston Grove Station, the resident engineer being Sir Charles Fox, father of the senior vice-president. Five copper wires were embedded in wood of a truncated pyramidal section and buried in the ground. The instrument used possessed five needles or indicators to form the alphabet. A portion of this original line was recently recovered *in situ*. He (Mr. Preece) called it the "fossil telegraph," and used it to complete a special circuit between Buckingham Palace and the General Post Office to enable the Queen on her Diamond Jubilee day, as she started on her procession through London, to telegraph her simple message, "From my heart I thank my beloved people. May God bless them!" to all our princes, governors, captains and rulers scattered over the whole globe. To north, south, east and west, over every quarter and every continent, under every ocean and every sea, these words flew with the speed of thought. When Her Majesty returned to Buckingham Palace acknowledgments and replies had arrived from every colony, the first to come being from Ottawa, Canada, sixteen minutes after the message was despatched. The pioneer line of 1837, 1½ mile long, had since spread over the face of the earth to the extent of 1,111,366 miles. In this country we had always been in advance of other countries in telegraphic progress, and that was greatly due to the inventive genius of Cromwell Varley, a member of the Institution. With regard to submarine cables, no one had done more to improve their working than Lord Kelvin. His recording apparatus was almost universally adopted on long cables. By the duplex method of transmission the capacity of cables had been practically doubled, and this had been still further improved by applying to cables the system of automatic working which was such a distinguishing feature of our Post Office system. As for telephones, speech was now practically possible between any two post offices in the United Kingdom. We could speak between many important towns in England and in France. It was theoretically possible to talk with every capital in Europe, and there was now being considered the submersion of special telephone cables to Belgium, Holland and Germany. It was practically possible for every house in the United Kingdom to speak to every other house. The progress of the use of the telephone in Great Britain had, however, been checked by financial complications. It fell into the hands of the company promoter. Telephony was an Imperial business, like the post and the telegraph, and ought to be in the hands of the State. The purchase of the telegraph by the State had not been a bad bargain. Without the telegraph the regulation of the traffic on a railway and the general business of the line could not possibly be conducted. The regulations of the Board of Trade, regarded often as unnecessary interference by railway men, together with the careful engineering inspection before the opening of a line, and a judicial inquiry in case of accident, had tended more than anything else to add to the security of railway travelling. The introduction of electricity into our houses had added materially to the comfort and luxury of home, and was capable of indefinite extension. It was, however, in supplying us with light, without defiling the air we breathed in our dwellings with noxious vapour, that electricity had proved a true benefactor to the human race. It was on board ship that the electric light had been pre-eminently successful. The introduction of electricity into our lighthouses had not been such a unqualified success as in the case of our ships, chiefly owing to the prime cost of its installation and the annual expense of maintenance. Lord Kelvin proposed that lighthouses should signal their individuality to passing ships by flashing their number in the Morse alphabet. The same end was obtained with less mental exertion by occulting and group-flashing systems. We, however, wanted improvement in fogs and storms. Here electricity stepped in. As he pointed out in 1893, the waves in wireless telegraphy are transmitted by the ether; they are independent of day or night, of fog or snow or rain, and therefore, if by any means a lighthouse could flash its indicating signals by electro-magnetic disturbances through space, ships could find out their position in spite of darkness and of weather. Fog would then lose one of its terrors, and electricity become a great life-saving agency. They were nearing that goal. The President also referred to electric traction, electro-chemistry and other branches of electrical science, concluding that every engineer must ultimately become an electrician; and that electricity would be the most general, the most useful and the most interesting form in which he applied the fundamental principles of energy to the wants, the comforts and the happiness of mankind.

On the motion of Sir Frederick Bramwell, seconded by Mr. Edward Woods, Mr. Preece was voted cordial thanks for his presidential address, which was followed by the presentation of medals for the session 1897-98 and by a reception.

LONDON BUILDING REGULATIONS.

AT the Surveyors' Institution a few days ago before the tribunal of appeal, consisting of Mr. Arthur Cates, Mr. A. A. Hudson and Mr. J. W. Penfold, an appeal was heard from Mr. H. W. Hill, Old Bond Street, against the decision of the building committee of the London County Council to sanction the erection of certain buildings in Stanbrook Court, Old Bond Street. Mr. Berry, of the solicitors' office of the London County Council, appeared for the London County Council, and Mr. McMorran, Q.C., for the appellant. The letter of the London County Council stated that they had decided not to sanction certain deviations from the plans certified, but the appellant contended that the plans on which the building was erected had been passed by the committee. It appeared that in May 1897 Mr. Hill, who was rebuilding the premises, had received a notice from the County Council, under the Factory and Workshops Act, to construct a new staircase and other works to provide means of escape in case of fire. For this purpose he acquired the premises in the rear of Bond Street, 5 and 6 Stanbrook Court, and sent to the Council plans which were eventually passed without any restriction. Having this authority Mr. Hill proceeded to erect the buildings, but afterwards received notice from the district surveyor that they contravened section 43 of the London Building Act. The buildings were at that time half-way built, and as the whole, very much through the action of the Council, had cost 40,000*l*., the buildings were proceeded with, and this appeal made. It was agreed that the builders had been under the impression that they had had their plans approved; but the Council contended that the approval was only conditional on their complying with all the conditions of the Building Act. The appellant relied on the letter approving his plans, whilst the Council

contended that section 43 of their Act had been contravened. After hearing some evidence the Chairman stated that, having inspected the building, they considered, taking all circumstances into consideration, the appeal should be allowed, but they made no order as to costs. At the same time he suggested that the consents of the Council be amended. Mr. Berry stated that this had already been attended to.

MANCHESTER SOCIETY OF ARCHITECTS.

IT is the custom of this Society to hold a conversazione about every three years, to which they invite members of other kindred societies for the purpose of mutual enjoyment and intercourse. They held such a social gathering in the City Art Gallery, Mosley Street, on the 27th ult., the whole of which building had been placed at their disposal by the city Corporation. All the galleries were thrown open to the visitors, and, in addition, there was an exhibition of architectural drawings and of several exhibits from the recent arts and crafts collection. The Æolian orchestra, under Mr. G. W. Butterworth, discoursed a choice programme of music. A very large number of ladies and gentlemen accepted the invitations sent out, and they were formally received by Mr. R. J. Bennett, the president of the Society. Amongst the gentlemen present were Sir Bosdin T. Leech, Sir E. Leader Williams, the Dean of Manchester (Dr. Maclure), Colonel Eaton and others.

TESSERÆ.

The Torre Neuva, Zaragosa.

THE planning of the various stages of this steeple is very ingenious: the general outline is octagonal, but the face of the sides is in some cases sunk or set back at an angle to the general face of the work, and at the angles of the upper part corbelled out so as to form octagonal angle turrets. In addition to the play of light and shade aimed at in this way, the whole face of the work is covered with arcades and diapers formed by recessing the panels about an inch and a half back from the face of the bricks which form the dividing lines between them; semicircular bricks are also used with good effect for corbellings, being arranged one over the other like so many small cheeses. Undoubtedly the kind of ornamentation here adopted is one which seems to be specially suited for brickwork, being done with very little trouble or cost; it has, however, a rough character, which harmonises with the rough brickwork of which all the buildings in Zaragosa are constructed, but which would not do so well with that smooth work which we seem invariably to prefer at the present day. Sometimes, however, this panelling of the brickwork is managed with marvellous elaboration of detail, and with really very striking effect; and of this no better example can be seen than the face of the wall of the eastern face of the cathedral church. Here there is a plain unbroken face of wall 60 or 70 feet in length, of great height and pierced with pointed windows at two levels. The wall for about 8 feet from the ground is perfectly plain, above this it is covered with elaborate arrangements of patterns enclosed within horizontal lines of brickwork. These patterns generally have their leading lines formed by single lines of bricks, and consist everywhere of those elaborate star-shaped panels which were always so favourite with the Moorish artists and workmen. The ground of the panels is everywhere sunk about an inch and a half, and then generally filled with glazed tiles of various colours and size and about five-eighths of an inch thick. Sometimes, however, the grounds of the panels are of plaster, in which are set a few single tiles or small patterns of tiles and also some circular tiles with a concave sinking in the centre of each. The openings for the windows have a very elaborate veneering of patterns arranged in continuous consecutive lines round the jamb and arch, but they have unfortunately lost their traceries, which must have been of stone. The bricks used in this work are 13 inches long by 6¾ broad and 1¾ thick, and the mortar joint is about ½ inch thick. Their colour is so much obscured by dirt and age that it is difficult to say exactly what it is, but both buff and pale red bricks are used. The tiles inlaid in the panels are of the peculiarly fine colour generally seen in Moorish work; they are blue, green and white, and all are glazed. The blue is very deep and dark, the green light and bright, and both are varied a good deal in their colour in the way commonly seen in old Moorish work. Nothing can well exceed the elaborate skill with which this work has been done, or the pains and care with which the complicated inlaid patterns have been arranged.

Ancient Irish Tenures.

The heads of septs generally held their estates by tanistry, and the inferior tenants by gavelkind. When each principal owner went into possession of his estate a successor was elected to him, who was called the Tanist, and whom the person in possession had no power to disinherit or bind in any way. When on this owner's death the Tanist became owner, another Tanist was elected. He was not necessarily any relation, though he should be of the sept of his predecessor, the only limitation to his election being that he should be the oldest and most worthy of the blood and surname. Thus each owner was tenant for life, the Tanist being presumptively the next in remainder. By the custom of gavelkind, on the death of any tenant the whole district was newly divided among all the remaining members of the sept who lived in it. The apportionment was made by a person chosen for the purpose, called the Confinny. He had a discretion as to the quality and place he allotted to each, being merely bound to allot the best portions to such as he judged the oldest and most worthy. On the death of each tenant, all his male children, legitimate and bastards alike, but no female, became entitled to get allotments. Under this custom the tenants had no tenure of any certainty—even for a year—their estates, both as to quantity and duration, depending entirely on the mortality of their neighbours.

Memorial Brasses.

On the brasses of civilians the robes are, with rare exceptions, flowing and graceful. In the sixteenth century there was but slight difference between the male and female attire of persons in private life. Of course the dresses of professional men have always been characteristic. Civilians were, with hardly an exception, always represented on brasses bareheaded. Happily for the good people in those times they did not know the hideous and inconvenient hat which continues to torture those who live in towns, but from which men in the country have presumed to free themselves. The dresses actually worn by the deceased are probably sometimes represented on the brasses of ladies. We see every variety of costume, from the simple robe of the time of Edward II. and III., down to the extravagant dresses of Elizabeth's reign. On the early brasses the wimple under the chin marked the rank of the wearer. Till about the year 1550 ladies are not infrequently represented with heraldic devices covering their kirtles and mantles, but such ornamentation was never really worn by them. The different fashions of wearing the hair represented are most fantastic. St. Paul tells us that "if a woman has long hair it is a glory to her;" but these English matrons too often forgot that simplicity which gives to this beauty of nature its chief charm. The butterfly head-dress of the fifteenth century extended 2 feet at the back of the head, and there is the horn head-dress, spreading a foot on either side of the head. The fashions among women then appear to have been grotesque as they have been in our own day. Children are represented either behind or beneath their parents; sometimes they wear the tabard, a short coat, with heraldic figures upon it. Sometimes they wear a dress which marks their occupation, and in a few instances the name of each child is placed below it. Skeletons and emaciated figures, sometimes in shrouds, were represented on brasses after the fifteenth century. Crosses, with or without figures of the deceased, are very frequently to be met with, and their form is exceedingly elegant. The beauty of some of the designs for the canopies of these brasses it would be impossible to surpass.

Edwardian Influence in Western France.

About three miles from Bordeaux are the ruins of the castle of Blanquefort, long the residence of Edward the Black Prince, which appears to have been built for him. Some of the chambers are vaulted in the Decorated style, and under one of the corbels is a British lion. The embrasures in the outer walls have small round openings, with eyelets over them, apparently for cross-bows. Twenty miles to the north-east of Bordeaux is Libourne, one of the principal towns founded by Edward I., which still retains its regular plan, but has lost nearly all other traces of antiquity. The church is plain and late Flamboyant, and the town hall is of the same style. This flourishing commercial town was the ruin of its neighbour, St. Emilion, with its Grotto. This roof is of the same early character as the other vaults. The parish church is dedicated to the Holy Trinity. The nave is of Transition Norman character, of three bays, with domical vaults; the arches pointed, the windows round-headed, and the west doorway good late Norman, with sculpture; the aisles are early French; the choir and apse are good Flamboyant work, with the original painted glass; the vaults have also preserved the old painting. There are remains of two other churches, both in the style of the fourteenth century; that of the Cordeliers has the walls and windows nearly perfect. The castle is a square Norman keep, with corner turrets. It is said to have been built after 1224, but the small narrow windows are all round-headed and the whole character is that of the twelfth century. It seems much more probable that there is some error in the histories of this town than that its buildings should be so much behind all others of similar character. That is,

however, matter of opinion; some persons consider that the Romanesque style continued in use in the South of France to a much later period than in the northern provinces or in England. There is certainly great resemblance between the south of France and Italy in many respects, and this may be another instance of that similarity. A few miles beyond St. Emilion is St. Foy, another of the towns founded by Edward I., on the same regular plan, with a square market-place in the centre, surrounded by arcades wide enough for two carriages to pass and high enough for a loaded waggon or diligence to pass under. All the streets are in straight lines crossing at right angles, with narrow lanes between the streets at regular intervals. The houses are chiefly modern, but a few are of the sixteenth century, and there are turrets at the corners of several of the streets. The church is modern, but the west end is of the fourteenth century with a good doorway and arches on each side of it. The suite of mouldings of the doorway is unusually rich for France, as French architecture in general has a remarkable paucity of mouldings compared with English, but this is more the case with their windows than their doorways.

Titian's "Bunch of Grapes."

The highest finishing is labour in vain, unless at the same time there be preserved a breadth of light and shadow; it is a quality therefore that is more frequently recommended to students and insisted upon than any other whatever, and perhaps for this reason, because it is most apt to be neglected, the attention of the artist being so often entirely absorbed in the detail. To illustrate this we may have recourse to Titian's "Bunch of Grapes," which we will suppose placed so as to receive a broad light and shadow. Here, though each individual grape on the light side has its light and shadow and reflection, yet altogether they make but one broad mass of light; the slightest sketch therefore where this breadth is preserved will have a better effect, will have more the appearance of coming from a master-hand—that is, in other words, will have more the characteristic and generale of nature than the most laborious finishing where this breadth is lost or neglected.

CORRESPONDENCE

The Sanitary Inspectors' Association.

SIR,—In your report of the annual meeting of this Association, which appeared in a late issue of your Journal, reference is made to one of the auditors having remarked that something would have to be done to increase the income or decrease the expenditure, otherwise the Association would soon be in a state of bankruptcy. A report of this kind is calculated to injure the Association, and in order to prevent a wrong impression being circulated I should be glad if you would kindly insert this letter in your next issue.

The financial statement for the past year shows that we have a capital account balance in our favour of considerably over 3,000*l.*, and this by no means looks like our being in a bankrupt state. Of course we are bound to admit that the annual expense which has been incurred by the Association in promoting the interests of not only the members of the Association, but also of every sanitary inspector in the kingdom has been a severe tax upon our funds, and, as in the case of all similar associations, great care has to be taken to make the income and expenditure balance (which this year it does not quite do, and to this the auditor referred). With the large membership which is constantly being augmented, there need be no fear of the Association ever becoming in a bankrupt state.—We are, faithfully yours,

T. J. MOSS FLOWER, Chairman of Council.
EDWARD TIDMAN, Hon. Secretary.

Connaught Mansions, 34 Victoria Street, Westminster:
October 27, 1898.

Roman Remains in Hayling Island.

SIR,—Antiquarians within reach of this place may be glad to know that the foundations of the Roman building in "the Towncil Field" here have been to a considerable extent laid bare and, through the courtesy of the occupier of the land, may be seen for a few days before the ground is required again for farming purposes. Few objects have been found save nails, bits of coarse pottery and the débris usually met with in such operations. Working alone and depending entirely on my own spade and pickaxe, I have not been able in the time at my disposal to excavate the site as thoroughly as might be wished, but the general outline of the edifice may be recognised.—I am, sir, yours faithfully, TALFOURD ELY.

Stoke, Hayling Island: October 29.

The British School at Athens.

SIR,—In your report of the annual meeting of the British School at Athens you say that "Professor E. A. Gardner, former director, went in May to advise the Greek Government with regard to the consolidation of the Parthenon." I think a line must have dropped out. I was in Athens in May with a party of students; but of course it was Mr. F. C. Penrose who went out to look after the Parthenon.—I am, yours truly,

ERNEST A. GARDNER.

University College, Gower Street, London, W.C.:
October 31, 1898.

Dry Rot.

SIR,—Can any of your readers tell me what is the best thing to do to prevent the spread of dry rot which has shown itself in a house where new rooms have been added? SENEX.

Oakfield, Forest Row, Sussex:
October 30, 1898.

GENERAL.

M. Carolus-Duran was on Saturday elected successor of the late Puvis de Chavannes as president of the Société Nationale des Beaux-Arts. He has appointed the following presidents of sections:—Painting, M. Roll; sculpture, M. Rodin; engraving, M. Waltner; "objets d'art," M. Cazin.

M. Gérôme, the French painter, but who has recently undertaken works of sculpture, has completed his model of the memorial of the Duc d'Aumale which is to be erected at Chantilly. His assistants are enlarging it in order that the casting in bronze can be undertaken.

The Hermione Lectures, established at Alexandra College, Dublin, in memory of the late Duchess of Leinster, commenced on Wednesday. The lecturer this year is Miss Jane Harrison, LL.D., D.Litt., and the subject the "Parthenon Marbles."

The Académie des Beaux-Arts on Saturday announced the bestowal of the grands prix de Rome as follows:—Painting, MM. Gibert and Laparra, MM. Benner and Guétin; sculpture, M. Alaphilippe, MM. Boucher and Terroir; architecture, M. Chifflot, M. Auburtin; engraving, M. Corabœuf, MM. Quidor and Busière; musical composition, M. Malherbe.

The Swiney Prize, consisting of a cup designed by D. Maclise, R.A., and a sum of 100*l.*, will be awarded by the Society of Arts in January next for the best published work on jurisprudence.

The Members of the Stock Exchange propose to subscribe 500*l.* for a painting to fill one of the panels in the Royal Exchange.

The Museum at Olympia has, according to the *Standard* correspondent, suffered great damage through the excessive rains. The celebrated marble statue of Hermes, by Praxiteles, is well placed, and is itself in no danger; but the Minister of Public Worship has ordered repairs to be done to the Museum, which is in an unsafe condition, notwithstanding that within ten years defects have been thrice remedied.

The Late Mr. James Pyke Thompson has bequeathed to the Cardiff Museum and Art Gallery a gift of pictures, prints and porcelain valued at £4,000. The oil-paintings include a unique example of George Romney's work, entitled "The Bleaching Ground"; "Cardigan Bay," by David Cox; and "Gipsies Resting," by G. F. Poole, R.A. Among the water-colours are eight sketches by Cox and a fine drawing of "Ewenny Priory," by J. W. M. Turner.

The Foundation-stone of the new blocks of St. Marylebone Workhouse has been laid. The work will cost £52,100.

Colonel George Waring, the sanitary engineer, and who wrote largely on sanitary science, died on Saturday in New York, aged sixty-five. He examined the camp sites in Cuba, and developed yellow fever after returning.

The Offer of Mrs. Hopkinson, Mr. Bertram Hopkinson, B.A., of Trinity College, and Miss Ellen Hopkinson to give 5,000*l.* for an extension of the engineering laboratory, Cambridge, to be erected in memory of the late John Hopkinson, M.A., and the late John Gustave Hopkinson, has been gratefully accepted.

The Duke of Cambridge on Monday laid the foundation-stone of the Town Hall, Colchester, of which Mr. John Belcher is architect.

Mr. Lewis Angell reports that works of the value of 574,224*l.* are either in execution or preparation in his department as borough engineer to the Corporation of West Ham.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

ABERAVON.—Dec. 1.—Plans are invited, with estimated cost, for the extension of the covered market. A premium of twenty guineas will be awarded to the architect whose plans shall be selected. Mr. Jas. Roderick, borough surveyor, Aberavon.

SWINDON.—Nov. 7.—The Guardians of Highworth and Swindon Union invite designs and plans from architects for making additional accommodation at the workhouse infirmary. Architects intending to compete will please send in their names to Mr. J. P. Kirby, clerk, 42 Cricklade Street, Swindon.

CONTRACTS OPEN.

ALNMOUTH.—Nov. 9.—For an addition at Croft House. Mr. M. Temple Wilson, architect, Alnwick.

ALTRINCHAM.—Nov. 11.—For erection of offices, council-chamber, fire station, caretaker's house, &c. Messrs. Hindle & Davenport, architects, 16 Market Street, Altrincham.

ARBROATH.—Nov. 14.—For erection of a post office. Mr. George Morham, 39 George Street, Edinburgh.

BARRASFORD.—Nov. 18.—For alterations and additions to the parochial schools. Messrs. Armstrong & Knowles, 38 Grainger Street, Newcastle-on-Tyne.

BEDWORTH.—Nov. 7.—For erection of miners' central offices, with residence adjoining. Mr. Thos. F. Tickner, architect, 7 Bishop Street, Coventry.

BELFAST.—For erection of stores and stabling, Queen's Bridge. Mr. W. J. Moore, architect, Whitehall Buildings, Ann Street, Belfast.

BELFAST.—For erection of block of dwelling-houses, Falls Road. Mr. W. J. Moore, Whitehall Buildings, Ann Street, Belfast.

BINGLEY.—Nov. 8.—For additions to the Crossflats Board schools. Mr. Wm. Rhodes Nunns, architect, Market Street, Bingley.

BIRKENHEAD.—Nov. 14.—For erection of public baths in Corporation Street and Prince Street. Mr. Charles Brownridge, borough engineer, Town Hall, Birkenhead.

BIRMINGHAM.—Nov. 11.—For providing an escape staircase at the workhouse, for work in connection therewith, and for lavatory fittings. Mr. Ward, architect, Paradise Street.

BISHOP AUCKLAND.—For erecting a corrugated iron roof with pillars to support same. Mr. Farr, coachbuilder, Bishop Auckland.

BLACKBURN.—Nov. 10.—For erection of a conservatory in the Corporation Park. Mr. William Stubbs, engineer, Municipal Offices, Blackburn.

BLACKBURN.—Nov. 11.—For erection of farmhouses and buildings, Yate Bank. Messrs. Sames & Green, architects, 65 Northgate, Blackburn.

BRADFORD.—For erection of a doctor's residence. Mr. John Jackson, M.S.A., architect, Barry Street, Bradford.

BRADFORD.—Nov. 10.—For erection of stabling. Messrs. Thompson McKay & Co., Limited, 7 Leeds Road, Bradford.

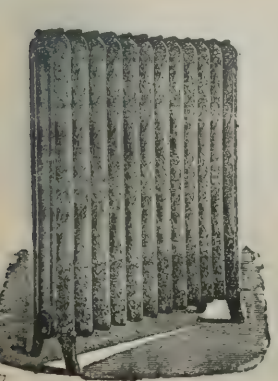
BRIDGEND.—Nov. 24.—For erection of a chapel at Parc Gwyllt Asylum. Messrs. Giles, Gough & Trollope, architects, 23 Craven Street, Charing Cross.

BURNLEY.—Nov. 7.—For erection of three dwelling-houses, &c., at Bank Parade. Mr. Robert Neill, architect, 9 Grimshaw Street, Burnley.

CARDIFF.—Nov. 9.—For supply and erection of iron sheep and cattle troughs and wood troughs in cattle stalls and pens in Roath Market. Mr. W. Harpur, borough engineer, Town Hall.

CARDIFF.—Nov. 15.—For erection of a fish market and offices at the Hayes. Mr. W. Harpur, borough engineer, Town Hall, Cardiff.

CARMARTHEN.—Nov. 18.—For erection of a stone bridge of three arches and approaches thereto over the river Towy at Dryslwyn. Mr. Thomas Codrington, Shire Hall, Carmarthen.



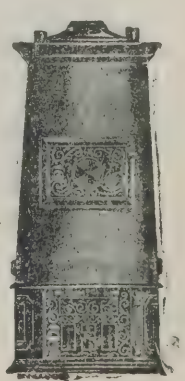
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CHATHAM.—Nov. 9.—For the following works at the Medway union workhouse:—(1) Erection of additional rooms and alterations to the quarters of the superintendent of the casual wards; (2) erection of a new infirmary ward, new lavatories and various alterations in the infirmary. Mr. G. E. Bond, architect, High Street, Rochester.

CORK.—Nov. 14.—For erection of offices for the Cork Electric Tramway and Lighting Co., adjoining the power-house, Albert Street. Mr. Robert Walker, architect, 17 South Mall, Cork.

COVENTRY.—Nov. 9.—For erection of schools at Radford. Messrs. George & Isaac Steane, architects, 22 Little Park Street, Coventry.

COVENTRY.—Nov. 12.—For erection of buildings at their proposed two new pumping stations on the side of the main road from Coventry to Daventry. Mr. James Mansergh, 5 Victoria Street, Westminster.

DARLINGTON.—Nov. 7.—For extensive additions to works in Kinross Street and Upper John Street, for the North of England School Furnishing Company, Limited. Secretary, North of England School Furnishing Company, Limited, Darlington.

DRIFFIELD.—Nov. 17.—For erection of the new church of St. John's. Messrs. Hicks & Charlewood, architects, Driffield.

DRIGHLINGTON.—For alterations to the Valley inn. Mr. A. D. Kaye, architect, 71 Albion Street, Leeds.

DULWICH.—Dec. 1.—For additions and alterations to the school premises, East Dulwich Grove. Mr. Arthur J. Gale, architect, 4 Serjeants' Inn, Fleet Street, E.C.

EASTBOURNE.—Nov. 7.—For alterations to the existing boundary wall and the provision of wrought-iron fencing to the storm-water reservoir, Sidley Road. Mr. R. M. Gloyne, borough engineer, Town Hall, Eastbourne.

EDINBURGH.—Nov. 7.—For erection of hotel at Princes Street Station. Messrs. Peddie & Washington Browne, architects, 8 Albyn Place, Edinburgh.

ELGIN.—Nov. 8.—For reconstruction of the Elgin Brewery. Mr. George Sutherland, architect, Elgin.

ESSEX.—Nov. 10.—For erection of a classroom at the Cressing National school. Plan and specifications may be seen at Cressing Vicarage.

EXMOUTH.—Nov. 12.—For rebuilding the White Hart inn, Back Street. Mr. Proctor Sherwin, architect, Manchester Street, Exmouth.

EXMOUTH.—Nov. 7.—For alterations and portion of new roof at The Lawn. Mr. Ernest E. Ellis, 20 Morton Road, Exmouth.

HALIFAX.—Nov. 7.—For erection of conveniences at Portland Road Board school. Mr. W. H. Ostler, clerk, 22 Union Street, Halifax.

HALTWHISTLE.—Nov. 7.—For erection of the Mechanics' Institute. Messrs. Oliver & Dodgshun, architects, Carlisle.

HITCHIN.—Nov. 8.—For erection of a town hall and offices on a site at the corner of Brand Street and Grammar School Walk. Mr. E. W. Mountford, 17 Buckingham Street, Strand, W.C.

HOLBROOK.—Nov. 16.—For works at Holbrook schools. Mr. Edward Fernley Bisshop, architect, 32 Museum Street, Ipswich.

HORSHAM.—Nov. 9.—For additions and alterations to the Sussex Oak Inn, Warnham. Mr. C. H. Burstow, architect, 6 West Street, Horsham.

IRELAND.—For sanitary work required at cottages, Whitehead, co. Antrim. Mr. John Russell, architect, 16 Waring Street, Belfast.

KEIGHLEY.—Nov. 11.—For erection of a workshop and foundry, adjoining Goulbourne and Starkie Streets. Messrs. Barber, Hopkinson & Co., architects, Craven Bank Chambers, North Street, Keighley.

KENT.—Nov. 13.—For additions to the hospital at Skym Corner, Bromley Common. Mr. John Ladds, architect, 7 Doughty Street, Mecklenburgh Square, W.C.

LAUNCESTON.—Nov. 12.—For erection of cattle, sheep and pig market. Mr. Otho B. Peter, architect, Launceston.

LLANELLY.—Nov. 8.—For erection of an infant school at Pontyberem and a classroom in connection with the mixed department. Mr. J. B. Morgan, architect, New Road, Llanelly.

LONDON.—Nov. 15.—For erection of public conveniences at Blackwall Tunnel (north side), for the London County Council. Particulars at the Architect's Department, General Branch, 13 Spring Gardens, S.W.

LONDONDERRY.—Nov. 10.—For erection of fifteen houses at Phillip Street, Strand. Mr. Edward J. Toye, architect, Strand, Derry.

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LOWESTOFT.—Nov. 7.—For erection of two residences in High Street. Messrs. G. Fitt & Co., Limited, architects, Queen Street, Norwich.

MACCLESFIELD.—Nov. 5.—For erection of police station in Church Side. Mr. Edward E. Adshead, borough engineer, Town Hall, Macclesfield.

MALLOW.—Nov. 11.—For repairs to cottages at the following places :—Mountnagle and Ballyvorisheen, in the electoral division of Carrig ; Gurraneachole, in the electoral division of Clenor ; Woodpark, in the Ballyclough electoral division. Mr. Maurice Regan, clerk, Poor Law Office, Mallow.

MANCHESTER.—Nov. 7.—For erection of working-men's homes in Charter Street. Messrs. Maxwell & Tuke, 41 Corporation Street, Manchester.

MARYPORT.—Nov. 18.—For pulling-down and rebuilding the Victoria Vaults and Royal Oak inn. Mr. Chas. Eaglesfield, architect, Maryport.

MIDDLESBROUGH.—Nov. 7.—For extensive additions to aerated water manufactory in Grange Road. Mr. Walter G. Roberts, architect, 61 Albert Road, Middlesbrough.

MORLEY.—Nov. 9.—For fitting-up of the various departments in the new central stores. Mr. Geo. B. Clegg, architect, 2 Peel Street, Morley.

MOUNTSORREL.—Nov. 7.—For alterations to storerooms at the workhouse. Mr. J. J. Fairfax Scott, clerk, Union Offices, Mountsorrel.

NUNHEAD.—For pulling-down and rebuilding back additions to two houses. Dr. S. D. Bhabha, 8 Drakefell Road, St. Catherine's Park, S E.

PADDINGTON.—Nov. 15.—For erection of a coroner's court building at Manor Place, for the London County Council. Particulars at the Architect's Department, 13 Spring Gardens, S.W.

PRESTHOPE, AYNHO AND KINGSWOOD.—Nov. 8.—For erection of cottages at Presthope, Aynho and Kingswood Stations, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

ROCHDALE.—Nov. 10.—For erection of the Board school at Heybrook. Mr. T. Townend, jun., architect, District Bank Chambers, Rochdale.

SALISBURY.—Nov. 17.—For additions and alterations, with new shop front. Mr. Fred Bath, architect, Crown Chambers, Salisbury.

SCOTLAND.—Nov. 7.—For additions and improvements at the Free church, Aberlour. Messrs. D. & J. R. M'Millan, architects, 211 Union Street, Aberdeen.

SCOTLAND.—Nov. 9.—For erection of a dwelling-house in Gordonsburgh. Mr. James Perry, architect, Buckie.

SCOTLAND.—Nov. 10.—For erection of engine and boiler-house at Newhouse, Hamilton. Messrs. J. & A. Leslie & Reid, 72A George Street, Edinburgh.

SCOTLAND.—Nov. 14.—For erection of dining-hall and six bedrooms, &c., at the Stotfield Hotel, Lossiemouth. Mr. R. B. Pratt, architect, County Bank House, Elgin.

SCOTLAND.—For repairs to the parish church and manse, Kilbrandon. Mr. Peter Fisher, Kilbrandon.

SCOTLAND.—Nov. 18.—For erection of public hall at Pitlochry. Messrs. John Bruce & Son, architects, Dundee.

SHEFFIELD.—Nov. 7.—For erection of two houses, &c., at Woodhouse. Mr. Henry Webster, architect, St. Marie's Chambers, Norfolk Row, Sheffield.

SOPHIA (BULGARIA).—Nov. 21.—For erection of eight public offices, viz., a Ministry of Public Works, Ways and Communications, a Ministry of Commerce and Agriculture, a Ministry of the Interior, a Ministry of Public Instruction, a Ministry for Foreign Affairs and Public Worship, a Ministry of Justice, and an Audit Office. Particulars can be obtained at the Commercial Department of the Foreign Office between the hours of 11 and 5.

THIRSK.—Nov. 10.—For erection of banking premises in the market place. Messrs. Bedford & Kitson, architects, 12 East Parade, Leeds.

ULVERSTON.—For alterations to the Sun inn, Dalton. Messrs. Settle & Farmer, architects, Ulverston.

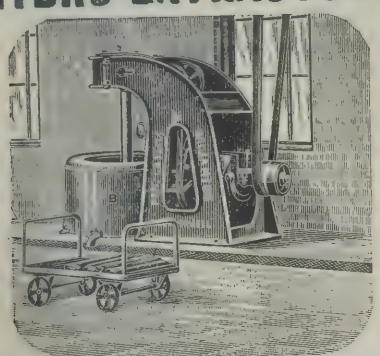
UTLEY.—For erection of a residence. Messrs. John Judson & Moore, architects, Keighley.

WAKES COLNE.—For erection of three pairs of cottages at Wakes Colne. Mr. J. W. Start, architect, Cupschamber, Colchester.

WALES.—Nov. 10.—For erection of a dwelling-house and outbuildings near Llandovery. Mr. David Jenkins, architect, Llandilo.

WALES.—Nov. 15.—For erection of a master's residence at the Board schools, Rhosllanerchrugog. Messrs. J. Morison & Son, architects, King Street, Wrexham.

HYDRO-EXTRACTORS.



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WALES.—Nov. 14.—For alteration and conversion of the existing three departments of the Treherbert Board school into one department. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—Nov. 21.—For erection of an infants' school at Pontlottyn. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—Nov. 30.—For erection of a school at Rhiwfawr. Mr. W. W. Williams, architect, Island Chambers, 63 Wind Street, Swansea.

WALSALL.—Nov. 7.—For erection of caretaker's house at the Wolverhampton Road schools. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WATERFORD.—Nov. 14.—For erection of a house for the chief officer at Dunmore East Coastguard Station, co. Waterford. Mr. H. Williams, secretary, Office of Public Works, Dublin.

WIGAN.—Nov. 14.—For erection of a county court and inland revenue offices for the Commissioners of H.M. Works and Public Buildings. Messrs. Hunt & Steward, 45 Parliament Street, London, S.W.

AN EXPLANATION AND APOLOGY.—In our issue of *The Architect* for September 23 we made certain statements with reference to proceedings by the London County Council in regard to a building in Victoria Street, Westminster, of which Mr. C. J. C. Pawley is the owner and architect. We also made editorial comments reflecting upon the professional ability and reputation of Mr. Pawley. We find that the statements in question were inaccurate, and that we were not justified in making them, nor were we justified in our editorial comments reflecting on the ability and reputation of Mr. Pawley. That gentleman has instituted proceedings against us in respect of these matters, which he has consented to stay on payment of his solicitor's charges, on our making a donation of ten guineas to the Abbey Mansions Accident Fund, and on our apologising. We therefore beg to apologise and to express our regret to Mr. Pawley for having made the erroneous statements in question and for the reflections cast upon him, for which we admit there was no justification.

TENDERS.

BARNSLEY.

For erection of a Sunday-school with classrooms, &c., to the Wesleyan Reform chapel, George Street, Wombwell. Mr. JOHN ROBINSON, architect, Wombell.

J. WHITEHEAD, Wombwell, Barnsley (*accepted for all trades*).

BERKHAMSTED.

For alterations and additions to premises, High Street, Berkhamsted, for Messrs. Ind, Coope & Co., Limited. Messrs. HARRINGTON & LEY, architects, 108 Fenchurch Street, E.C.

H. & J. MATTHEWS, Berkhamsted (*accepted*) . £364 1 6

BRIDGWATER.

For roof works at the Market House, Cornhill.

Harris & Tapscott	£364 14 0
A. RICHARD, Bridgwater (*accepted*)	294 0 0

BROMLEY.

For erection of detached residence at Westmoreland Road.

Stebbings & Pannett	£2,080 0 0
Knight	2,047 0 0
J. APPLEBY, Cornwall Road (*accepted*)	1,997 0 0

For alterations and additions at Beechfield, Wigmore Road. Mr. G. GORDON STANHAM, architect, 100B Queen Victoria Street, E.C.

J. APPLEBY, Cornwall Road (*accepted*) . £753 0 0

BRADFORD.

For erection of ten houses in Parkside Road, West Bowling. Mr. SAMUEL ROBINSON, architect, Cheapside, Bradford.

Accepted tenders.

G. Day, Grange Road, mason.
J. Patchett, Queensbury, joiner.
H. Hill, Westgate, plumber.
J. Smithies, Great Horton, slater.
F. Copley, Barkerend Road, painter.
Note.—Plasterer's work not settled.

BRIXTON.

For alterations and additions to the Atlantic public-house, 389 Coldharbour Lane. Mr. A. B. ROBB, architect.

SPENCER & CO., Lambeth (*accepted*) . £4,227 0 0

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BROMPTON.

For erection of a nurses' home for the Royal Hospital for Consumption. Mr. EDWIN T. HALL, architect, 57 Moorgate Street, E.C.

Cubitt & Co.	£39,806 0 0
Leslie & Co.	39,651 0 0
H. Lovatt	34,176 0 0
Woodward & Co.	33,890 0 0
Killby & Gayford	33,774 0 0
G. & H. Bywaters	33,680 0 0
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Lawrence & Son	32,954 0 0
Foster & Dicksee	32,476 0 0

CARLISLE.

For painting Corporation properties, &c. Mr. HENRY C. MARKS, city engineer and surveyor.

R. S. KIRK, Lonsdale Street (*accepted*)	£322 4 5

For erection of a caretaker's lodge on the Sauceries. Mr. HENRY C. MARKS, city engineer.

Beaty Bros.	£741 0 0
R. Little	721 17 0
J. H. Reed	699 10 0
W. Lattimer	684 0 0
E. J. Hill	679 0 0
G. Hill & Sons	667 16 9
J. LAING, Denton Street (*accepted*)	654 12 2
Surveyor's estimate	646 18 7

CROYDON.

For erection of a new wing, &c., at Croydon General Hospital. Mr. CHARLES HENMAN, architect, 64 Cannon Street, E.C.

F. Pearce	£10,567 10 0
W. Potter	10,344 2 6
S. Page	9,695 0 0
E. P. Bulled & Co.	9,349 0 0
Balaam Bros.	9,286 0 0
W. Akers & Co.	9,247 0 0
J. Smith & Sons	8,900 0 0
W. Smith & Son	8,750 0 0
D. W. Barker	8,744 0 0
Huntley Bros.	8,575 0 0
E. J. SAUNDERS, Croydon (*accepted*)	8,448 0 0

CHESHIRE.

For proposed alterations and additions to workhouse, Clatterbridge. Mr. C. O. FRANCIS, architect, Leamington Chambers, 5 Richmond Street, Liverpool.

T. Myers	£589 0 0
J. Downham	572 18 0
J. Lee & Son	509 10 10
R. Allen	447 10 0
Delany & Shanks	440 0 0
J. G. Mills	439 11 6
R. Hamilton	427 16 8
MCLACHLAN & BATKIN, Birkenhead (*accepted*)	420 0 0

COBHAM.

For alterations and additions to the brewery at Cobham, for Messrs. Ashby's Cobham Brewery Company, Limited. Messrs. TREADWELL & MARTIN, architects, 2 Waterloo Place, S.W. Quantities by Mr. H. WILLIAMS MELLOR, 17 Buckingham Street, Adelphi, W.C.

Peters & Son	£2,920 0 0
Cropley	2,785 0 0
Gower	2,757 0 0
Smith	2,700 0 0
Wood	2,398 0 0
James	2,370 0 0

DURHAM.

For construction of 568 lineal yards of 8-inch and 6-inch pipe sewers, with manholes, lampholes, &c. Mr. G. GREGSON, surveyor.

J. Manners	£292 0 0
J. Carrick	230 0 0
R. Oliver	190 0 0
F. DIXON, Durham (*accepted*)	160 0 0

FINCHLEY.

For erection of Glenthorne, Bishop's Avenue, N., for Mr. G. Sainsbury. Mr. ERNEST CARRITT, architect, 57 Lincoln's Inn Fields, W.C. Quantities by Mr. H. WILLIAMS MELLOR, 17 Buckingham Street, Adelphi, W.C.

Ashby Bros.	£4,963 0 0
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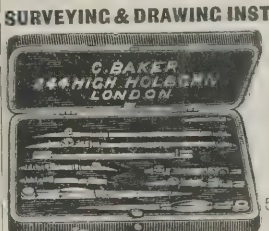
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T. V. Stourport, Evesham	£200 0 0

GLOUCESTER.

For erection of new buildings for electrical works. Mr. H. A. DANCEY, architect, Clarence Street, Gloucester. Quantities by Mr. H. A. DANCEY.

Stephens, Bastow & Co., Limited	£10,774 0 0
H. A. Forse	9,278 0 0
William Bowers & Co.	8,691 17 0
Alfred King, jun. & A. E. King	8,378 0 0
Collins & Godfrey	8,146 0 0
Philip Ford	8,026 1 1
William Jones	7,711 0 0
JOHN GURNEY & SONS, Gloucester (*accepted*)*	7,676 0 0
Freeman & Jones	7,300 0 0

* This tender accepted on October 25, having regard to the shorter time required for completion.

HEBDEN BRIDGE.

For supply and erection of machinery at the sewage works, consisting of boiler, engine, pumps, presses, &c. Messrs. NEWTON & SON, engineers, 17 Cooper Street, Manchester.

GODDARD, MASSEY & WARNER, Nottingham (*accepted*)	£1,170 19 0

HIGHGATE.

For entire redrainage and new sanitary work and fittings to the Archway Road Infirmary, Highgate, N., for the Guardians of the Poor of the Holborn Union. Mr. H. WILLIAMS MELLOR, surveyor, 17 Buckingham Street, Adelphi, W.C.

Adams	37½ per cent. in excess of the prime cost of the priced schedule of prices.
Finch & Co.	35 " "
Shurmur	33⅓ " "
Barrett & Power	25 " "
Minter	17½ " "
Reason	17½ " "
H. Wall & Co.	15 " "

IRELAND.

For lighting works at Drumcondra, Clonliffe and Glasnevin.

J. Boulger	£145 0 0
T. CAMPBELL, Dublin (*accepted*)	143 0 0

KINGSCLERE.

For erection of six cottages. Mr. WALTER HENRY BELL, architect, Market Place, Newbury.

Hoskings	£1,700 0 0
Bance	1,220 0 0
Garrett	1,152 0 0
HEAD, Burghclere, Newbury (*accepted*)	1,140 0 0

LEE.

For erection of a sorting office.

Thomas & Edge	£2,297 0 0
W. H. Lorden & Son	2,222 0 0
Balaam Bros.	2,200 0 0
W. Martin	2,164 0 0
T. J. Barden	2,050 0 0
Merredew & Wort	1,970 0 0
GENERAL BUILDERS, LIMITED (*accepted*)	1,950 0 0

LONDON.

For erection of stabling, ham and bacon stoves, caretaker's house, &c, at Gravel Lane, S.E., for Mr. J. Sainsbury. Mr. ERNEST CARRITT, architect, 57 Lincoln's Inn Fields, W.C. Quantities by Mr. H. WILLIAMS MELLOR, 17 Buckingham Street, Adelphi, W.C.

W. M. Johnson & Co.	£11,830 0 0
Beer & Gash	11,807 0 0
Ashby Bros.	11,640 0 0
Hunt & Son	11,593 0 0
F. & H. F. Higgs	11,515 0 0
Patman & Fotheringham	11,496 0 0
Rider & Son	11,495 0 0
Smith & Sons	11,079 0 0

For rebuilding of Nos. 61 and 62 Houndsditch, E.C., for Mr. J. Farquharson. Mr. G. SPARKS, architect. Quantities by Mr. H. WILLIAMS MELLOR, 17 Buckingham Street, Adelphi, W.C.

Patman & Fotheringham	£2,913 0 0
Ashby & Horner	2,841 0 0
Lole & Lightfoot	2,798 0 0
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LONDON—*continued.*

For erection of an underground convenience at Old Street, City Road, for the St Luke's Vestry, Middlesex. Mr. HARLEY HECKFORD, C.E., vestry surveyor. Quantities by Mr. H. WILLIAMS MELLOR, 17 Buckingham Street, Adelphi, W.C.

Finch & Co.	£2,895 0 0
Shurmur	2,772 0 0
Jennings	2,498 0 0
Davies	2,375 0 0

For erection of an underground convenience in Golden Lane, E.C., for the St. Luke's Vestry, Middlesex. Mr. HARLEY HECKFORD, C.E., vestry surveyor. Quantities by Mr. H. WILLIAMS MELLOR, 17 Buckingham Street, Adelphi, W.C.

Doulton & Co.	£2,902 0 0
Mowlem & Co.	2,858 0 0
Jennings	2,790 0 0
Shurmur	2,772 0 0
Bull	2,767 10 0
Thomas & Edge	2,751 0 0
Wood	2,745 0 0
Finch & Co.	2,585 0 0
General Builders, Limited	2,550 0 0

For new internal fittings to the Old Shades tavern, Charing Cross, for Messrs Antiss & Buckler. Messrs. TREADWELL & MARTIN, architects, 2 Waterloo Place, S.W. Quantities by Mr. H. WILLIAMS MELLOR, 17 Buckingham Street, Adelphi, W.C.

Antill & Co.	£3,392 0 0
Ashby Bros.	3,285 0 0
Atkinson	3,136 0 0
Wright & Co.	3,084 0 0
F. & H. F. Higgs	2,994 0 0
Waring & Sons	2,980 0 0

For alterations and additions to Edinburgh House, Kilburn, W., for Mr. R. Beardall. Messrs. TREADWELL & MARTIN, architects, 2 Waterloo Place, S.W. Quantities by Mr. H. WILLIAMS MELLOR, 17 Buckingham Street, Adelphi, W.C.

McBain	£3,034 0 0
Scrivener & Co.	2,974 0 0
Styles & Sons	2,876 0 0
Melbourne	2,821 0 0
Lole & Lightfoot	2,801 10 0

LONDON—*continued.*

For erection of a block of flats at Franklin's Row, to be known as Burton Court, for Mr. A. J. Sanderson. Mr. PAUL HOFFMAN, architect, 152 Palmerston Buildings, Old Broad Street. Quantities by Mr. H. WILLIAMS MELLOR, 17 Buckingham Street, Adelphi, W.C.

F. BRITTON (*accepted*)	£26,100 0 0

For alterations to adjoining buildings and providing forty-two additional bedrooms to Hampden Residential Club for Hampden House, Limited. Messrs. SALTER, ISSOTT & SALTER, architects, Phœnix Street, St. Pancras, N.W.

I. S. ELMORE, Brixton (*accepted*)	£305 10 0
C. J. SMITH, electric-light fittings, King Street, Regent Street (*accepted*)	90 0 0

For erection of refuse destructor in Clerkenwell.

Horsfall Syndicate, Limited	£1,640 0 0
Beaman & Deas (*not including roof*)	1,097 0 0
BAKER & SON (*accepted*)	1,089 0 0

For installing the electric light at the Edmonton House.

T. MEDCALF, LIMITED, Bradford (*accepted*)	£2,460 0 0

LONDON SCHOOL BOARD.

For enlargement—Boys, 104; girls, 111; infants, 133; total, 348. Providing halls for all departments; removing existing and providing new staircases and cloakrooms for boys and girls; teachers' rooms and lavatories for all departments; reseating, stepping and improving lighting of existing classrooms; providing playground on roof of new enlargement for girls; providing new water-closets for all departments; removing present schoolkeeper's house and leaving one existing house on site for use of schoolkeeper; providing new drainage scheme and enclosing and tar-paving the additional land, White Lion Street.

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G. S. S. Williams & Son	16,480 0 0
J. Chessum & Sons	16,382 0 0
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E. Triggs	16,135 0 0
T. L. Green	16,025 0 0
L. H. & R. Roberts	15,529 0 0
E. Lawrance & Sons *	15,312 0 0

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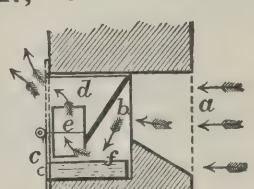
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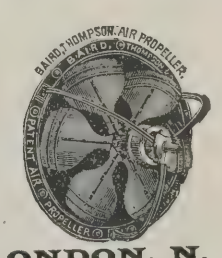
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Also, Testimonials from Dr. Hassall, September 28, 1868; the late Dr. Letheby, February 15 1865, and December 1872.

Price, £1 10s. and upwards. **Portable Filters on this System, £1 5s. to £3.**

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LONDON SCHOOL BOARD—*continued.*

For erecting special school, Gloucester Road.

J. N. Try	£4,200 0 0
Holliday & Greenwood	3,762 0 0
E. P. Bulled & Co.	3,746 0 0
J. Smith & Sons	3,667 0 0
F. & H. F. Higgs	3,500 0 0
A. White & Co.	3,457 0 0
J. Garrett & Son	3,385 0 0
Edwards & Medway	3,312 0 0
W. Johnson & Co., Limited	3,123 0 0
E. Triggs	3,094 0 0
J. & C. Bowyer*	2,925 0 0

For erecting deaf centre for boys and girls (48), providing water-closets and covered playground, and enclosing, draining and tar-paving the additional land, Surrey Lane.

F. & H. F. Higgs	£4,287 0 0
J. Carmichael	4,108 0 0
J. Garrett & Son	4,086 0 0
J. & M. Patrick	3,848 0 0
E. Triggs	3,823 0 0
T. Gregory & Co.	3,810 0 0
O. Craske	3,772 0 0
W. Downs	3,647 0 0
W. Johnson & Co., Limited	3,632 0 0
Lathey Bros.	3,583 0 0
J. Marsland	3,563 0 0
B. E. Nightingale*	3,448 0 0

For refitting boys' and female infants' offices, rearranging and refitting male infants' offices, erecting girls' offices in new position on roof playground, and new drainage scheme, Betts Street.

W. Gregar & Son	£2,734 0 0
G. Munday & Sons	2,680 0 0
G. S. S. Williams & Son	2,513 0 0
Dove Bros.	2,496 0 0
E. Parsons & Co.	2,420 0 0
E. Lawrance & Sons	2,382 0 0
L. H. & R. Roberts	2,197 0 0
Johnson & Co.	2,089 0 0
H. Knight & Son	2,022 10 0
E. Triggs*	1,995 0 0

* Recommended for acceptance.

LONDON SCHOOL BOARD—*continued.*

For removing three iron buildings and appurtenances from the Cavendish Road site, and re-erecting two of the buildings and appurtenances upon this site, and stacking the third building, Valley Road.

		A.
T. Cruwys	£1,065 0 0	£250 0 0
Humphreys, Limited	1,062 0 0	131 0 0
J. Mitson & Co.	1,059 0 0	198 0 0
W. Harbrow	1,037 0 0	125 0 0
J. & W. T. Hunter*	920 0 0	75 0 0

A. Amount to be added for re-erecting the third iron building, if required.

* Recommended for acceptance.

MORECAMBE.

For erection of two houses in Thornton Road. Mr. J. TARNEY, architect, 16 Primrose Street, Morecambe.

Accepted tenders.

J. Quinn, Morecambe, mason, &c.	£532 18 6
J. Holden & Sons, Shipley, joiners	256 0 0
A. Wilding, Morecambe, plumber, glazier, gas-fitter, &c.	145 0 0
W. J. Cross, Morecambe, slater and plasterer	116 16 0
A. R. Stephenson, Lancaster, painter	29 5 0

NEWPORT.

For erection of Congregational church, London Street. Messrs. HABERSHON & FAWCKNER, architects, 41 High Street, Newport.

Jones Bros., Cardiff	£4,255 0 0
D. Parfitt	3,200 0 0
C. H. Reed	3,150 0 0
J. Moore	3,100 0 0
W. A. Linton	3,025 0 0
A. S. Morgan & Co.	2,985 0 0
E. C. Jordon	2,951 0 0
C. Lock	3,949 0 0
J. Charles	2,939 0 0
G. Davies	2,910 0 0
Spratt Bros., Pontypridd	2,909 0 0
F. Baglow	2,780 0 0
T. Westacott	2,657 7

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NORTHANTS.

For drainage, &c., of Kingsley Park, Kingsthorpe.

Higgins (*accepted*)	£116 0 0

RAMSGATE.

For erection of refuse destructor, with buildings, sheds and chimney shaft in connection therewith. Mr. T. G. Taylor, borough surveyor, Broad Street, Ramsgate.

Horsfall Furnace Syndicate, Limited, Leeds (*accepted*)	£7,245 0 0

RUGBY.

For street-making in Pinfold Street, New Bilton. Mr. T. W. Willard, surveyor.

A. Jewell	£611 19 5
J. Young	560 0 0
J. Holme, Aylestone, Leicester (*accepted*)	554 9 6

SALTBURN.

For erection of a stone bridge. Mr. Walker Stead, county surveyor, Northallerton.

T. Dickinson	£2,200 0 0
J. Bentley	1,500 0 0
P. O. Hetherington	1,353 10 0
C. Firth	1,250 0 0
W. Blackburn	1,167 17 3
A. Atkinson & Co., Stockton (*accepted*)	935 0 3

SHIPLEY.

For paving, flagging, &c., in Oswald Street and Oakfield Terrace, Windhill.

Watmough & Preston, Bradford (*accepted*).

SOUTH SHIELDS.

For erection of new laundry, mortuary and alterations to the Ingham Infirmary. Mr. Henry Grieves, architect, Albany Chambers, South Shields.

S. Sheriff	£1,704 0 0
James Young	1,655 3 8
Crichton Bros., South Shields (*accepted*)	1,618 0 0

STAINES.

For erection of about 85 yards of 4-feet 6-inch cleft oak fencing and the widening and improvement of the roadway at Harlington. Mr. Geo. W. Manning, surveyor, Ashford, Staines.

W. Swaker	£114 10 0
D. J. Cattermole	70 0 0
T. J. Parker, Feltham (*accepted*)	62 10 0

STOCKPORT.

For sewerage work at George Lane, Bredbury, Holehouse Fold and Padden Brook, Romiley. Mr. W. Spinks, engineer, Prudential Buildings, Leeds.

T. Rowland	£993 4 10
J. Fairbrother, jun., & Co.	868 4 0
W. Bennison	833 0 0
A. Haughton & Sons, Godley (*accepted*)	707 10 0

WESTON-SUPER-MARE.

For pulling-down and rebuilding 22 Regent Street. Messrs. S. J. Wilde & Fry, architects, Boulevard Chambers, Weston-super-Mare.

L. Gibbs & Son	£598 10 0
G. Sprake	490 15 0
T. Allen	470 0 0
Keen & Keen	468 0 0
W. M. Dubin, Weston-super-Mare (*accepted*)	407 0 0

WINDSOR.

For new entrance gateway to the White Hart Hotel, Windsor, for Mr. J. C. Lake. Messrs. Treadwell & Martin, architects, 2 Waterloo Place, S.W. Quantities by Mr. H. Williams Mellor, 17 Buckingham Street, Adelphi, W.C.

Watson, Ascot	£625 0 0

THE "PRESTO" POCKET CAMERA.

Messrs. Marion & Co., of Soho Square, who enjoy a world-wide fame for photographic apparatus and appliances of all kinds, may undoubtedly take credit for having introduced the smallest, lightest and least expensive camera yet brought out. It is called the "Presto," and is convertible at will into a glass-plate or a film camera. It is an American invention, and its weight, including a charge of twenty-five films, is only six ounces, while its dimensions and shape adapt it admirably for carrying comfortably in the pocket, which can hardly be said of most of the pocket cameras hitherto offered. There is no mechanism to get out of order, the lenses, which are of the fixed focus type, are all subjected to careful test, and the pictures taken by the "Presto," albeit necessarily small (they are about 1¼ inch square) are of remarkable sharpness, and lend themselves admirably to enlargement. Everything about the "Presto" camera is of such extreme simplicity that it will be welcomed as a boon by cyclists and others, to whom its portability will at once recommend it, and its price, loaded ready for use, is only 10*s.* 3*d.* free by post.

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Fluate, FOR HARDENING, WATERPROOFING & PRESERVING BUILDING MATERIALS.
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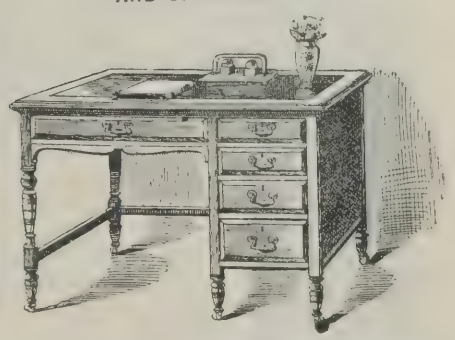
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WALNUT, OAK, or MAHOGANY SINGLE PEDESTAL WRITING TABLE, top lined with leather and drawers fitted with locks and keys, 3 ft. wide, **£3 15 0.** 3 ft. 6 in., **£5 4 0.**

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THE BRITISH LINEN BANK, EDINBURGH.

PROPOSED METHODIST CHURCH, WESTON-SUPER-MARE.

DESIGN FOR MUNICIPAL BUILDINGS, OXFORD.

ELECTRIC NOTES.

AN electrified bridge which recently shocked a number of men and horses in Chicago is stated by Mr. A. G. Riter, city bridge engineer, to have received its charge from a broken live wire. This came in contact with the ironwork of a draw-span, which transmitted the current to wet woodwork, and in this way caused the trouble. The structure was what is known as the Harrison Street bridge, and while the electricity wandered about for a short time only, it caused enough annoyance to show the importance of preventing such currents from straying.

AT last week's meeting of the Winsford Urban Council the question of lighting the district by means of electricity was discussed. It was reported that the first installation to light the whole of the main streets would cost 7,700*l.* A member gave notice that in a month's time he would move that application be made to the Board of Trade for a provisional order granting powers to the Urban Council to undertake public electric lighting.

SOME dissatisfaction has recently been expressed in Edinburgh at the want of pressure in the electric-lighting mains. This, it appears, has been caused by the extraordinary demand for the light, which has necessitated new machinery being pushed forward at high pressure, and considerable alterations made to the accessories and the boilers. This work is expected to be finished in a few days, when the pressure will be kept up constantly to its normal strength.

AT a special meeting held at Rhyl, under the presidency of Mr. J. H. Ellis, the general purposes committee recommended that, "In the face of notices of intended applications for electric light for Rhyl served upon the Council, and recognising that the time has come for the Council to take action themselves to supply the district with electric light, this committee be empowered to engage an engineer for taking immediate steps to formulate a scheme, combining provision for a dust destructor, with power also to engage legal assistance as may be necessary for compliance with the Act and the rules with respect to applications to the Board of Trade for a provisional order under the Electric Lighting Act, 1882 and 1888." The proposal was carried after some discussion.

AT a meeting on Monday of Arbroath Town Council as the Gas Corporation it was unanimously resolved, on the motion of Provost Grant, to apply to the Board of Trade for a provisional order, to be confirmed by Parliament, to authorise the Corporation to supply electricity for public and private purposes within the burgh. Itwas remitted to the committee of management to define the area of supply, with the names of the streets in which the electric lines should be laid down, and to prepare a statement of the sums proposed to be expended.

TRADE NOTES.

THE Holmes Wood New School, Rufford, near Preston, is being warmed and ventilated by means of Shorland's patent Manchester grates.

MR. EDWARD TURNER, of Newcastle-under-Lyme, who recently renewed the nave of the parish church in that town in commemoration of the Queen's Diamond Jubilee, has accepted the tender from Messrs. Jones & Willis, of Birmingham, to provide pews in the aisles to correspond with the seating of the nave, the design being that of Mr. J. Lewis, of Newcastle. The total cost will be about 600*l.*

BUILDING AND BUILDERS.

AT a meeting of the Berwick Town Council a letter was read from the Local Government Board, sanctioning the proposal to borrow 7,000*l.* for the erection of a new lock-up and police station.

THE carpenters and joiners of Wakefield have decided to give notice for an advance in wages of ½*d.* per hour, making 8*d.* per hour. They are also asking for a code of working rules.

AFTER long consideration, the Haworth District Council have decided to sewer their district, and have made application to the Local Government Board for 10,000*l.* for the purpose of carrying out the works.

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ART, NAVAL, CABINET, ECCLESIASTICAL, AND GENERAL BRASSFOUNDERS,

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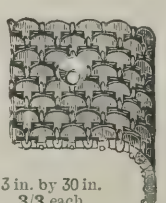
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T 2170.
LOCKPLATE WITHOUT FURNITURE, **45**/- each.

T 2172.
MORTISE FURNITURE, WILKE'S, **23**/- set.

PATENT METALLIC WOVEN STAIR TREAD.

Supplied to H.M. Government for the Post Office, &c., and also to S.W. Railway Co., N.E. Railway Co., &c., &c.



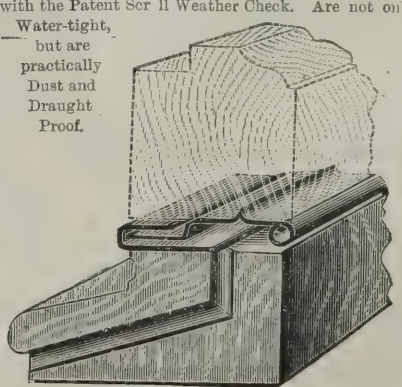
Slipping rendered impossible!

Practically noiseless.

3 in. by 30 in. **3/3** each.

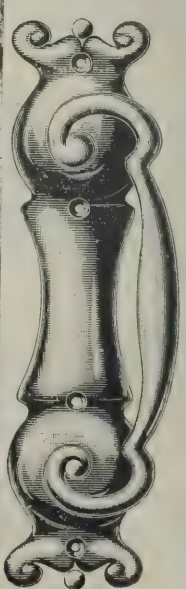
PATENT CASEMENT FITTINGS

Doors, Casements, Fanlights, &c., &c., fitted with the Patent Scr ll Weather Check. Are not only Water-tight, but are practically Dust and Draught Proof.

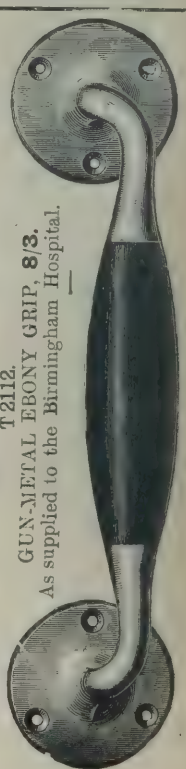


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SCROLL WEATHER CHECK,
Open ng inwards.

REGISTERED DESIGNS
For Door Handles.



T 2219.
Brass, **5**/- each.



T 2112.
GUN-METAL EBONY GRIP, **8/3.**
As supplied to the Birmingham Hospital.

THE Glasgow Corporation contract for 1,000 tons of water pipes, which was recently awarded to a Philadelphia firm, has come back to the Glasgow firm who first offered, the American producers being unable to guarantee delivery.

THE death is announced of Mr. James Muirhead, of the Cart Forge, Crossmyloof, Glasgow, who was the oldest iron-founder in the West of Scotland. Deceased, who was born in 1807, began business in 1824, and founded the Cart Forge in 1848.

THE contract for the new Admiralty Docks and the harbour works at Gibraltar has been given to Messrs. Topham, Jones & Railton, of Westminster. The works are expected to cost between 2,000,000*l.* and 3,000,000*l.*

THE foundation-stone has been laid of the Victoria Diamond Jubilee extension of the Stockport Infirmary The extension is the result of a public subscription at the Jubilee for the infirmary and the Sick Poor Nursing Association, and is costing over 10,000*l.*

AT a meeting of Aberdeen Town Council on Friday it was resolved to proceed with extensive new sewerage works for the city. The estimated cost of the scheme is 99,765*l.*, from which has to be deducted the cost of a portion already sanctioned—4,925*l.*—thus making the actual outlay 94,840*l.*

ON Friday afternoon, as James Macnab, 21 years of age, plasterer, was working at a new house in Main Street, Tweedmouth, the scaffolding gave way. Macnab fell from a height of about 30 feet, and was impaled upon the spikes of some iron railings which pierced his heart and caused almost instantaneous death.

ST. JOHN'S SQUARE CHAPEL, Clerkenwell, from which is carried on the main work of the London Central Wesleyan Mission, is being enlarged at a cost of about 10,000*l.* The foundation-stone was laid on Wednesday.

WHILE some alterations were being carried out on Wednesday in an old beer-house at Byker, Newcastle, involving the removal of the front, the premises collapsed, and Mathew Fitzgerald, a labourer, was killed.

THE Caledonian Railway Company have decided to extend the Glasgow Central Station by erecting a new station to the south of Argyll Street, property and land for which have already been purchased, and also to erect a new bridge across the river to Bridge Street Station, to the west of the existing bridge. No definite plans have yet been adopted by the directors, but a Bill for carrying the project into effect is being formulated for presentation to Parliament next session.

THE Catholic community in Carnarvon have decided, in consequence of the growth of Catholicism in the district, to erect a pro-cathedral at a cost of 10,000*l.* The scheme has the support of Bishop Mostyn, and many wealthy Catholics in North Wales have promised large subscriptions.

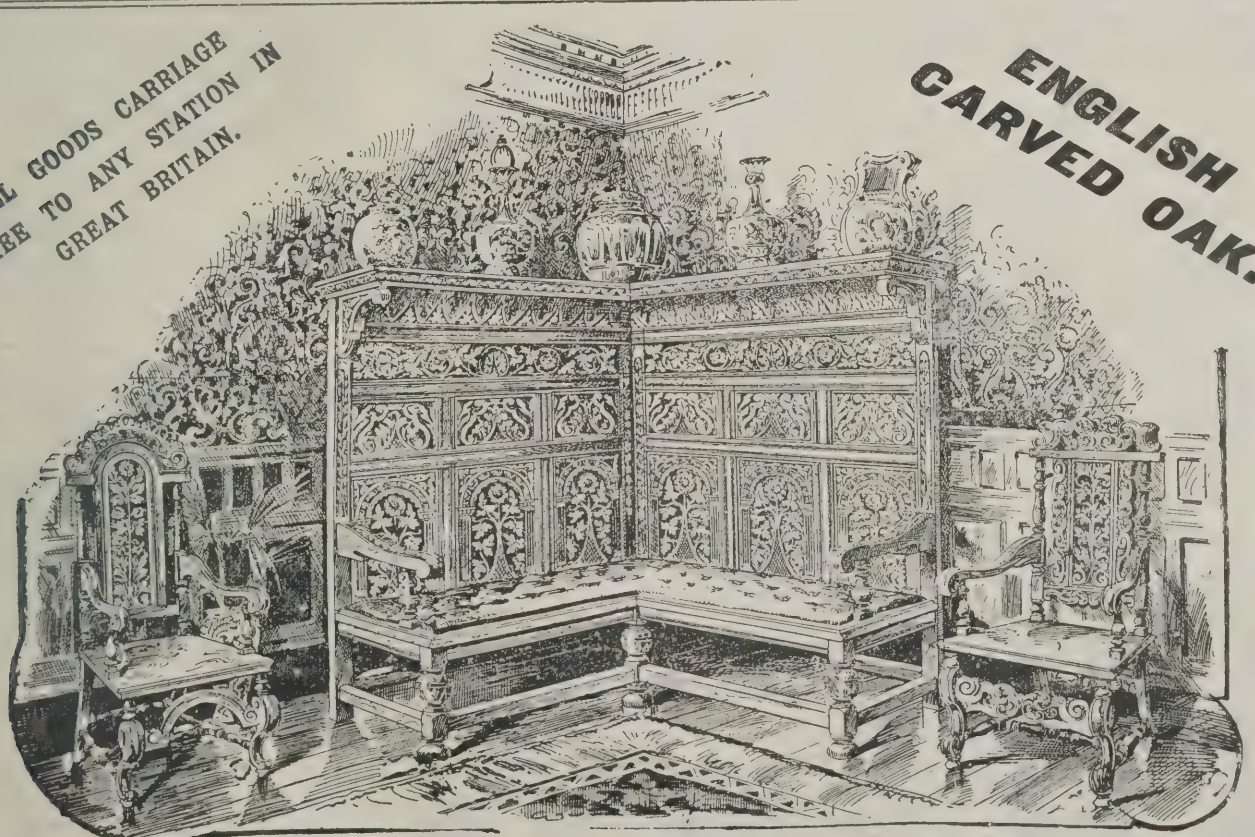
THE Wolverhampton Board of Guardians, over whom Mr. J. Cope presided, were occupied for a considerable time on Friday last with again considering the plans for the new workhouse which is to be erected at Wednesfield. Mr. Aldwinckle, the assessor, wrote supplying more details as to the plans, and the clerk (Mr. E. Pritchard) informed the board that that morning the new workhouse committee had held a meeting, when the members passed a resolution confirming their recommendation to the board to employ as architect for the new workhouse Mr. Arthur Marshall, of Nottingham, whose plans bore the motto "North and South," the estimated cost for carrying out the work being 129,000*l.*, though it was believed, according to a statement of the clerk, that the amount could be reduced by 12,000*l.* After considerable discussion the recommendation of the workhouse committee was adopted unanimously.

A LARGELY attended meeting of members of the Leeds branches of the Amalgamated Society of Engineers was held on Tuesday in the Albert Hall, Cookridge Street, to consider the offer of the masters, made through the committee of the Employers' Federation, of an advance of wages of one shilling per week. This offer was made at a conference held in London on Wednesday last between the employers' committee and delegates from the Leeds branches of the men's society, who were accompanied by Mr. Barnes. The men had sought an advance of two shillings, but when, on Friday last, the local executive met to receive the report of the delegates the tone of the proceedings was favourable to the acceptance of the smaller advance offered. At last night's meeting a ballot was taken on the matter, and by a large majority the men decided to accept the employers' proposal.

ONE of the finest old churches in Central France has fallen in, and is now a complete ruin. It is the parish church of Montluel, in the Rhône Department, and was built in the purest style of the thirteenth century.

ALL GOODS CARRIAGE FREE TO ANY STATION IN GREAT BRITAIN.

ENGLISH CARVED OAK.



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No. 321.—The "KNIGHT" CARVED OAK ARM-CHAIR, £4 5s.

HEWETSONS, ARTISTIC FURNISHERS AND HIGH-CLASS DECORATORS, TOTTENHAM COURT ROAD, LONDON.

Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations

VARIETIES.

A CLERGY-HOUSE has been built for St. Mary's, Doncaster, at a cost of 1,200*l.*

THE new schools just erected in connection with the Congregational Church, Colne, were formally opened on Saturday. The cost of the new building is about 2,200*l.*

THE first portion was opened last week of a new borough sanatorium at Brighton, which is 10 acres in extent and over 300 feet above the mean sea level. The new buildings will cost about 19,775*l.*

THE parish church of East Acklam, near Malton, Yorks, is being closed for the winter owing to the unsafe state of the edifice. The foundations of the west end of the church have been found to be in a very unsatisfactory condition, and large cracks are visible in the walls.

ST. MILDRED'S CHURCH, Bread Street, was reopened on the 27th ult., after having been shut since June 1896, to undergo repairs. The service was attended by the Lord Mayor and Sheriffs in state, the Master and Wardens of the Court of Cordwainers and by representatives of the Court of Common Council, namely, Messrs. Hawtrey, Coates and Steinberg.

THE session of the Auctioneers' Institute will commence on Tuesday next, the 8th inst., when Mr. Alexander Macmorran, Q.C., will read a paper in the Lecture Hall, 57 Chancery Lane, upon "The Effect of Recent Decisions on the Liabilities and Rights of Owners in respect of the Drainage of Buildings." The chair will be taken by the president, Mr. Edward Dobson, at 7.45 P.M.

AN extensive addition to the Cheshire County Lunatic Asylum, near Chester, was formally opened on Monday. The extension, which has cost about 90,000*l.*, provides accommodation for 400 additional patients, and includes a new administration block. The whole institution is handsomely equipped, and lighted throughout by electricity.

AN extraordinary scene was witnessed recently at Feltwell, in Norfolk, where the tower of St. Nicholas's Church has been under repair, and girt round with scaffolding. Suddenly, while the workmen were at breakfast, the tower swayed and then fell with a tremendous crash into the churchyard, wrecking gravestones, filling the place with rubbish, and sending up clouds of dust. The belfry contained a fine peal of bells, which were scattered in all directions.

ST. MICHAEL BASSISHAW, Basinghall Street, London, one of Wren's churches, is marked for destruction. The original church dated from 1676-79, with the exception of the tower, which survived the great fire of London, and was patched up to help to lessen the cost of rebuilding, recorded at 2,823*l.* The church has been closed for some time, the parish having been united with that of St. Lawrence Jewry.

ON the roof of a brewery at Maidstone is to be seen one of the most remarkable vanes in England. It represents an old brown jug and beaker. The jug, which is made of copper, stands 3 feet 6 inches in height, is 3 feet in diameter, and is capable of holding 108 gallons. The beaker, also of copper, has a holding capacity of 8 gallons.

JUST after two o'clock on the 29th ult. the premises of the *Guardian* office, Lancaster, partially collapsed with a great crash into the street. Building operations were going on adjoining, and the Corporation also intended to pull down the *Guardian* office subsequently. One-half of the building, containing a valuable stock, collapsed from roof to cellar. No one was on the premises when the accident happened.

THE Mayor of Durham opened on the 13th ult. extensive new schools at St. Godries, Durham, for some 700 pupils. The material employed on the exterior is red-pressed brick with slated roof. The building consists of two storeys, the upper one being the boys and girls' department, and the lower one the infants. Mr. Charles Walker, of 26 Eldon Square, Newcastle-on-Tyne, is the architect.

ON October 29 a new Catholic school was opened at Birtley, co. Durham. The building is finely situated, and commands an extensive view of exceedingly pretty country. It is of the most modern construction, the rooms being lofty and well ventilated, and amply provided with every requisite for giving instruction. Accommodation has been provided for over 300 scholars. The works have been carried out by Messrs. J. Burnett & Son to the design of Mr. Charles Walker, architect, of 26 Eldon Square, Newcastle-on-Tyne.

A FIRE occurred early on Saturday morning in Viewforth Free church, Gilmore Place, Edinburgh, by which the once handsome building was in the space of a few hours practically gutted. No satisfactory solution of the cause and time of the outbreak has as yet been arrived at, but there is little reason to doubt that it had its origin in the motor-room or its vicinity, and, the motor being an electric one, it is regarded as probable that the conflagration was in some way associated with its working —possibly through a fusion of the wires.

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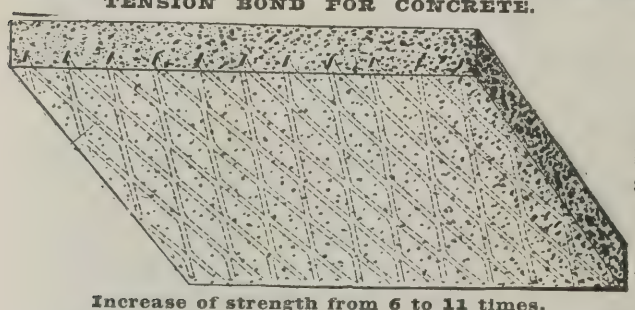
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PRICE LIST AND ESTIMATES ON APPLICATION.

THE formal completion of additional waterworks designed by Mr. James Wilson, C.E., Edinburgh, took place recently at Parkhill, near Port Glasgow. The works consist of a pure water tank capable of holding 500,000 gallons, and two new filters of about 800 square yards, the cost being 4,000*l.* The contractors were Messrs. D. Cunningham & Sons, Kilbarchan. The ceremony of formally laying the last copestone was performed by Provost Rodger. It is calculated that in this department the requirements of the burgh have been met for the next twenty years.

MESSRS. DOUGLAS YOUNG & CO. will offer for sale by auction on Thursday next, the 10th inst., the extensive Hooley estates situated in Wiltshire and Essex. The villages included in the sale are quaint specimens of rural simplicity, most of them having been in existence for centuries, but in their present state they form types of model neatness. Enormous sums must have been spent upon improvements, for old, dilapidated cottages are transformed into good sanitary dwellings, new cottages have been built, and the farm buildings thoroughly repaired. The farmhouses are of quite a superior class, and present the appearance of important country residences standing in their own grounds and occupying exceptionally well-chosen sites.

AN important scheme for the provision of new municipal offices at West Bromwich is about to be commenced, the same involving an expenditure of 5,500*l.* In addition to the offices required by the Corporation servants, a new reception-room (45 feet by 35 feet) and a council chamber (40 feet square) are included. For the use of the School Board there will be three offices, a strong-room and store-room, and the Board will have the use of the council chamber and one committee-room for their meetings. The new market hall is to be converted into a free library, with a lending department 74 feet long by 23 feet wide, a reading-room 48 feet by 40 feet, and a news-room 54 feet by 40 feet. Provision will be made for the reference library, committee-room, librarian's-room, and also for subscription library. The building will be wired ready for electric lighting.

SOME time ago the Edinburgh Town Council, on a motion by Councillor M'Michael, resolved to erect a new bridge over the Water of Leith at Bonnington. Negotiations were afterwards opened with the Corporation of Leith, a portion of the bridge being in that burgh, and a deputation from Edinburgh, consisting of Councillors Dunlop, Cameron, M'Michael and Waterson, had an interview with the Leith Town Council on the subject. The Leith representatives present were Provost Bennet and Councillor Baxter, and they acquiesced in the Edinburgh proposals. The only point remaining to be adjusted is the proportion of cost which each municipality should be asked to bear. The proposals, which involve an expenditure of over 5,000*l.*, include the widening and levelling of the roadway up to the railway station.

ON October 27 the commencement was made of a new Catholic church at Hanley, co. Durham, a town of recent growth in the centre of a very populous mineral district. The designs for the church show accommodation for about 700. The buildings are to be in the Early English style, stone and slated. The body of the church consists of single span nave and transepts, with west end gallery, and provision for possible galleries in both transepts. The main and two side altars are in separate apses. There are separate sacristies for clergy and servers in communication with the presbytery and the east end of the church, and confessionals and baptistery are offshoots from the main building. The whole is to be heated by hot-water apparatus. The architect is Mr. Charles Walker, of 26 Eldon Square, Newcastle-on-Tyne.

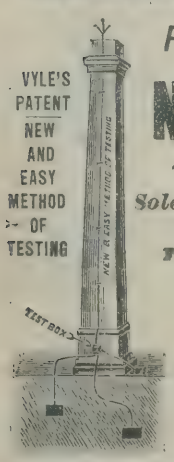
A NEW Catholic school at Marton, co. Durham, was opened on October 28. The buildings are to accommodate about 100 infants and 150 mixed children. They are of red brick, slated, and consist on the ground floor of a main building containing schoolroom, cloak-rooms, &c., and with two side wings, divided into classrooms and screened from the schoolroom by movable glazed partitions. The south wing is devoted to babies and infants. Owing to the ground levels a portion of the buildings is cellared and to be used for dinners, playrooms and heating apparatus. The whole is heated by hot-water apparatus. The works have been carried out by Mr. J. B. Stoll, contractor, of Sunderland, under the supervision of Mr. Charles Walker, of 26 Eldon Square, Newcastle-on-Tyne.

THE new club-house recently erected at the junction of Devonshire Street and Scott Street for the Keighley Liberal Club, although in occupation for some time, was formally opened on Saturday by Mr. Asquith. The new building, whose gable is surmounted by a conical tower, is of two storeys, and the whole of the commodious club premises proper are situated on the ground floor. Besides news and smoke-rooms, library and bar, there is a good billiard-room, in which there is space for four tables and an ample margin. In point of lighting, ventilation and upholstering, the room is admirably

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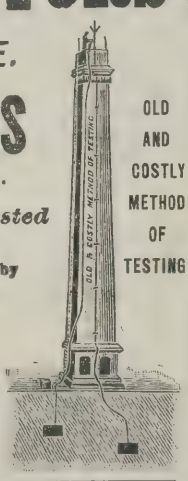


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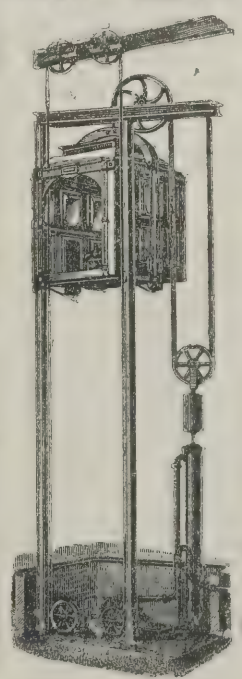
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arranged. All the rooms are lofty. Accommodation for the curator is provided on the first floor, the principal part of which is taken up by a lecture-hall, 41 feet by 37 feet, capable of accommodating 800 persons, and a smaller room for use by the Women's Liberal Association. The cost for land and building has been between 5,000*l.* and 6,000*l.*

THE new vestry which has been added to St. John's Church, Carlisle, as a memorial of the Queen's Diamond Jubilee was dedicated on the 13th ult. It has been built at the north-east end of the church, and abuts on to Close Street, from which it is entered. The plans of the building were drawn by Mr. Henry Higginson, architect, and the addition has been built in harmony with the church, care having been taken not to depart from the original character of the building. The vestry is 33 feet long by 22 feet broad, with an average height of 18 feet, and it replaces an old vestry which was only 12 feet by 10 feet. The room is divided into two parts by a folding screen, one part being intended for the clergy and the other for the choir. When the screen is open the room is large enough to seat about sixty people, and it will thus be very useful for all kinds of parochial meetings, which have now to be held in the schools. The internal fittings are all of pitch pine, the roof is an open one, and wooden blocks have been used for the floor. Lavatory accommodation has also been provided. The building is lighted by a three-light lancet window in the north wall and a single-light window in the east wall, the lights being glazed with cathedral glass in diamond quarries.

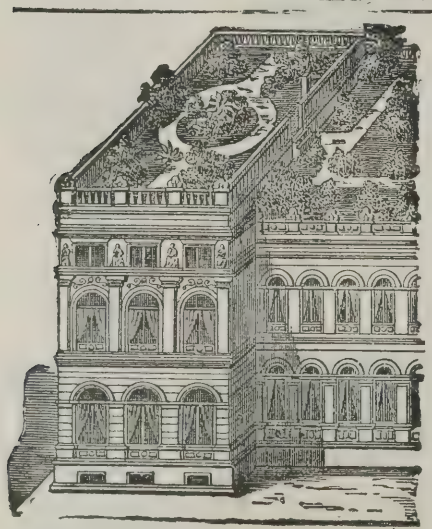
THE stability of Ayr "Auld Brig" has been further seriously threatened. The flood in the Ayr on Tuesday night of last week was the highest that has been known for many years, and it was feared that the effect on the bridge in its damaged state would be to still further place it in jeopardy. These fears have to some extent been realised. The huge block of masonry forming part of the middle arch, which had been detached by the previous flood, was completely washed away, leaving a triangular gap from the foundation upwards, and exposing the interior rubble masonry to the action of the water. What is the exact state of matters at the foundation of the pier has not yet been ascertained, as the river is still in too flooded a state to allow of an examination, but there can be no doubt that unless something is done at once the bridge is doomed. As showing the tendency of things, a fresh crack has made its appearance in the parapet above the arch which stands over the damaged part of the pier, and it would seem as if the collapse of the structure was inevitable.

A SERIOUS outbreak of fire occurred in the early hours of Tuesday morning at the premises of Messrs. J. Duckett & Son, Limited, sanitary ware works, Accrington Road, Burnley. Some night workmen who were engaged looking after the kilns first observed the outbreak, which occurred in the brick-making room situated immediately over the boiler and engine house. Owing to the inflammable nature of the building and materials the flames spread rapidly, and though the fire brigade was on the scene six minutes after the alarm was received they found the central portion of the building one mass of flames. The supply of water from the mains was somewhat inadequate, but this defect was remedied after the lapse of about half an hour. The firemen devoted themselves to keeping the flames from spreading to the adjoining drying and moulding rooms, and in this they were successful. The central portion of the building, however, in which the entire machinery and plant were contained, suffered great damage, the firemen being engaged playing on it for three hours before the flames were subdued. The cause of the outbreak is unknown. The damage to the building, machinery and stock is estimated at 10,000*l.*, and is covered by insurance. About 200 workmen are employed by the firm.

AT the meeting of the Wolverhampton Board of Guardians a report from the assessor and the new workhouse committee was read with regard to the selection of plans by the assessor for the new workhouse. The decision of the assessor as to the merits of the plans sent in for the new workhouse is as follows. He considers the best plans sent in are those of Messrs. Marshall & Taylor, of Nottingham, who estimate the total cost at 129,673*l.* The next three best plans submitted are those of Mr. M. Johnson, Wolverhampton, and Messrs. Mangnall & Littlewoods, Manchester (joint plans), 119,740*l.*; Messrs. Mangnall and Littlewoods and Mr. M. Johnson (joint plans), 126,000*l.*; and Mr. W. Doubleday, Birmingham, 100,000*l.* In all probability the designers of the three last-named sets of plans will each be awarded 100*l.*, as stipulated in the advertisement. The other two plans sent in were by Mr. R. E. W. Berrington, Wolverhampton, with an estimated cost of 90,000*l.*, and Mr. F. T. Beck, Wolverhampton, 126,000*l.*

THE old Nag's Head inn, at Jedburgh, which is being taken down to supply a site for the new public library, is the building in which, tradition says, Robert Burns was presented with the freedom of the royal burgh. In the diary of his border tour, Burns, writing of his stay in Jedburgh, says :—"Was waited on by the magistrates and presented with the freedom of the

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burgh." This was in May 1787. There is no corresponding entry in the burgh records, but recently the ticket of another burgess, an undoubtedly authentic document, granted about the same period, was discovered, and a search of the records showed that this also was not entered there, so that those who were fain to believe that Burns was a burgess of Jedburgh are now satisfied of the accuracy of the poet's statement. In dismantling the principal room of the inn a series of paintings were discovered on the plaster near the fireplace. They are six in number, some of them highly coloured views of mansions and woodland. It is suggested that this may have been the work of French army officers, who were prisoners in Jedburgh in the early part of the century. These prisoners were allowed on parole freedom of movement within certain boundaries, and there are several relics of their stay in Jedburgh—one of them a painting of Jedburgh Abbey, which is highly prized by its possessor. The paintings in the old inn are evidently the work of amateur artists, but that fact really gives support to the view that the soldiers may have sought to relieve the tedium of their enforced stay in the border burgh by reproducing from memory the home scenes to which they were longing to get back.

THE CROWN THEATRE, PECKHAM.

THE new theatre which opened its doors to the public for the first time on Monday evening is one of which Peckham may be justly proud. It certainly takes a place in the first rank of the now numerous theatres of Suburbia, and can indeed hold its own in comparison with the majority of those within the charmed circle of the West End. The exterior is designed in Spanish Renaissance. The material used is terra-cotta and red brick. The site covers an area of 14,000 square feet, and with a view to spectacular productions, which are to be made a specialty, the stage has been placed from west to east, so as to give the greatest possible width, the main entrance occupying the western corner, and the auditorium wall abutting on the main thoroughfare. The prevailing scheme of colour adopted in the decoration of the elegant interior, which will accommodate 2,500 persons, graduates from deep blue to neutral green, with old rose draperies and upholstery. The box and circle fronts are picked out in ivory and gold and modelled in low relief. The crush-room is panelled in oak with mosaic floor, the saloons are decorated with antique Flemish carved oak wainscot, and the foyer is treated in modern Renaissance style. The auditorium ceiling, painted by Mr. Charles Buchel, is extremely effective, the decorative treatment being emblematical of our Queen-Empress and her dominions. In four panels the Colonies—India, Africa, Australia and Canada surrounding "the sun which never sets"—are depicted with cupids holding the crown over each, the remaining panels representing Art, Poetry, Music and the Drama. Over the marble and modelled plaster proscenium—the width of which is 62 feet and the depth 58 feet—is an attractive painted frieze by the same artist, 37 feet in length, representing "Peaceful Britannia," with Music, Poetry, Literature, Art, Science, &c., on either side. The mural decoration consists of a wall-paper, specially designed by Mr. Albert Breden, having the "crown" intertwined with a flowing design. The handsome fronts of the private boxes also help the decorative effect, being rich and imposing in design. The arrangement of the seating is perfect, and insures to every visitor an absolutely unimpeded view of the stage, which is of large dimensions, being 138 feet across and 40 feet deep, and the grid is 62 feet above the stage level. The mechanical appliances are thoroughly up to date. The house is lighted throughout by electricity. The tiers and staircases are of fireproof material, and there are no fewer than twelve exits. Adequate ventilation is secured by exhaust fans, and for warming the entire building there is an adequate low-pressure system with radiators. The theatre, which was designed by Mr. Ernest Runtz, of Walbrook, has been built by Messrs. Coles & Son, of Camberwell, just within the twelvemonth.

NORTHERN ARCHITECTURAL ASSOCIATION.

A LARGE number of members of the above Association paid a visit on the 22nd ult. to Messrs. R. Robinson & Co.'s new premises now in course of erection in Clavering Place, Newcastle. The building, which is an extension of the fine premises erected ten years ago after the great fire by which the old works were completely destroyed, will when completed just about double the size of the firm's works, and will be the largest printing and binding establishment in the North of England. The visitors were shown over the works by Mr. F. W. Rich, the architect in charge. Amongst the company were Messrs. J. Oswald, William Glover, Joseph Kirkett, A. B. Plummer (secretary), H. G. Badenoch, C. E. Herring, R. Burns Dick, Bruce and others. There were also with the party a number of students. The contractors in connection with the work are Mr. John Ferguson, brick and cement-work; Mr. Hewitson,

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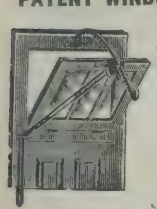
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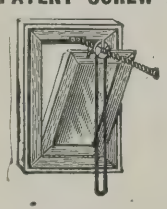
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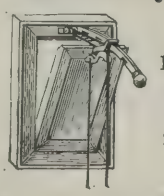
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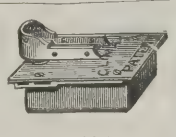
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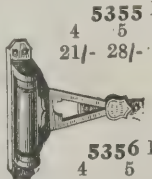


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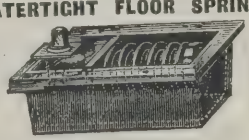


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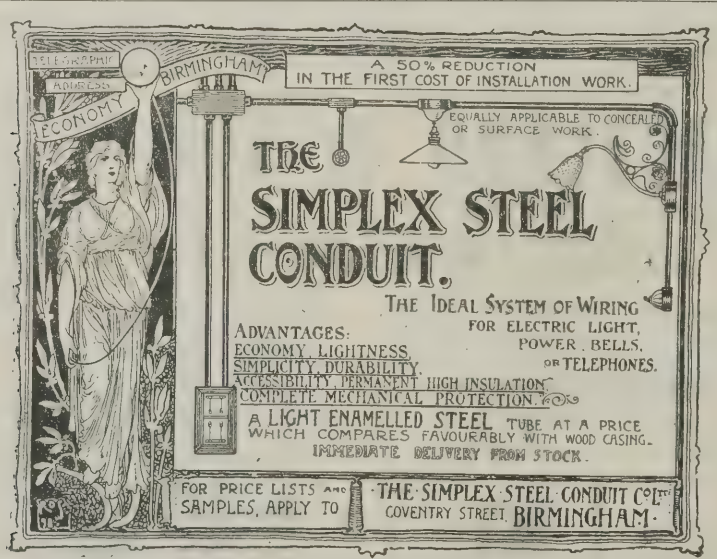
slating; Mr. Mansfield Gibson, plumbing; Mr. William Ferguson, plastering; and Mr. Laidler, painting. Great difficulty and cost were incurred in finding a proper foundation for so heavy a building, particularly as the site is on the steep bank side overlooking the Close. The foundations were carried down about 30 feet, and the ground for over two-thirds of that depth was found to be nothing but loose débris of all kinds, accumulated there for ages. The outer wall or shell of the building is of neat brickwork, with buttresses tapering off with each storey. There are five floors, forming rooms which represent the whole width of the structure. The floorings and supports are a network of steel pillars, joists and girders, all rivetted together, and to this fabric the walls are tied at intervals. Above the joists the floorings are of strong wood. An excellent feature of the building is its ample lighting. Each storey has windows all along the east, south and west sides. On the north side the new building is joined on to the old one. As a safeguard against fire the "Grinnell" automatic sprinkler will be fitted throughout the establishment, and a special water tower is being built up to the main building.

SCOTTISH BUILDING TRADES FEDERATION.

THE fourth annual meeting of the Federation was held in Edinburgh on the 27th ult., Mr. J. B. Hay, builder, Dundee, president, in the chair. Representatives were present from all parts of the country. The report of the executive, which was submitted by the secretary, Mr. James L. Selkirk, C.A., Glasgow, set forth the principal matters which had engaged their attention during the year. These included the formation of branches of employers in various towns not already organised, the starting of a monthly trade organ called the *Federation News*, the first number of which had just been issued; the forming of a federation insurance company, and the initiating of a special fund to meet important emergencies that may arise from time to time. A general expression of opinion was elicited on these various questions, and so far as was necessary, remits were made to the executive thereanent. The progress of the Federation during the year was regarded as most encouraging, and an earnest desire was expressed that many additional towns and districts would be organised during the next year. Thereafter members of executive were elected in room of those retiring with Mr. James Leslie, contractor, Aberdeen, as president; Messrs. T. Kay, wright, Glasgow, and Alexander Beveridge, builder, Perth, vice-presidents, and Mr. James L. Selkirk, C.A., Glasgow, secretary and treasurer.

THE SUPERANNUATION OF MUNICIPAL OFFICERS.

A CONFERENCE of municipal officers, convened by the Municipal Officers' Association, was held on Monday at Sion College, Victoria Embankment. Mr. C. W. Tagg (vestry clerk, Camberwell) occupied the chair, and explained that they had met to consider what steps should be taken to get their Superannuation Bill through Parliament next session. It had been objected that this would place another burden on the ratepayers. He contended, however, that it was a measure of justice to be equally shared between the officer and the ratepayer. The Poor Law Officers' Superannuation Act had now been in force six months, and for that period showed a balance in favour of the ratepayer of 15,000*l*. The salary of municipal officers throughout the country averaged a little over 100*l*. per annum, and out of that sum it was impossible for them to provide enough to retire on. He regretted that the local authorities did not support their Bill to a greater extent. In his opinion the superannuation allowance they asked for was a reasonable one; moreover, it was not a question of a pension but of deferred pay. Mr. Matthew Hale moved and Dr. Dudfield (medical officer, Paddington) seconded a resolution pledging the meeting to do all in its power to secure the passing of the Local Authorities Officers' Superannuation Bill in the next Session of Parliament. Mr. Lowles, M.P., in supporting it, said he would do all he could in the House of Commons to support the Bill to be reintroduced by the Association. He did not think municipal officers should be left to shift for themselves in their old age unless they were paid a higher stipend in their earlier years. It was because he wished to keep our municipal life pure and the officers free from corruption that he advocated their being treated in as handsome a manner as possible and all their reasonable claims satisfied. Mr. Halsey (chairman of the Surrey County Council) and Mr. Rutherglen (clerk to the Kensington Guardians) also spoke in favour of the resolution, which was carried unanimously after a few more remarks from the chairman, who emphasised the importance of securing for the Bill the support of the local authorities. A resolution was



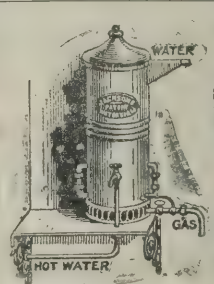
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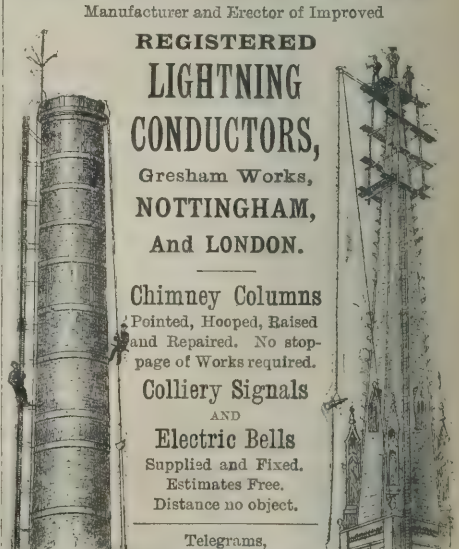
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subsequently passed, on the motion of Mr. F. Cliffe, advocating that the Superannuation Bill, when next introduced into Parliament, should also be extended so as to apply to Scotland.

LONDON WATER SUPPLY.

In connection with the proposals of the water committee of the London County Council to ask Parliament for powers to buy the undertakings of the metropolitan water companies and to bring an additional supply of water to London from Wales, a special report has been prepared by the finance committee dealing with the financial bearing of the scheme. In this report, which is signed by Lord Welby, the committee state that they are not in a position to make for themselves an estimate of the expenditure involved by these proposals. They point out that the subjects of purchase and of additional supply had been discussed at length before Lord Llandaff's Commission and in the reports of expert officers of the Council, and they did not think that fresh investigations on their part would add materially to the information before the Council or would justify them in asking for further time to make their report. Indeed, the data for framing a trustworthy estimate of the cost of purchase did not exist, and they would not put forward calculations based upon assumptions for which they had not a warrant. There were, however, figures which represented facts, and upon which therefore reliance could be placed. The net income of the companies, after payment of prior liens, was an ascertained fact, and the comptroller to the Council estimated, in evidence before Lord Llandaff's Commission, that the purchasing authority would in 1901-2 enjoy a net income of 1,030,000*l*. That estimate assumed a progress in gross profits during the five years from 1896-97 corresponding to that which obtained during the preceding seven years. It assumed also that the water rates would continue to be levied as at present. The committee thought the comptroller had in this calculation proceeded upon a sound financial basis, and that the Council might bear the figure 1,030,000*l*. in mind when discussing the proposals of the water committee. Lord Llandaff asked what was the amount of capital the interest and sinking fund on which could be met by a net income of 1,030,000*l*. That also was a matter of simple calculation dependent on rate of interest and term of redemption. By these data the Council might measure to some extent the financial result which might follow from purchase.

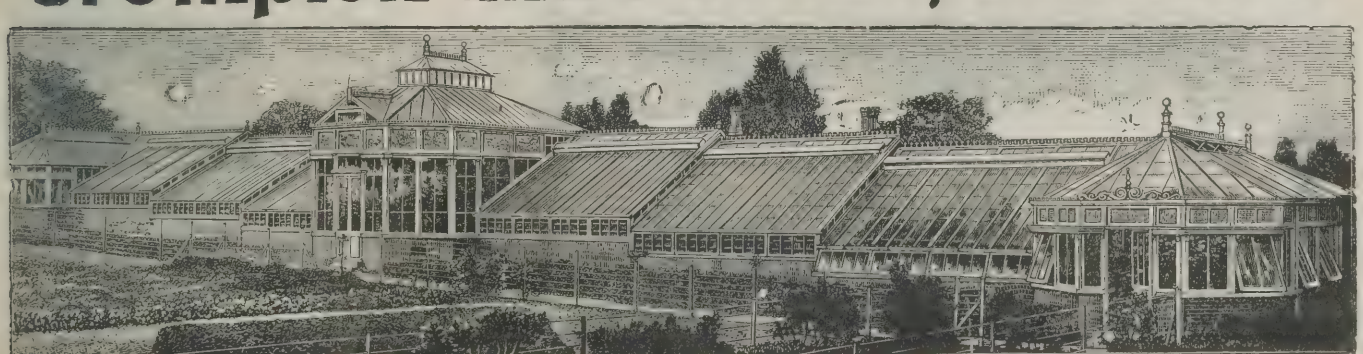
With reference to the question of additional supply, the committee point out that this matter raised a different financial issue. It was admitted that, under any circumstances, the safety of London required a large outlay in order to secure a supply which, within a comparatively short time, would be a necessity. The outlay involved would earn no immediate income, and it must be incurred either in providing storage in the Thames Valley, or in bringing water from a new source. It was, therefore, a question whether fresh outlay could be avoided. On that point all parties were agreed, and it was a question which of two costly schemes would best attain the end in view. The storage scheme might cost a sum not very much less than that of bringing water from Wales. Even if the outlay on storage were considerably less than on the Welsh supply, it must be borne in mind that before long the Thames might not suffice for the wants of Greater London. In that event a new supply must be sought, and a scheme less costly in the outset might cost more in the end.

With regard to the only important matter remaining—namely, the term within which the water debt should be redeemed—the committee point out that Parliament does not permit the term of redemption for metropolitan loans to exceed sixty years, and in the case of ordinary loan services the committee think this reasonable, for the ratepayers of the future would have their own pressing needs, and the charge of a sinking fund spread over sixty years was not excessive in the case of ordinary improvements and ordinary works. The purchase of the water companies' interests was, however, an acquisition made once and for ever, and if, in addition, the present ratepayer undertook a charge for which he got no immediate return in order to secure a lasting supply of water for future generations—if, in fact, he secured his successors against the calamity of water famine—the burden should, at all events, be made as light as possible. The committee had therefore no hesitation in recommending that the period of redemption, both for purchase and additional supply, should be fixed at 100 years.

On Tuesday the following recommendations were approved at the meeting of the London County Council:—"That a Bill be promoted in the coming session of Parliament for the purchase by the Council of the undertakings of the eight metropolitan water companies by agreement or, failing agreement, by compulsion. That, subject to such provision as may be made by Parliament as to the ultimate authority or authorities, provision be made for the undertakings of the companies vest-

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ing in the Council at a date not later than six months after the passing of the Act. That the Bill contain provisions authorising the Council to proceed forthwith with the connecting and laying of mains and other works necessary in order to enable it to protect any part of the Metropolis from want of water. That the arbitration clause be so framed as to render it certain that in the case of each company the arbitrator will have regard to all such circumstances as may be brought before him, and that no allowance shall be made in respect of compulsory sale except for cost of reinvestment (if any). That, subject to further negotiation thereon with the local authorities, the clauses with respect to the supply of outside areas should follow the principle of the Bills promoted by the Council in 1895. That the understanding with the Corporation of the City of London with regard to their representation on the water committee be adhered to if they so desire. That a Bill (or Bills) be promoted in the coming session of Parliament for the purpose of empowering the Council to bring an additional supply of water to London from the watersheds of the Wye and Towy on the general lines of the report of the water committee approved by the Council April 21, 1896, in so far as it applies to the Wye section of the engineer's scheme. That it be referred to the parliamentary committee to prepare and present to the Council the necessary Bills for carrying out the above resolutions."

REBUILDING KEW BRIDGE.

A MEETING of the Middlesex County Council was held on the 27th ult., when the finance committee, on behalf of the joint committee of Surrey and Middlesex, presented supplementary estimates to the extent of 35,000*l.* for the rebuilding of Kew Bridge. The report of the joint committee showed that while the estimate of the total cost of the widening given by their engineer, Sir J. Wolfe Barry, was 118,000*l.*, the lowest of seven tenders received for the work, that of Mr. Easton Gibb, of Skipton, Yorkshire, was 169,288*l.* 14*s.* 6*d.* In reply to a request for an explanation, Sir J. Wolfe Barry reported that his estimate was based on the prices paid for similar work at the Tower Bridge, with a considerable addition. He suggested that the cost of all work in the neighbourhood of London had been steadily increasing during the past two years owing to the obligations imposed by the Employers' Liability Act, the action of the London County Council with regard to the terms of labour, and the great demand for materials at the present time. He estimated that 20,000*l.* to 25,000*l.* might be saved by the substitution of internal brickwork or concrete for stonework. The committee further reported that they had ascertained that a reduction of about 20,000*l.* might be made on Mr. Gibb's contract in the way suggested, and they recommended that the tender should be accepted for a sum not exceeding 150,000*l.*, and that a Bill be promoted to authorise the additional borrowing.

Alderman Burt moved a resolution to the effect that the County Council "do not entertain the additional expense of 35,000*l.* necessary in order to proceed with the work, and that the report be referred back for reconsideration with a view to bringing the cost within the amount authorised by Parliament." He said the circumstances disclosed by the report were of the most extraordinary character. The estimate was 118,000*l.*, but out of eight tenders received the lowest was 169,288*l.* 14*s.* 6*d.* It showed that a grave blunder had taken place somewhere. He would strongly object to the County Council going to Parliament again to promote another Bill. In his opinion that course would intensify the waste of money which had already taken place. He was advised that the estimate could be cut down, and that a temporary bridge was not necessary.

The Chairman said he was sorry that he was chairman of this joint committee. He felt from the first that the cost would be more than the estimate, and he was anxious that the Council should wait until they got a contribution from the London County Council towards the cost of the bridge, which he thought they should have.

Alderman Burt's motion was carried by thirty-two votes to eight.

THE EXTENSION OF VICTORIA STATION.

A SCHEME for very large extensions at Victoria Station is now, says the *Standard*, under consideration of the Boards of the Chatham and the Brighton Companies. The Brighton Company has during the past three or four years laid down a new up-line, in order to improve the access to the station, but up to the present this has had little effect in relieving the block caused by the enormously increasing traffic. The Chatham Company, in like manner, finds itself very much inconvenienced by the limited accommodation for its growing requirements—requirements which are likely to be increased very rapidly by



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the new arrangement with the South-Eastern, which will make Victoria an even more important station than it has hitherto been. The advisers of the two companies have, therefore, hit upon a bold expedient, the effect of which will be to make Victoria one of the largest of the railway stations of the Metropolis. The idea at present is to develop the Brighton Station by including in it a good portion, practically the whole, of the area of the present Chatham Station, and for the Chatham Company to build a new annexe to its present terminus by stretching out to the south. This would involve the absorption of Hugh Street, and the extension of the lines of railway very nearly to the confines of Eccleston Square. Then it is suggested that the stations should be brought forward into the Vauxhall Bridge Road, and the scheme now before the directors involves the acquisition of all the property between Wilton Road and the Vauxhall Bridge Road, and the closing of Wilton Road, as well as the acquisition of the property up to Gillingham Street. Victoria Station reaching into the Vauxhall Bridge Road, with a large courtyard front for both the Brighton and the Chatham Companies, would be a worthy addition to the railway depôts of London, and if a corresponding extension were made of the lines of metals leading into the station, as the present scheme contemplates, none of the inconvenience at present felt of getting into and out of Victoria need be experienced. It is quite possible that this scheme, or at all events a considerable portion of it, will be included in the Parliamentary applications for the present year.

ORDERS FROM SANITARY INSPECTORS.

THE judgment in the case North and Millhouse *v.* Walthamstow Urban District Council, which was heard by Mr. Justice Channell without a jury, is a further confirmation of the responsibility of local authorities for the action of their officers. The action was brought by Miss Sarah Ellen North, of 12 Cawley Road, South Hackney, and Mr. Charles Millhouse, of 13 Cassland Road, South Hackney, against the Walthamstow Urban District Council to recover the sum of 35*l.* for work and labour done and materials supplied as a builder by the plaintiff Charles Millhouse to the plaintiff Sarah Ellen North at the direction of the defendants. The facts were as follows:—The plaintiff Miss North is the owner of seven houses, 22 to 34 (even numbers) Cambridge Road, Walthamstow. The plaintiff Mr. Millhouse, throughout the matters which led to the present action, acted as Miss North's agent and builder. At the end of November 1897 the sanitary inspector for the district complained of the state of the drain of No. 22 Cambridge Road, and served a notice in respect of that house in the form set out below. The ground was opened, when it was discovered that the drain drained more than one house. Subsequently the following notice was served on the plaintiffs in respect of all the houses 22 to 34 Cambridge Road. Both the above-mentioned notices were in the following form, the first being limited to No. 22:—"Walthamstow Urban District Council. To Mr. Millhouse, of 13 Cassland Road. Notice is hereby given you to abate a nuisance at 22, 24, 26, 28, 30, 32 and 34 Cambridge Road, arising from defective drains, within seven days from the service of this notice, and for that purpose to take up and relay properly trap, ventilate and provide means of access to drains. Dated November 27, 1897. Signature of officer of local authority, W. W. West, inspector of nuisances." The work was done in accordance with the notices and according to the instructions of the sanitary inspector as the work went on. The plaintiff Mr. Millhouse admitted that he believed that the pipe to which the repairs were done was a sewer, but he said that he believed he was obliged to do it after he received the notice. It was agreed by both sides that the pipe upon which the work was done was in fact a sewer.

Mr. Macmorran, Q.C. (Mr. Naldrett with him), for the defendants, said that the notice was not given by the local authority at all, but by the sanitary officer upon his own responsibility. He cited Selfe *v.* Hove Commissioners (1895, 1 Q.B. 685), and submitted that the whole of section 104 of the Public Health Act, 1875, applied to expenses incurred by the local authority, and not to those incurred by any other party. Even a statutory notice was not in the nature of an order. These were notices under section 91 of the Act of 1875. The plaintiffs were not in any sense liable to do the work, and therefore could not be said to be legally compellable to do it.

Mr. Justice Channell: Selfe *v.* Hove Commissioners was about as unsatisfactory a decision as ever came into Court.

Mr. Macmorran, Q.C., continuing, said that the notices were not served in consequence of any resolution by or instructions from the local authority. If such a notice was not complied with a statutory notice was issued. The notices were no doubt printed by the Council, supplied to the inspector, and served by him in the course of his duty. Gebhardt *v.* Saunders (1892, 2 Q.B. 452) was also referred to.

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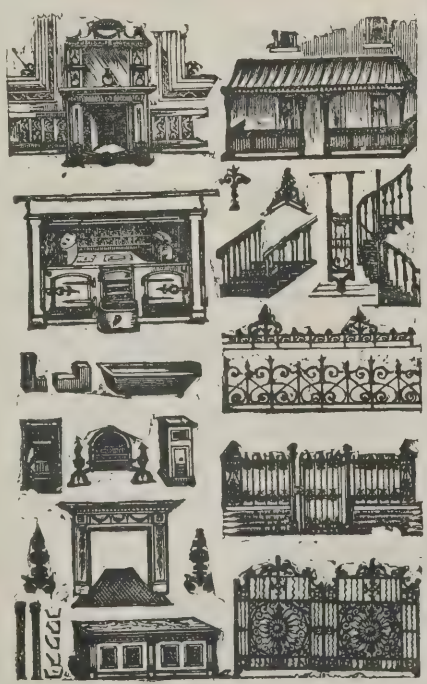
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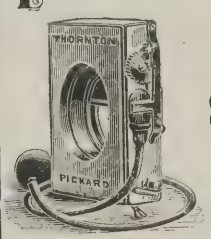
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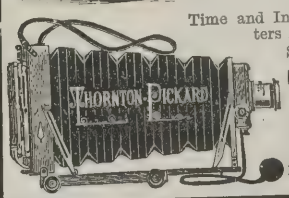
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Mr. Firminger, for the plaintiffs, cited Andrew *v.* St. Olave's Board of Works (1898, 1 Q.B. 775), the Public Health Act, 1875 (38 & 39 Vict. cap. 55, sections 41, 94 and 104). The plaintiffs, he contended, had been compelled to do work which the defendants were legally compellable to do. This was a notice from which a request to do the work was implied. Selfe *v.* Hove Commissioners was distinguishable. The observations of Mr. Justice Wills were not necessary for the determination of the point before the Court.

Mr. Justice Channell, in the course of his judgment, according to the *Times*, said:—In my opinion I ought to act upon the authority of the decision in Andrew *v.* St. Olave's Board of Works. I do not think it desirable to draw refined distinctions, and, further, I am inclined to think that Andrew *v.* St. Olave's Board of Works involves the same principles as the present case. Upon behalf of the defendants it was said that that case was distinguishable and inconsistent with Selfe *v.* Hove Commissioners. That case is no doubt not an entirely satisfactory decision, but it is not necessary to discuss it further, as the present case is not governed by it. Upon behalf of the defendants it was conceded that the sections in the Public Health (London) Act, 1891 (54 & 55 Vict. cap. 76), upon which Andrew *v.* St. Olave's Board of Works was decided, were similar to the corresponding provisions in the Public Health Act, 1875. In that case the work had to be done at once; in the present case that is not so. It is admitted that it was the duty of the defendants to do the work. If any persons other than the plaintiffs had done the work it would have been a voluntary act, and they could not have recovered the cost of it from the defendants. The principle upon which the cost of doing the work is sought to be recovered by the plaintiffs in the present action is that if a person is compelled to do that which another person is legally liable to do a request is implied by the person who is so liable. The question is, What degree of compulsion is necessary to entitle the plaintiffs to recover? The compulsion need not be irresistible. It is not sufficient for the defendants to say that if the plaintiffs went before the magistrate they would have had a defence. If a public body comes to a person and either commences or threatens proceedings such a person is no longer a volunteer. A person in such a position is under an obligation to do the work. It is immaterial whether the notice given to the plaintiffs was a statutory notice or not. The law implies practical compulsion. In the present case there was no legal compulsion, but a more indirect compulsion is sufficient. It has been held in betting cases that a mere threat to turn a man out of a club is sufficient to enable him to recover money paid by him to avoid being turned out. Where a man repaired a sea wall as a matter of practical necessity which it was the duty of the commissioners to repair he recovered the costs of the repairs. The fact that in the present case there was no actual statutory notice is immaterial.

Judgment for plaintiffs, with costs on High Court scale.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

21849. William Abbott, for "Improvements in and applicable to machine-made bricks or moulded bricks for building purposes."

21860. Paul Vanhauten, Leonard Plumen and Matthias Noppeney, for "Improvements in or relating to ceilings or similar surfaces."

22059. Frederick P. Jones, for "An improved method of utilising waste or other heat for drying bricks, clayware, clay, shale, cement, timber or other wet products or manufactures."

22242. Gustav Adolf Kiefer, for "Improvements in the manufacture of artificial stone."

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Specifications Published.

17134. Allison (Schwartz), for "Plaster boards or slabs for walls, ceilings and the like."

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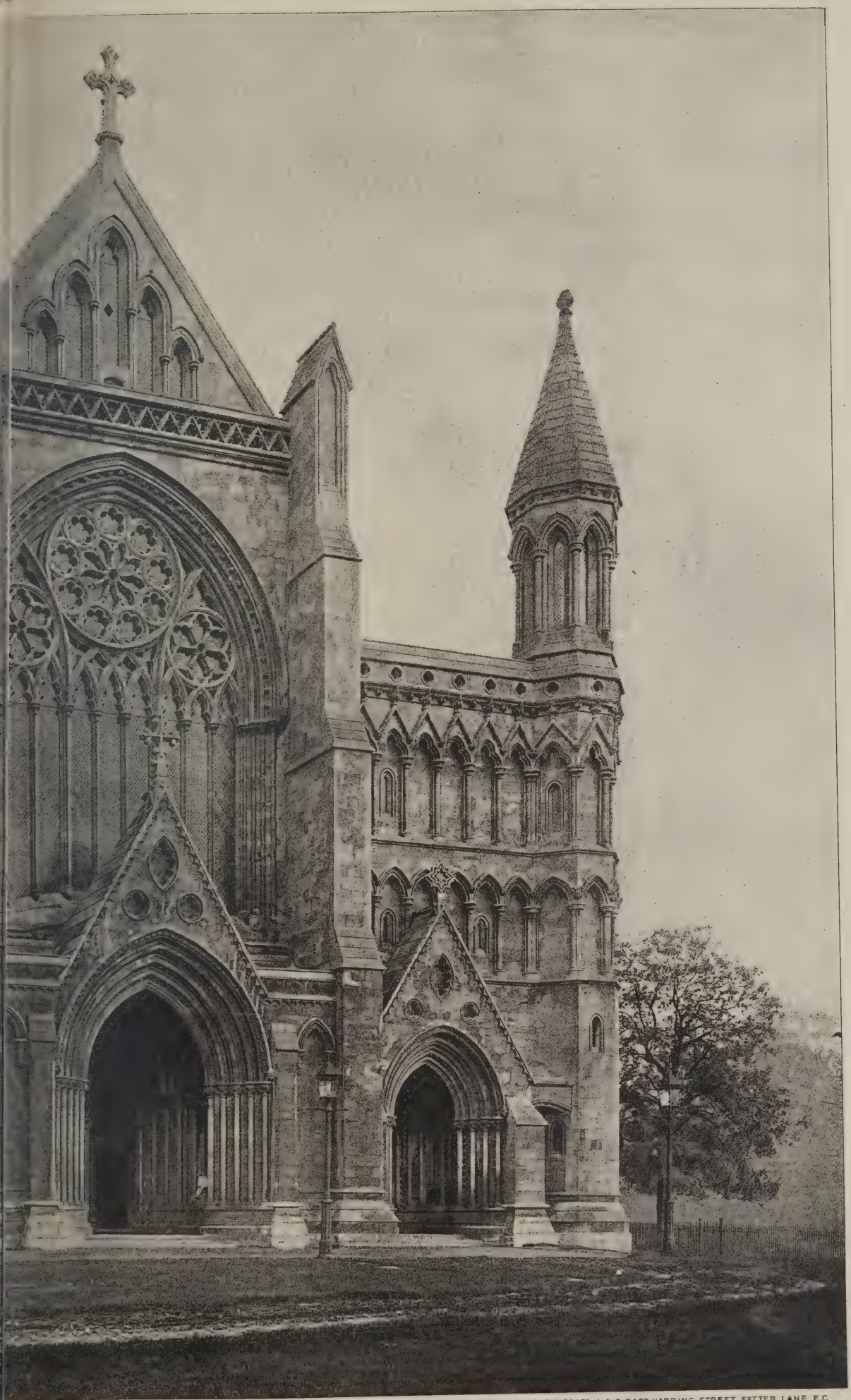






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13.—St. Alban's: West Front.





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THE BRITISH LINEN BANK, EDINBURGH.

DAVID BRYCE, Architect.



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DESIGN FOR MUNICIPAL BUILDINGS, OXFORD.

By G. W. WEBB, F.R.I.B.A.

The Architect.

THE WEEK.

THE anomalies of the law in regard to sewers and drains were explained by Mr. A. MACMORRAN, Q.C., in a paper read at the opening meeting of the Auctioneers' Institute on Tuesday. Under the Public Health Act, 1875, a drain, he said, might be said to consist of a channel for the conveyance of drainage or sewage from buildings within the same curtilage or enclosure in which a house stood. If a drain from neighbouring premises were let into it this channel would become a sewer. The duty of repairing a drain was upon the owner or occupier of the premises drained; a sewer, on the other hand, was vested in the local authority. It was a curious fact that while a local authority had ample power over private persons with reference to the making of drains from private houses, they had little or none in respect of the making of sewers except under private streets. To the general rule that a sewer became vested in a district council there were three statutory exceptions—sewers made by a person or company for profit, sewers for land drainage or irrigation under a local Act and sewers under the authority of Commissioners of Sewers. Where persons were damaged by floods caused by insufficiency of sewers and no negligence could be shown on the part of the local authority, they had no remedy, and could only complain to the Local Government Board. In the discussion which followed a general opinion was expressed in favour of amendment and codification of the law in relation to drainage.

ON Tuesday an important judgment was delivered in Leeds by Dr. TRISTRAM as Chancellor of the diocese of Ripon. The Vicar of Christ Church, Meadow Lane, with the churchwardens, applied for a confirmatory faculty for the twenty pictures and frescoes in the church, as well as a faculty to remove others, including that of *St. Veronica*, from the church altogether, substituting others in their stead. About ninety parishioners opposed the applications, urging that the use of pictures representing the stations of the Cross, &c., was irregular or illegal in the Church of England. Fourteen of the pictures represented the stations of the Cross and four frescoes had been painted on the walls. A picture of the Saviour nailed to the Cross was suspended on the back of the pulpit without the sanction of a faculty. The case for the objectors was supported by CLIFTON *v.* RIDSDALE, in which Lord PENZANCE on ordering the removal of pictures held that the three falls of CHRIST and the legend of St. VERONICA had no warrant in gospel history, and that the pictures were neither architectural decorations nor of a lawful character, Dr. TRISTRAM said that one objection to granting a faculty for the retention of the eight stations of the Cross was that they were in use in the Church of Rome at the present day for purposes of devotion of a nature not permissible in the Church of England; it had been further pointed out that the stations of the Cross had been introduced into St. Mark's, Marylebone, in the diocese of London, without a faculty and removed under a faculty. The Chancellor pointed out that in the present case before him, according to the evidence, on a certain Sunday morning at a harvest festival a lady, who was a stranger, on entering the church, walked down the north aisle, stopped and bowed and made obeisance before each of the stations as she passed them. The court, therefore, he said, was not in a position to sanction the retention of the stations, though reduced in number, without risk of their being used in the church some time or other superstitiously. He ordered the removal from the church of all the stations of the Cross and the picture suspended behind the pulpit. As these pictures and frescoes had been introduced in the church without a faculty, the cost incident to the issue of a confirmatory faculty was to be payable by the petitioners.

ON Tuesday a course of six lectures on "The Architecture of the Renaissance in France" was commenced by Mr. W. J. ANDERSON, at the Glasgow School of Art. The period comprised works of 1475-1520. The illustrations of Pierrefonds, Gaillon, Azay-le-Rideau, &c., enabled the students to follow the unfolding of the château style out of the defensive machine of the fortified castle. The development of the town house of the nobles, brought about by similar causes, such as the greater security of the country, was treated, and the variations which the change in the conditions, and especially the larger field open to the designer, induced in the details. For with the consolidation of the kingly power in France, the architect, too, comes into his inheritance. On the part of the workmen, co-operation with the master craftsmen in the making of a perfect whole is the ideal substitute for the Mediæval one of rivalry with one another in the details of a subordinate part. In conclusion, Mr. ANDERSON said that in these studies the aim was not artistic reproduction or the opening up of new opportunities of imitation, but that we might better understand such developments and have our ideals raised to a loftier plane—especially that the lesson might be learned that architectural growth comes of acceptance of new conditions of life, of the new purposes which architecture is privileged to serve.

DURING the present session of the Liverpool Architectural Society the following papers will be read:—"Liberalism and Conservatism in Architecture," by Mr. EDMUND RATHBONE; "Early Italian Renaissance Sculptors and their Work," by Mr. WILLIAM H. THORP; "Saracenic Architecture," with limelight illustrations, by Mr. TALBOT KELLY; "Enamels," by Mr. ROBERT HILTON; "Ideals and Realities of Modern Practice," by Mr. E. PRIOLEAU WARREN; "Some Burgundian Churches," by Professor SIMPSON; paper by Mr. EDWARD S. PRIOR, M.A.; "Notes on American Architecture," by Mr. H. BLOOMFIELD BARE, F.R.I.B.A.; "New York Office Buildings," by Mr. JAMES H. COOK; "A Description of the New Royal Insurance Buildings," by Mr. J. F. DOYLE; annual general meeting and closing address by the president, Mr. W. E. WILLINK, M.A., A.R.I.B.A.

THE opening address of the Society of Arts' one hundred and forty-fifth session will be delivered on Wednesday next, the 16th inst., by Sir JOHN WOLFE BARRY, K.C.B., LL.D., F.R.S., the chairman of council. The topic which he proposes to deal with is the internal traffic of London. The following papers will be read at the meetings before Christmas:—"Long Distance Transmission of Electric Power," by Professor GEORGE FORBES, F.R.S.; "Photographic Developers and Development," by C. H. BOTHAMLEY, F.C.S.; "Egypt and the Soudan in 1897 and 1898," by W. T. MAUDE; "Commercial Education," by Sir ALBERT ROLLIT, LL.D., M.P. For meetings after Christmas:—"Electric Traction and its Application to Railway Work," by PHILIP DAWSON; "Canals and Inland Navigation in the United Kingdom," by L. F. VERNON-HARCOURT, M.A.; "Preservation of Timber," by S. B. BOULTON; "Coal Supplies," by T. FOSTER BROWN; "Wireless Telegraphy," by W. H. PREECE, C.B., F.R.S.; "Leadless Glazes," by WILTON P. RIX; "Tuberculosis in Animals," by W. HUNTING. The meetings of the Applied Art Section will be held on January 31, February 21, March 14, April 18, May 2 and 30, 1899.

EVERY visitor to St. Sulpice in Paris will remember the two big shells which confront him on entering. They are mounted on marble stands, and along the edge of each is an ormulu band which keeps it from decay. The shells have served as fonts for a great many years, and appear as if they would endure for a still longer period. A similar shell was lately brought from the Philippine Islands by Mr. WILLIAM WILLOX, which he presented to the new church of All Saints, South Merstham. It has been mounted as a font, which is unlike any others in England. But a font does not subserve the same purpose in Paris and in South Merstham, and the newest employment of the *Tridacna gigas* may not be successful.

SCOTT ON THE ARCHITECTURAL GARDEN.

THE author of "Waverley" possessed many of the qualifications which are desirable in anyone who sets himself up for an authority on landscape gardening. As a poet he was a lover of nature, as an archæologist he loved buildings, and he desired that nature should enhance the buildings and vice versâ. But SCOTT also believed he was a shrewd investor and was eager to do all he could to increase the value of any land he purchased. He worked wonders at Abbotsford; whether his planting was always profitable is however doubtful. He enjoyed very great pleasure in his operations, and he was too wise to expect that pleasure can ever be obtained gratuitously.

The principal drawback to SCOTT as an authority was the vastness of his ideas. Feudalism was revived in him, and he wished to look on the world as one of his ancestors would have done. His ideal of happiness for peaceful intervals between warlike raids was that of a hunter, and especially one who, like himself, would be able to value the beauties of landscape. He must have been thinking of himself when he wrote:—"The ancient English poets, CHAUCER and SPENSER in particular, never luxuriate more than when they get into a forest. By the accuracy with which they describe particular trees and from their noticing the different characters of the different species, and the various effects of light and darkness upon the walks and glades of the forest, it is evident that they regarded woodland scenery not merely as associated with their favourite sports, but as having in itself beauties which they could appreciate, though their age was not possessed of the fascinating art of committing them to canvas." A man whose inclinations are towards the forest and the wood, which suggest infinitude, cannot have the fullest enjoyment in a garden, in which it should be a rule of art to have no concealment about the limitations. Sir WALTER SCOTT cheerfully endured many sacrifices in order to create woods around him, but his interest in the gardens was of a less heroic kind.

Still he could say without the least exaggeration and in all sincerity, "Homo sum; humani nihil a me alienum puto." All men dare not aspire to the possession of forest scenery; they were compelled to be content with miniature Edens, and SCOTT endeavoured to sympathise with them. But it was on the understanding that the owners recognised the difference between art and nature, and that art was not suppressed, for "the art itself is nature." The old garden, according to SCOTT, was "an extension of the splendour of the residence into a certain limited portion of the domain—was, in fact, often used as a sort of chapel-of-ease to the apartments within doors." Once admit that conclusion and there can be no difficulty about the character which a garden attached to a house should express. Like the house, it was a creation by human hands with the aid of materials which nature had provided. The garden became, as SCOTT said, "in the highest degree artificial, but it was a sight beautiful in itself—a triumph of human art over the elements, and, connected as these ornamental gardens were with splendid mansions, in the same character, there was a symmetry and harmony betwixt the baronial palace itself and its natural appendages which recommended them to the judgment as well as to the eye. The shrubs themselves were artificial in so far as they were either exotic, or if indigenous were treated in a manner and presented an appearance which was altogether the work of cultivation."

SCOTT'S preference may have been inspired in part by his professional interest as a writer. Flowers can bloom although the owner of the garden is desolate, and there is a sort of picturesqueness about a garden where weeds are asserting a right to share the soil which is not without interest. But defaced sculpture and tottering stonework are always pathetic. SCOTT knew how to avail himself of their aid. Thus the neglect which prevailed at Cumnor Place is at once brought before us when we are informed that "Some statues, which had ornamented the garden in its days of splendour, were now thrown down from their pedestals and broken in pieces, and a large summer-house, having a heavy stone front decorated with carving, representing the life and actions of SAMSON, was in the same dilapidated condition." The few strokes are enough to enable the reader to complete the picture, and the reference to the strong man of the Hebrews makes the ruin more impressive.

Take another example, or rather a pair of them. In Tully Veolan there was less restraint than the English visitor, Captain WAVERLEY, was accustomed to observe in the south. But with a mistress like ROSE BRADWARDINE there could hardly be any disorder about the castle. The terrace was partly paved and bordered with flowers and choice shrubs. There was "a stone parapet with a heavy balustrade, ornamented from span to span with huge grotesque figures of animals seated upon their haunches, among which the favourite bear was repeatedly introduced." In the middle of the terrace was another bear (that animal was the crest of the family) supporting a sundial. The garden was laid out in a series of terraces; the shrubs were cut into grotesque forms, and a brook was made to appear tranquil. All this was undoubtedly artificial, and without continuous care would not present a pleasing appearance to a stranger. When, owing to the troubles of the time, the Baron and his daughter have to abandon the old castle and the place is seized by English troops, the garden and its adornments are made to suffer as if they were Jacobites, and SCOTT introduces a scene of a different kind. We learn that "the accessories of ancient distinction, to which the Baron in the pride of his heart had attached so much importance and veneration, were treated with peculiar contumely. The fountain was demolished. The whole tribe of bears, large and small, experienced little favour; the balustrade was broken down, the walls destroyed," &c. Some apology is due for calling attention to passages by an author whose works are familiar to all, but in SCOTT as in other writers, many descriptions are liable to be skipped by readers who are in haste to reach the conclusion of his story. It may not, therefore, be generally known how closely SCOTT'S practice corresponded with his principles. He was a worshipper of nature, but he knew that under certain conditions nature is enhanced by art, or at least is so in the eyes of healthy men like himself.

SCOTT therefore agrees with UVEDALE PRICE about the striking effect produced by architectural ornaments in a garden, and by raised terraces, fountains, flights of steps, parapets with statues, vases, balustrades, &c. The fact that such productions are surrounded by walls appeared to him to suggest they were distinct from the rest of the domain where more liberty was allowed to nature. But if the artificiality be once admitted then, says SCOTT, "it seems right and congruous that these objects being themselves the offspring of art, should have all the grace of outward form, and their formality is to be varied and disguised."

While admiring artificiality and quaintness, Sir WALTER SCOTT was not disposed to seek from the Dutchmen models of treatment. Strange as it may appear to those who are acquainted with old Scottish examples, he preferred to follow the Italians, and he was right. As LANDOR says, "We Englishmen talk of planting a garden; the modern Italians and the ancient Romans talk of building one—Cui Cneius noster locum ubi hortos *ædificaret* daret." If a garden is to be built the principles of architecture should be respected. SCOTT'S conclusions are marked by his usual good sense. He says:—"If we approve of Palladian architecture, the vases and balustrades of VITRUVIUS, the enriched entablatures and superb stairs of the Italian school of gardening, we must not, on this account, be construed as vindicating the paltry imitation of the Dutch, who clipped yews into monsters of every species and description, and relieved them with the painted wooden figures which are seen much in the attitude of their owners, silent and snugly smoking at the end of the paltry walk of every *Lust-Huys*. The distinction betwixt the Italian and Dutch is obvious. A stone hewn into a gracefully ornamented vase or urn has a value which it did not before possess; a yew hedge clipped into a fortification is only defaced. The one is a production of art, the other a distortion of nature." SCOTT could not have foreseen that in the course of sixty years the buildings of Holland would be imitated throughout England; and when we have adopted the most important part, there is not much use in hesitating over the accessories. A Dutch hedge is undoubtedly to be preferred to the bare walls of inferior brickwork which are to be seen in too many English

gardens, and which, as SCOTT said, make the modern garden resemble a convict in his prison garb, who, by his very appearance, is banished from all decent society.

The system of KENT, which made nature omnipotent and brought it up to the very doors, was an abomination in the eyes of SCOTT. As a lover of antiquity, he could not tolerate arrangements to which had to be sacrificed "many a trophy of old magnificence—courtyard, ornamented enclosure, fosse, avenue, barbican and every external muniment of battled wall and flanking tower, out of the midst of which the ancient mansion, rising high above all its characteristic accompaniments, and seemingly girt round by its appropriate defences, which again circled each other in their different gradations, looked, as it should, the queen and mistress of the surrounding country." CAPABILITY BROWN went beyond KENT, for he was more ambitious. One of BROWN'S pupils created the grounds of Duddingstone, near Edinburgh. He twisted a brook into what SCOTT calls a string of sausages with the aid of a series of dams. Care was taken by him to obscure a view of the historic Craigmillar Castle, because, as he explained, the building from being visible over all the country was a common prostitute. The expression reveals the antipathy which filled the souls of the school of landscapists against everything which could be considered as architectural. It was fortunate that Sir WALTER SCOTT did not agree with them, or enthusiasts might be found to declare that the ideal life was only to be found among the belts, plantations and parterres beneath trees, and not within houses.

CHARLES GLEYRE.

IT might be easily supposed from what was said by many people in England during the recent commotion that M. MARCHAND was the first emissary of civilisation from France who found his way to the Soudan. He was undoubtedly the first who considered he had the right to exclaim, "Veni, vidi, vici!" But during the last sixty or more years several of his countrymen have gazed on the Blue Nile and the White Nile without imagining that by so doing they had acquired the proprietorship of the watershed. The Bahr-el-Ghazal, of which we are compelled to hear so much, was, unless we are mistaken, discovered by BRUN-ROLLET, one of the numerous emigrants from Savoy who have enriched France, but in exploring the region he had no intention of acquiring a territory for his adopted country; he made the voyage simply in order to divert his mind from domestic troubles.

One of the earliest of the travellers who followed the course of the Nile beyond the Nubian desert was CHARLES GLEYRE, the painter, who, like BRUN-ROLLET, was a naturalised Frenchman. His *Illusions Perdues* is a memorial of the journey. It was at one time the most popular of the examples of the modern school with the copyists of the Luxembourg. It is now in the Louvre. The picture is well known from engravings. It represents an antique boat, Egyptian-Greek in build, containing several girls who are singing or harping. Youth is not merely at the prow, but fills the boat, and Cupid, who has a chain of roses round his neck, with one hand uses an oar as a rudder, and with the other lazily drops leaves in the river. The boat is quite close to the bank, on which a wearied poet is seated, his lyre and staff lying on the ground. The figure expresses dejection, for the listless arms seem to be unable to again strike the strings. The river is wide, and the opposite banks are low. Night is approaching; the birds are winging their way homewards, and the new moon with its sharp curves is like an omen of sorrow.

Les Illusions Perdues is of importance in the history of French art, for it is the earliest example of the Neo-Grec school of painting, and as such it will always be valued. It shows a classicism which is neither that of DAVID nor of INGRES. But it has an interest of a different sort. It is simply a boating-scene on the Nile which was transfigured. Originally it bore the commonplace title *Le Soir*, and there was nothing to divert attention from the boat and its passengers. But when the poet was introduced, and they were consequently relegated to the second plane, a new designation was necessary to suggest that his day of renown was over; his songs were antiquated and not adapted for the pleasure parties of the new age :—

> Who would not mourn the minstrel's fate? his life so short and drear,
> And if he win a wreath at last, 'tis but to shade a bier;
> His harp is fed with wasted life—to sighs its numbers flow,
> And strung with chords of broken hearts is dreamland's splendid woe.

"Lost Illusions" was not only an appropriate title for GLEYRE'S early picture; it might have served as the expression of his own experience at the close of life.

CHARLES GLEYRE was one of those artists who are destined to be always seeking for something which is never to be found, to aim after ideals which no brush can represent, to see colours which no earthy materials can express. Men of that class can never count upon success. If by a series of fortunate accidents they are satisfied with an occasional work, it is likely to be beyond the comprehension of the crowd. On the other hand, so much is expected from the artists they cannot expect favour for their ordinary works. GLEYRE knew the consequences of what he proposed to do. Whenever one of his pictures was exhibited he saw it neglected, but he made no attempt to introduce the effects which would secure popularity. He preferred poverty and retirement in a humble studio in the Rue du Bac to wealth and applause. There was something more than quixotic in GLEYRE'S character. One instance will suggest his disinterestedness. When PAUL DELAROCHE found that he must avoid teaching owing to the state of his health, he arranged for GLEYRE to become his successor. The appointment was equivalent to a fortune. But the Swiss painter declined to accept it unless on the understanding that all his instruction was to be gratuitous. For a quarter of a century he gave lessons regularly twice a week without receiving a franc in return. If we remember that throughout the whole period GLEYRE'S income was modest and uncertain, his generosity will appear still more out of keeping with the commercial spirit of the nineteenth century.

His indifference to lucre was shown in many other ways. The *Illusions Perdues*, as we have said, did not represent the original conception of the painter. GLEYRE'S fastidiousness was continually compelling him to supersede whatever he had drawn or painted. For every one of his pictures he made numerous studies, and not a figure was introduced unless it had gone through a laborious evolutionary process. Always seeking after the best, he could not follow beaten tracks. That was the cause of his appearance in the Soudan as early as 1835. He had lived several years in Italy, and made as various a collection of drawings as if he had been employed to prepare illustrations for a history of Italian art. The theory of development was in the air, and GLEYRE considered that by tracing the variations of the schools and the changes which time brought forth he would at length realise what was to be the next phase in his art.

GLEYRE had gained much knowledge, but it did not suffice for him. After exhausting Italy he went to Greece. New horizons opened before him. He turned to Egypt as to the source of art. But there he saw system overruling nature, and he resolved to trace as much as he could of the primitive ways which the Egyptian artists conventionalised. Onwards he travelled until he found himself in Khartoum, which was then the *Ultima Thule* of civilisation, or rather, the boundary between it and barbarism.

Since the Nile Valley has attained importance in the eyes of European politicians so much has been written about it and so many tourists have traversed it, we suppose every British soldier in the late campaign was able to form an elementary notion of its characteristics before he arrived in Egypt. But in the thirties the greater part was an unknown land. GLEYRE busied himself in sketching carefully everything which gave variety to the monotonous expanses of the country. He was amassing enough materials to enable him to paint hundreds of pictures, forming a book of reference that would avail in all possible circumstances, details to serve for a lifetime. It must, however, be stated that the multitude of drawings were of little use to him, and like much else which the artist accumulated they exemplified labour in vain. Many of them exist, and who knows whether they may not be used to support the claim to effective possession of the Soudan?

Khartoum was in those days a centre for slave-dealing, and an immense variety of representatives of African tribes passed through it. GLEYRE made careful studies of them. On one occasion while he was on the quay a boat of captives arrived. One of the women recognised her son among the crowd of spectators, sprang on shore, and seized him. She begged that she might be purchased by his master in order to avoid a new separation, but the slave-dealers were not to be moved by appeals to their pity. It was only another case of lost illusions.

If GLEYRE when he returned to Paris depicted the actual scenes he had witnessed, the novelty of the subjects would have captivated the market. But, for him, all the strange sights were to serve as auxiliaries to his compositions. In his mind consequently there was a conflict of theories. His own experience in Africa qualified him to be a pioneer of realism, while his aspirations were towards the ideal. GLEYRE tried to combine the two, but the days for that sort of eclecticism had passed. He began with Scriptural scenes. His *St. John at Patmos* was such a visionary as he might have encountered in his travels through the desert. The public were shocked by the painter's liberty in substituting a portrait of a strange-looking fanatic for an inspired evangelist. Although HORACE VERNET had attempted Old Testament scenes with some of the peculiarities of the Syria of his time, still the public were not prepared for so matter-of-fact a representation as came from GLEYRE. It did not meet with approval, and consequently the artist lost those commissions for paintings to be hung in churches which he was entitled to expect.

Naturally the disappointment pained him. To a morbidly shy man like GLEYRE, who was moreover in a strange country, a little success was needful at starting in order to encourage him and to prevent a surrender to pessimism. However, he believed that the highest aim of painting was to be found in the adequate representation of scriptural subjects, and he produced another work, consisting of several figures, viz. the *Separation of the Apostles*. But the realism of the *St. John* was avoided. In this work there was more of the ideal, but it was not of the academic variety. There was no question that the painter was progressing in his art. To prove that he was no less competent to treat work of a different class he painted an *Echo*, which was immediately purchased by a German. Its success led to the production of his *Bacchantes*, which was allowed to pass to Madrid. Many critics consider it to be the most successful of the painter's works.

Whatever was the merit of his work, CHARLES GLEYRE discovered that the picture-buying public were not too eager to secure his works before they had left his easel. In the course of time he accepted his fate philosophically. There was no artist in Paris who was more willing to serve his brethren, and FLAUBERT invoked his aid when writing "Salammbô." He found plenty of employment in altering his own works until they became evidence of his peculiar emotions, and although the subjects are often remote enough from the nineteenth century, yet there is a personal note in the majority of them which should enhance their interest hereafter. They suggest the exile. GLEYRE could not conceal from himself that a naturalised Frenchman is not treated in the same manner as one who is born in the country. If he had any doubts on the subject they were dispelled by a misdeed of INGRES. The DUC DE LUYNES had commissioned GLEYRE to paint a series of pictures for the Château Dampierre. Then he invited INGRES to produce another series which would be a continuation of the former, but without any restriction as to independence in treatment. INGRES refused to undertake the work unless GLEYRE's pictures were cleared away. The nobleman consented. NEMESIS, however, seemed to have an eye on the transaction. The duchess expressed dissatisfaction with one of INGRES's nudities, and the despotic artist declined to carry out his commission. Is it any wonder that, after such treatment, CHARLES GLEYRE should become more of a recluse, or that he raised an obstacle to his appearance in public by the shabbiness of his attire and neglect of himself? When at night he walked along the quai at the end of the Rue du Bac he may often have regretted that he did not remain at Khartoum, although he would have to witness many of the iniquities of the slave trade.

NORMAN LONDON.

AS one of a series describing London at various periods, Sir Walter Besant gave a lecture upon London as it appeared in the eleventh and twelfth centuries at Toynbee Hall, Whitechapel, on Saturday evening. The city was enclosed between the Roman wall on the north and the Thames and river wall on the south. Recent discoveries indicated that this river wall was built on a cliff some 10 feet or 20 feet high on the site of the present Thames Street, and its existence enabled the citizens on several occasions to beat off attacks made by the Danes. Outside this wall a foreshore of mud was gradually reclaimed as our Saxon ancestors built quays and wharves for trade purposes, the wall disappeared, and in a number of very narrow streets, many of which still retain their old character, lived the working classes connected with the trade and navigation of the river. When William the Norman took possession London was well populated and divided into 136 parishes, each with its small church, the dedication of which showed Saxon origin, and to overawe the citizens the Conqueror built Baynard's Castle, near Ludgate Hill, and commenced the Tower at the eastern extremity of the wall, with free access to the river. In Cheapside and Eastcheap every kind of craftsman found a market; on the south side by shops, cells or warehouses and stalls, smaller articles being sold around the Cross, and on the north side dwelt the artisans in cottages built for temporary convenience without regard to order or alignment; hence arose a network of winding lanes leading from house to house. In the district extending parallel to Cheapside from Newgate to Portsoken were the houses of the wealthier citizens, and to the north every kind of industry was carried on, for London supplied its own wants. Its imports were mainly fine cloth, spices and wine, and such trade was carried on by foreign ships from Antwerp, Bruges and Ghent. Conveyance by land was by means of pack-horses. The government of London was developed on lines of Saxon institution. William the Conqueror gave a charter to the bishop, and the duties of the reve, or king's officer, were little beyond collecting Customs dues. Each alderman on his own land acted as magistrate, and when any matter required settlement in the common interest the great bell of St. Paul's summoned the people to meet for deliberation. Each guild or trade regulated the price of its produce, and though there was no specific mention of it, a guild of merchants probably regulated the export trade, which consisted largely of wool. From time to time waves of religious enthusiasm swept over the country, and to one of these we owed the foundation of St. Bartholomew's Hospital. The lecturer told the story of how this arose out of the pious vow of Rahere in the early part of the twelfth century, and with many an anecdote illustrating the manners of the time, expressed his view that, though often subjected to the scourge of pestilence, the 120,000 inhabitants of Norman London, with a brisk trade and cheap food, led free, comfortable and happy lives.

HISTORIC SOCIETY OF LANCASHIRE AND CHESHIRE.

THE first meeting of the session of this Society took place on the 3rd inst, Mr. A. M. Robinson presiding over a good attendance of members and friends. The paper of the evening on "The Twelve Sworn Men of Goosnargh" was read by the Rev. E. D. Bannister, the vicar, who, after giving a general description of the neighbourhood, gave a descriptive and historical account of the church, with its furniture and ancient chest containing the parish book. In this volume are written the records of the twelve sworn men elected to look after the affairs of the parish, religious and secular, the taxation and general matters connected with the township. Many amusing stories were given of individuals and quaint country customs, with copious extracts from the vestry book. A brief sketch was given of the old halls of this neighbourhood and the old Lancashire families connected with them. At the close a discussion took place in which the chairman, Mr. E. W. Cox, Mr. W. E. Gregson and others took part, and Mr. Gregson proposed a cordial vote of thanks to the lecturer, which was seconded by Mr. W. Fergusson Irvine, and heartily accorded.

EDINBURGH ARCHITECTURAL SOCIETY.

THE above Society met on the 2nd inst., when Mr. John Kinross, architect, gave his address as hon. president. Mr. P. E. Noble presided. Mr. Kinross confined his remarks to the architecture of the city and suburbs of Edinburgh, and contrasted the munificence of men such as Mr. Usher, Mr. Findlay and Mr. M'Ewan, in beautifying the city by the erection of handsome buildings, with that of the landowning and speculative classes, who were doing their utmost to destroy its amenity. He insisted on wide streets, with ample light, being necessary for the health of the community.

SUMMER HOLIDAYS AMONG FRENCH CATHEDRALS.

By the Author of "Ecclesiologia Germanica," &c.

(*Continued from page* 250.)

I.

Some Cathedrals and Churches of Normandy.

IT is certainly most agreeable, after a somewhat boisterous channel passage, to find oneself sauntering across the sunny square of Dieppe, and to be presently standing beneath the Flamboyant tower of St. Jacques—one of its two minsterlike churches. The exterior of this building is apparently almost entirely Flamboyant, but a closer inspection will reveal many beautiful details of earlier epochs, only requiring a quiet conservative restoration to bring them out in a more complete manner. St. Jacques is one of those many French churches which, as far as distribution of parts and general arrangements go, would pass with us for cathedrals, including in its ground plan a nave with lofty clerestory, aisles, flanking chapels and nobly proportioned, but apparently—like many another in France—unfinished south-west tower, rich in detail; transepts; and choir, with circumambient aisles, from which projects a well-developed lady chapel with tall transomed windows. The oldest parts of St. Jacques at Dieppe are the transepts and the arcade of the choir and apse, the latter being truly graceful specimens of French thirteenth-century work; their clustering shafts and well-moulded arches are especially deserving of study. The next portion in order of date is the nave arcade, whose pillars are of a form very frequent in France, but rare with us, viz. cylindrical with a slender shaft at each cardinal point, the capitals of each being foliaged. The tall clerestories of both nave and choir are noble features. That of the nave is of a far superior order of Middle Pointed to that of the eastern limb, where a deterioration in style is very palpable. As throughout Normandy, there is a considerable amount of Late Flamboyant and Early Renaissance work about St. Jacques, chiefly in the side chapels, where quaint features are the models of ships suspended as votive offerings, and a quantity of mediocre painted glass very similar in drawing and tincture to that which Wailes used to place in Middle and Third Pointed churches at home, when not under the superintendence of an architect, or when it did not call for or secure peculiar exertions on his part.

This period of French Pointed may not inaptly be termed its autumn. Every delicate shoot has thrust its furthest, every leaf has become puckered and every flower has fruited. All the splendour which precedes decay characterises the Flamboyant of France. It possesses none of the strength, vigour, or nerve of our English Perpendicular, but it is the perfection of *abandon*—light, frivolous, marvellously beautiful; in a word, thoroughly French.

One of the most curious and striking features of St. Jacques at Dieppe is found in a chapel at the west end of the south aisle, from which it is separated by an elaborate Late Gothic screen, viz. a group of statuary representing the entombment. Our Lord is being placed in the sepulchre by Nicodemus and St. Joseph of Arimathea, and on the inner side of the tomb are the Holy Women and St. John the Evangelist, who supports the drooping figure of the Virgin. The effigies are about life-size, and by the light of some tapers placed by the faithful along the cresting of a low grille, this solemn group has a truly weird effect to the spectator who comes upon it for the first time. Its date is 1612—so says Noel, a French author writing in 1795—and it was executed at the expense of a pious traveller who returned from the Holy Land. This may be correct when it is borne in mind how accurately the work of better and purer epochs was reproduced in France at a period long posterior to the extinction of the Pointed styles, but we should have assigned it to a date at least half a century earlier.

St. Jacques abounds in charming bits for the artist in the shape of Early Renaissance screens to the chapels opening from the processional aisle; indeed, the whole interior to those visiting France for the first time is a perfect revelation, and picturesque "views across" present themselves very frequently to the visitor. Dieppe possesses another church, generally overlooked by the savants and bookmakers, but whose interior, almost unchanged since the days of Wild* and Coney, must always please the artist more than the air of Parisian smartness that pervades St. Jacques—I mean St. Remi, with its three grandiose Renaissance façades and its pewed, heavy-pillared, Flemish-looking interior.



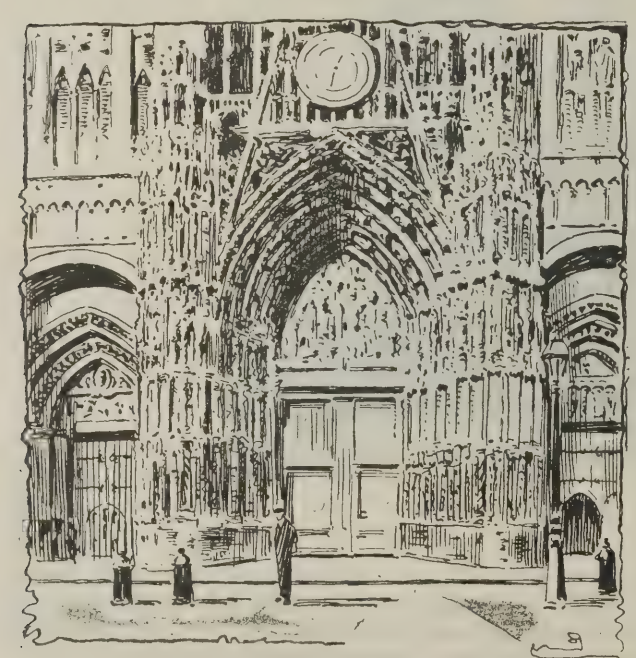
West Front of St. Remi, Dieppe.

Like St. Jacques, St. Remi is cruciform, but of very Late Gothic. The choir was finished in 1545, but owing to the religious wars the nave was not completed until the seventeenth century was far advanced. Three fine fronts in the Louis XIV. style contain the entrances, the western façade being of especial elegance. The choir of three bays has ponderous cylindrical piers, very tall, with coarsely foliaged caps and arches very narrow and stilted. The arcades are so high as to admit of no clerestory to speak of. There is some rich stained-glass in the apse clerestory with figures of bishops. The choir aisles open into chapels by very simple arches on piers without caps or bases, and of a type common in Late French Gothic. These

* A drawing of the choir of St. Remi at Dieppe, with those accessories for which Wild had such a penchant, and which he introduced with invariable success, will be found in his posthumously published "Architectural Grandeur of Belgium, Germany and France"—a series of marvellously delicate outline pictures, and valuable in point of detail.

are surmounted by a low clerestory. The four arches at the "crux" recall Worcester. A fine Renaissance screen opens into the last chapel from the south choir aisle, while another fences off the north-west choir aisle from the transept. Westward the view is terminated by one of those grandiose organ-cases so common in the North of France; one equally rich is in St. Jacques. The nave has huge cylindrical piers with plain uncarved caps and very small arches, the aisles opening into chapels by plain arcades surmounted by a clerestory, as in the choir. In one of the Flamboyantly-traceried north-aisle chapels is some rich stained-glass (modern), with figures of Prophets and Evangelists. The baptistery, formed in the last chapel towards west, is enclosed by a Renaissance screen whose door has, *inter alia*, a carving of the Infant Jesus in act of blessing. Altogether, St. Remi, although of debased architecture, is marvellously picturesque, and no one should leave Dieppe without paying it a visit.

By those visiting the North of France for the purpose of studying its ecclesiastical antiquities Dieppe will be found an admirable *point de départ*. Given fine weather, a delightful trip may be made by omnibus, *viâ* St. Valery en Caux, to Fécamp, with its cliff walks and glorious abbey church of the Trinity. In another direction lie the quaint fishing town of Tréport, and within a short walk of it the great First Pointed church of Eu. Thence Amiens is easily reached. The railway line from Dieppe to Paris by Pontoise enables the ecclesiologist to visit Neuchâtel, Gournay with the neighbouring abbey of St. Germer, Beauvais, Creil, and the beautiful Oise-side village churches of St. Leu, Champagne and Auvers. Lastly, there is the route *viâ* Rouen, Louviers, Pont de l'Arche and Mantes.



The West Doorway, Rouen Cathedral.

Between Dieppe and Rouen the journey lies through one of the prettiest districts of Normandy, and to those unencumbered with luggage affords material for a delightful tourette, stopping for a few hours to study the life in such villages as Longueville and Auffay. There is a fine cruciform church in the latter, apparently of the thirteenth century, but which I shrewdly suspect is, like the one at Triel, between Mantes and Paris, not quite so ancient as it looks, the work of earlier periods having been so successfully copied at later ones as to deceive the uninitiated. Unfortunately, the ensemble is spoilt by a clumsy modern spire. The saddleback would have had a far more pleasing appearance; but the fact of this type of steeple not being a localism in this district of Normandy may have militated against its adoption at Auffay. At Malaunay carriages are changed for Havre, but the journey, though naturally delightful, is barren of architectural interest. Harfleur's noble crocketed spire and Graville's elevated square-ended Norman church—both close to Havre—however, reward us at the end of the journey. Montivilliers, with its great Romanesque abbey church, equipped with a typical pair of Norman spires, lies a little inland, a short ride only from Graville. We were, nevertheless, amply gratified at Havre, whose Notre-Dame, a curious mingling of Late Gothic and Palladian, seems hardly lofty enough for the head church of such a town as Havre; but it covers a large space of ground, and those who are sufficiently liberal in their architectural ideas may spend a pleasant half-hour among its columned aisles. Despite its architectural solecisms, Notre-Dame de Havre le Grace—to give it its full title—pleased us. It has a long unbroken vista from the west door, terminating in the painted windows of the apse, whose tracery, like that throughout the church, partakes of the unfoliated Flamboyant character one sees in certain Oxford college chapels. There is a great deal of painted glass, some ancient, but all in the landscape style so dear to the artists of the Renaissance. The aisles and flanking chapels are separated from each other by Tuscan pillars, those forming the nave arcade taking the form of responds, while the alternate ones in the aisles are isolated. We admired some tasteful grisaille glass in the clerestory, and in the small circular windows above either side entrance. Externally, the unfinished south-west tower, with its clumsy crocketed pinnacles, does not assist in giving the church any extra height, dwarfed as it is by the huge houses in the Rue de Paris.*

The sea trip from Havre to Caen is a very enjoyable one in fine weather, with which we were fortunately favoured, and in about three hours—two and a half of which are spent in open sea, and the remainder in the Orne, or its canal—the towers and spires of Caen came in sight, affording promise of a rich

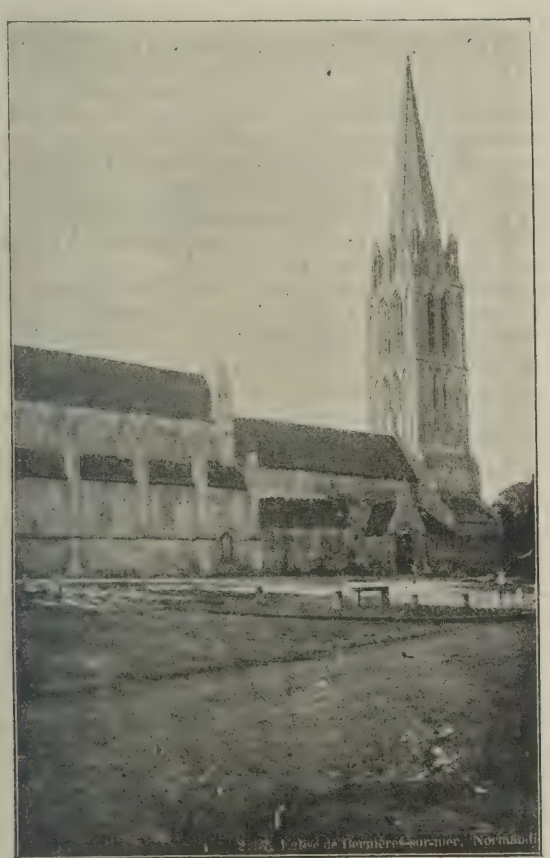


South Porch of St. Ouen, Rouen.

architectural treat. We had, however, decided upon making a short stay at the seaside before commencing our ecclesiological researches, selecting Bernières as our halting-place, a picturesque, scattered village, very primitive, and therefore far preferable to its more sophisticated neighbours, Luc, Langrune and St. Aubin. Bernières has a noble Late Norman and Early Pointed church, with a spire the work as of an angel architect, one of the most beautiful of those steeples which, built upon one general principle, seem to have been dispersed through a considerable distance round Caen. Some of them have been much mutilated—that at Langrune, for example—while those of Norrey and Audrieu are still incomplete. An excellent drawing of this spire will be

* The church at Harfleur, which is also square-ended, is of a type not commonly met with in France, viz. that having nave and aisles of equal height, like the German *dreischiffige Kirchen*. Beyond the parish church there is little to detain the ecclesiologist in Havre. Should he be interested in modern French Gothic, a stroll up the Rue de Rouen to the church of Ste Marie will not be deemed misspent. At present only the choir and transepts, in a bold Early Pointed style, are finished, and these tower above a debased Italian nave in a very imposing fashion. The interior is particularly fine and the detail good.

found in Nesfield's "Continental Sketches;" also of the graceful trefoil-headed doorway to the west porch. One could hardly select a more charming spot than this for a few days' quiet sojourn. To say nothing of the architectural treasures presented by almost every village church in the vicinity, there is in front the fine open sea, with its excellent bathing, while on the other side lies the rich, fertile tract of country, dotted with veritable Norman churches, between Caen and Bayeux. Then, should the weather prove unfavourable for country excursions, a short railway journey lands one in Caen, with its treasures of ecclesiastical art; Lisieux and Bayeux are also within easy reach; so that, altogether, no ecclesiologist need repine should bad weather overtake him at Bernières. The sole attraction of this somewhat decayed-looking village is its above-mentioned noble church, consisting of western steeple and projecting porch, nave and lofty chancel, "mirabile dictu," square ended, whose aisles are carried alongside the tower to the extreme west. The nave, very rich Norman, bears marks of recent restoration. It is long and low, with lean-to aisles and lofty First Pointed north porch. The western tower, which is First Pointed, is in three stages; the two upper ones are lofty and enriched with four lancets, of which the two centre ones are pierced. The lower stage, which does not rise above the apex of the nave roof, has its north side relieved by a row of arcades broken by a traceried circle; the spire has open angle pinnacles and squinches, but is unrelieved by bands. The chancel, a good piece of First Pointed work, soars above the Romanesque nave, but it sadly wants restoration. Its western gable has flanking pinnacles and its windows consist of two unfoliated broad



CHURCH OF BERNIÈRES, NEAR CAEN.

lights of a plate-traceried character. Internally the nave, entered from the tower by a Pointed arch of singular beauty, has a noble Norman arcade of six bays, and is groined, as are the aisles. Throughout the church the detail is most rich and valuable to the student. Good open benches seat the nave, from which the chancel opens by a fine Norman arch; two graceful First Pointed arches open to the aisles, a Renaissance balustrade serving as triforium; the vaulting is rather depressed. On the north side of the sanctuary is a low arch surmounted by a trefoiled triforium arcade and a lofty clerestory, of which the upper part is pierced by a two-light window as in the choir. The foliated arcade alluded to above is carried round the east end, but is hidden in the centre by a tall Renaissance altar-piece of good workmanship, and although incongruous, better perhaps than the miserable Pointed reredoses one sees in French churches. The square east end has three fine First Pointed windows of two foliated lights each, with sex-foiled circlets. When the church was visited some years ago the restoration had not extended to the choir, which retains its eighteenth-century panelling, painted white. Above the arch opening to nave was a copy in fresco of Leonardo da Vinci's "Last Supper," fast hastening to decay. Two windows on the south side of the sanctuary are lofty ones of three lights trefoiled, and curiously crossed twice by transomes, three foliated and plate-traceried circlets filling the head. The whole church abounds in most delicate detail, and is throughout worthy of careful study.

A delightful walk was that from Bernières back to Caen distant about ten miles, on a brilliant summer morning with just enough breeze to ward off the heat. Passing through Langrune, we stopped to rest and examine its church, a First Pointed cruciform structure, low and long, and with a finely proportioned centre steeple, which, however, has a rather forlorn appearance, since it has lost not only its squinches and broaches, but also its capstone and vane.* Langrune Church abounds in delicate detail; we especially admired the clustering shafts supporting the arches of the tower, also the groining of its apse. With the nave we were hardly so pleased. The arcade is a low one of eight bays, with short piers and Pointed arches. Above is a blind arcaded triforium and clerestory of single lancets. The effect of this is no doubt pretty as a *coup d'œil*, but sober reason tells us that this triple arrangement is unsuited to a nave of such low pitch as Langrune. Resuming our walk, we soon reached La Chapelle, whose large modern church of Notre-Dame de la Délivrance, with its pair of spires, is visible at Bernières and a good way beyond it. We could not admire this church externally, being like most modern Continental Gothic, lean and poor and quite unpoetical. It is cruciform in plan, and just east of each transept is a tower and spire, differing, however, in design. Beyond is a pentagonal apse with incipiently traceried lancets, and at the apex of the roof a huge gilt angel; but internally this church is a most masterly conception, and entering it as we did from the sunlit square, we were hardly able at first to distinguish its details owing to the profusion of stained-glass. Low arcades on either side of the nave admit to pentagonal chapels in lieu of aisles, and support a lofty clerestory of Early-traceried windows. The chancel is long, devoid of aisles, but richly arcaded beneath the windows. Against the northern pier of the arch opening into it stands an image of the Blessed Virgin and Holy Child, both attired in long blue robes. They are placed beneath a spiral canopied niche, reminding us of one of the German Sacramentshäuschen.

(*To be continued.*)

GLASGOW ARCHITECTURAL ASSOCIATION.

A PAPER by Mr. Austin Woodeson, Association Travelling Student, was read at the usual monthly meeting of the Association, held in the rooms, 187 Pitt Street, on Tuesday, November 1, Mr. Geo. S. Hill, F.R.I.B.A., president, in the chair. Mr. Andrew Rollo, in Mr. Woodeson's absence, read the paper, which was a description of a sketching tour of a fortnight's duration made by him this summer in Berkshire and the surrounding counties. The paper was illustrated fully with about thirty-five drawings executed by himself during his stay. The drawings, which showed buildings in Reading, Bray, Mapledurham, Abingdon, &c., comprised illustrations of churches, almshouses, &c. Many of the buildings were further illustrated by large-scale details and measured drawings. Mr. Woodeson referred to the southern counties of England as offering to the architectural student an excellent sketching ground. All types of building, in styles ranging from Norman to Elizabethan, were to be constantly met with. At the close of his paper Mr. Woodeson was awarded a hearty vote of thanks.

* A general view of the exterior of this church at Langrune i given in Petit's *Architectural Studies in France*. It is one of those professedly rough copies of rough sketches with which the author partly illustrated his fascinating book. Intended to convey little more than the general character of the buildings, such drawings, though useless in point of detail, are marvellously faithful as regards outline and ensemble.

NOTES AND COMMENTS.

Much dissatisfaction is felt in Paris about the scheme for the conversion of the lands of Villeneuve-l'Etang into building estates. The ground is adjacent to Parc de Saint-Cloud, and the sale is considered to be only preliminary to another of the beautiful park which delights strangers as well as Parisians. It is believed the sacrifice is unavoidable. Taxation is already almost beyond endurance, and a couple of millions of francs would be a welcome addition to the national exchequer. There is a fine modern house in Renaissance style on the estate, which was intended for the officers of the guard on duty at the palace of St. Cloud. It was lent for a time to M. Pasteur. Villeneuve l'Etang has not many historic associations; in that quality it is surpassed by its neighbours, but it is a part of the open space which Paris should preserve, and its conversion into plots, if successful, will be sure to lead to similar experiments with the public lands.

The Municipal Council of Paris have agreed to allow a statue of the late Jules Simon to be erected in the open space before the Madeleine. It is not intended to suggest that the psychologist, statesman, philanthropist and economist was officially connected with the church. The intention is to show that in a modest appartement far above a near restaurant Jules Simon lived during the last years of his life on earth. He was one of the wisest of Frenchmen, and held various offices with advantage to his country, but to the end he was compelled to depend on his pen for an income. The statue will be the work of M. Frémiet. Jules Simon will be represented as seated with his hand resting on the head of a child, for he was an advocate of the necessity of State interference to secure the bringing up of the young in such a way as would bring credit to France. Beside him a heap of books will be introduced to suggest the professor, scholar and publicist. On the pedestal will be a relief of one of the historic scenes in which Jules Simon took a prominent part.

The ancient church of St. Pierre on Montmartre is in so dangerous a condition it is never likely to be used for services. The great parish is, therefore, in a difficulty. To approach the basilica of the Sacré-Cœur is no easy task for the old or infirm. The curé has consequently decided to erect a cheap church near the Place Pigalle, where representatives of the arts daily and nightly congregate. The plans were prepared by M. de Baudot, who is well known in Paris as an official architect and professor. In the construction béton armé, or concrete with an iron trellis embedded in it, will be largely used, and there will be much vaulting above and below the ground. The system enables work to be executed quickly. The crypt is completed already, and will be utilised as a chapel for services and the instruction of children. With so many artists around it would be strange if the walls were unadorned. MM. Rousseau and Paul Sieffert have painted an immense picture on one end of the crypt. It represents an incident in the life of St. Peter Fourier, the founder of an order, who devoted a great part of his life to the education of children. It is anticipated that many other artists will co-operate in making the church significant of the district in which it is placed.

The wall-decoration of the Panthéon, Paris, is now almost complete. The late Puvis de Chavannes before his death had completed a second series of four panel illustrations of the history of Ste Geneviève. He also left four sketches for the upper panels, which are to be completed by one of his pupils. There is much curiosity to see the effect of the four symbolic landscapes to which M. Humbert is giving the finishing touches. They represent dawn, noon, evening and night. But they are intended to suggest ideas of the Deity, the Family, the Fatherland and Charity. Landscapes are not so often employed as figure-pieces for architectural decoration in France, but a great many scenes in Paris and the environs are introduced in the Hôtel de Ville. The Salon exhibitions also often present examples which are commissioned for public buildings in the provinces.

Another appeal has been issued for aid towards the restoration of Winchester Cathedral. About two years ago it was decided to strengthen the roof of the nave according to plans by Mr. Colson, which were endorsed by Sir J. Wolfe Barry. All the repairs of the roof and the more difficult operations on the stone vaulting of the nave, which was in a critical and dangerous condition, have been executed, but there are several works still to be taken in hand, the most urgent of which is the repair of the south aisle of the nave. When these have been finished the whole of the main fabric of the cathedral will have been put into a state of sound and solid repair. There is no fabric fund to draw upon, and the estates from which the cathedral revenues are derived have been reduced to about half their former value through agricultural depression. The Dean and Chapter have, however, undertaken to contribute out of the capitular incomes 1,350*l.* About 7,000*l.* has also been raised by public subscription, but a further sum of 5,900*l.* is still required, partly to extinguish the debt, amounting to about 4,500*l.*, due to the contractor and architect for work already completed, and partly to meet the cost of work not yet commenced but urgently needed.

The difference in spirit which occasionally exists between two county councils was exemplified this week in connection with the proposition for the erection of Kew Bridge. When the old bridge was declared to be unequal to the traffic Surrey endeavoured to cast the whole, or the greater part, of the expense of a new bridge on Middlesex, while Middlesex was eager that Surrey should have the privilege of the construction. Then it was arranged that both counties should share the expense. Sir J. Wolfe Barry prepared plans for the bridge, but the ardour of the two authorities had cooled and the designs were left unused. When at last tenders were sought it was found that the lowest exceeded the engineer's estimate by about 50,000*l.* According to Sir J. Wolfe Barry prices had increased in the interval, that of granite being doubled. The Middlesex County Council on Monday, by a majority of eight votes, declined to consider the subject, and adjourned the meeting until the 14th inst. On the other hand, the Surrey County Council at their meeting on Tuesday resolved to adopt the report of the joint committee, which stated that after careful reconsideration the committee were unable to recommend any further reduction in the revised estimate of 149,000*l.*, and recommended that an Act should be obtained for fresh borrowing powers. It remains to be seen whether the Middlesex Council will accept the arrangements.

Belfast is so rapidly advancing, it is not surprising that the citizens are not content with the modest church which serves as a pro-cathedral for the diocese of Down, Connor and Dromore. The new city hall, when completed, will have, moreover, the effect of demonstrating that the secular power is stronger than the ecclesiastical. Accordingly, at the diocesan synod on Wednesday, it was moved, "That the Synod approves of the provisions of a Bill to be introduced at the General Synod of the Church of Ireland in 1899 for the establishment of a cathedral in Belfast." But when proposals of that kind are heard, there are sure to be opponents who are not enthusiastic for a grandiose building, and in Belfast the Scottish influence, which is not in favour of the cathedral system, is strong. The following amendment was, therefore, proposed, "That in view of the most urgent need of church extension in Belfast, this Synod considers that the present is not an opportune time for giving its approval of the proposal presented to it to build a cathedral." As a large majority was in its favour, the original proposition was carried.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: THE LADY CHAPEL.

NEW GENERAL POST OFFICE, NOTTINGHAM.

147 OXFORD STREET.

DAME OWEN'S STATUE, IN THE HALL, DAME OWEN'S SCHOOL ISLINGTON.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE opening meeting of the sixty-fourth session was held on Monday evening in the Council Chamber, Conduit Street, Professor Aitchison, R.A., president, in the chair.

The Honorary Secretary announced the decease of the following members :—Major Alfred Heales, honorary associate, elected in 1882 ; Henry Hewitt Bridgman, elected associate in 1871 and fellow in 1883 ; John Gillett Livesay, elected associate in 1882.

Mr. William Nicholson Cumming, of Edinburgh, was reinstated an associate.

The result was published of a statutory examination of candidates for the office of district surveyor under the London Building Act, 1894, held on October 27 and 28 last. Three candidates were examined, and the following gentleman passed and was granted a certificate of competency to act as district surveyor in London, viz. Mr. George Henry Blagrove, of Regent's Park.

President's Address.

The President prefaced his address with a short comment on the work of the late Charles Garnier, and then said :—

I think we may be congratulated on the improvement that is taking place in the appearance of London. It is a great triumph for architects to think that they are converting a rather dull city, mostly composed of brick walls with holes in them, into a town almost as picturesque and varied as the old towns of France or Flanders.

I think it was in the forties that Professor Cockerell, at the Royal Academy, gave the approximate number of the new churches and public buildings that had been erected in the preceding thirty years; but that list, astonishing as it was, would dwindle into insignificance beside the new buildings that have been erected in and around London within the same lapse of time.

Of very important buildings in the centre of London there have necessarily not been very many, but in the outskirts numberless town halls, technical schools and other municipal buildings have sprung into existence, and though I am afraid we can hardly claim for most of them that they have rivalled the picked examples of the world's architecture, they mostly have some stateliness, picturesqueness or originality.

I regretted to read the remarks of Mr. Norman Shaw, who has been acting as one of the assessors on the designs for the buildings of the Californian University. He said that "the competition had been held in the hopes of discovering some architectural genius, but in this it had failed," and he felt "a twinge of national regret when no English name appeared among the selected eleven ;" the plans selected were without exception of the French school. "Architecture," said Mr. Shaw, "is more thoroughly taught in France than in England ; at the same time French teaching destroys individuality." It is a matter for regret that an English-speaking race should have to go to our neighbours for their architecture ; but that may be because there is more architectural genius among our neighbours across the Channel than among the English-speaking countries on both sides of the Atlantic and in the Pacific ; yet it is peculiarly unpleasant that a celebrated English architect can justly speak of a more thorough teaching being given in France. One naturally asks, Why is this? For one would think that what is teachable could and ought to be as well taught in England, America and Australia as it is in France ; at any rate, the first thing that the English architects should do is to see that this inefficiency is corrected. I can hardly believe that teaching, if not carried far enough to stifle independent thought, can extinguish individuality, for certainly some of our great poets were the best educated men of their day. As far as we know we cannot give ourselves genius, but it is most probable that, if a large number of persons will acquire that which a good architectural education can give them, there will be a genius among them ; and surely a well-taught genius is better than an ill-taught one.

There is a most interesting book written by M. Edmond Demolins, who says that the education given to the English has peculiarly fitted them to be successful colonists. Whether this method of education was deliberately chosen, or whether it was stumbled into through the natural bent of the people, does not appear ; but we can only hope that, either by accident or design, we may find as successful a method of teaching architecture ; for every English-speaking man in the world must wish that we could produce buildings that would vie with those produced in the most brilliant epochs of Greece and Rome, of France and Italy, and with the best Saracen buildings, and with the Gothic ones that pervaded Europe during the Middle Ages. We cannot hope, however, to equal the excellence of monuments that sprang into existence after stirring times, in nations where there was an adoration of the beautiful, particularly when one of these nations is believed by some philosophers to have possessed faculties as superior to those of the nations of Europe as the faculties of European nations are superior to those of the negro.

Architecture is the poetry of construction, and the noblest poetry is naturally found in buildings that are applied to the highest transcendental uses. A certain amount of comeliness is necessary to every building, except such buildings as are required to create fear, horror, or a sense of ignominy, such as castles, gaols, gallows and pillories.

A building is an organism created by man for his own needs that should emulate the organisms of nature. To take man as the highest organism, we may say that the man of the most striking appearance is not a perfect organism if he has some incurable internal defect ; and so in a building no beauty will wholly compensate for its want of answering the purpose for which it was built, and even if it answer its purpose, and has a beauty that is quite incongruous with its use, it becomes as ridiculous in the eyes of judges as a man in a state dress acting as a scavenger. In some of the modern buildings that at first sight affect us strongly, from their size, mass or ornamentation, if we see that this size and this massiveness are not necessary, that these embellishments are not consistent with the uses of the building, we merely despise the factitious effects.

As our knowledge of the strength of materials, of the strains and stresses that result from the different forms of buildings becomes more accurate, it will naturally affect the shapes of the different parts of the building, and I think we must look very much to this for future advancement in architecture.

We want to mark those portions of buildings that have special duties to perform with that architectural emphasis which is given by mouldings, and these mouldings have to produce the effect we want in our own climate. To use mouldings that were designed for climates different from our own, and consequently do not properly answer their purpose, is really to declare ourselves indolent or incompetent ; we have plenty of plausible excuses, *i.e.* that the Romans used the same mouldings whenever they built, and that their Renaissance imitators did the same, and that the archæologists our masters would be shocked at any architect who attempted to think, but neither excuses nor bad examples will avail us if our sole object is to advance our art. We have too to consider the purposes to which our buildings are to be put, the ratio of strength we must allow when a building is merely for a temporary purpose or to last as a record for future ages.

According to the uses which the building is to subserve we must consider the ornaments that are to be given to it by the sculptor, and whether their forms are to be taken from vegetable life only, or are to include animals or man. Where buildings are to be used for the highest intellectual or moral ends it is perhaps difficult to find even figure sculpture that will sufficiently express their high use. In Classic and Mediæval times at least, sculptors employed for this purpose mythical or symbolic figures. In the present day we have almost given up all symbolic and emblematic forms, and have trusted purely to words, which do not strike the multitude, and have not, in the bare form in which they are mostly given, the same effect on the mind as symbolic forms. Sculpture is wanted on all buildings, but its use should be imperatively called for by the people for all public buildings, for the sculpture, if properly designed, would more completely show the use of the building, and surely the public who pays for these buildings should be informed of their use ; and this is particularly called for when the buildings are for benevolent purposes, such as hospitals, asylums, workhouses, rests, refuges and homes. The speaking arts of sculpture and painting are particularly wanted for enlightening the people on the advantages of living in a free and advancing country. It is for statesmen to consider how much more contented the population of this country would be if the fine arts were used to proclaim the advantages the people enjoyed.

The subject of colour is one that has of late years fallen greatly into disuse, but, as far as I can comprehend, very unnecessarily ; for as nature colours all her works, and produces every sort of emotion from the combination of form, light and shade, and colour, it can hardly be inappropriate for man to do the same ; and all architects know that monumental colouring may be as well marked as monumental form.

Hitherto the proportions used, or, as the ancients more properly called them, symmetry, which forms so important an element in architecture, has been almost confined to those taken from the highest transcendental buildings of the past ; but we see in nature every conceivable proportion, and most of these are good ; consequently it is only from want of observation and want of skill that we confine ourselves to the proportions of Greek, Roman, or Mediæval work ; for Egyptian, Assyrian, Arabic, or Indian architecture has found no great favour in Europe.

The thing we want most is the advancement of architecture, but who is to show us the way? A deceased architect of marked ability said we must wait for another irruption of barbarians, and probably if they were barbarians of improvable quality they might solve the problem ; but it would be a drastic measure that most of us at least would pray might not occur in our time. I think the greatest obstacle to the advancement of architecture is the fact that the bulk of Englishmen do

not care about it in the least, and, as far as I can judge, the fine arts are not likely to improve if no one cares for them. So every architect should be ready to point out what architecture does for a nation, and so help to create the want.

Architecture—and by that I mean good architecture—must even from the size and importance of its monuments create some sort of emotion in the beholder; and the least reflection will show him the vast army of various men that have been employed to get all those materials, and to bring them together, the thousands of craftsmen wanted to fashion them and put them in their places; and according to the stateliness, the impressiveness, or the beauty of these buildings will the power, wealth and grandeur of the nation that has erected them be brought before his mind. If these buildings are for the highest purposes and clearly express their character, deep emotion will be excited in him, and he will also think of the science that these buildings presuppose, the artistic skill of the architect and artists employed, and of the artistic tastes of the nation at the time in which they were built. As the late Charles Garnier said, "Architecture is an obtrusive art." Its masterpieces thrust themselves upon you and cannot be hid in a corner, and as long as they remain they call from the people who wish to see them a journey to the land of their creation; so if we want a good account of our time to be given to posterity, we must pick out good architects, encourage them to do their best in erecting important, well built and æsthetic structures; at any rate, if this is neglected the age in which we live will be lampooned.

The painters and sculptors laugh at us when we say we want the public to show us what they like and what they want, and say, "We struck out a new type of woman never before painted, and new methods of treatment, and the public appreciated it and asked for more;" but their case is quite different from ours. It is not pleasant, I confess, for a painter to paint a picture or a sculptor to model a statue that does not sell; but an architect cannot put up a monumental building in the hopes that the public will approve of it and pay the expense. The most he can do is to show a drawing or a model in public, and persuade men in power or of immense wealth that he is both capable and original, and will be able to charm the public by his work. How did the architect of the Erechtheum persuade the State to employ him? So small a monument as that of Lysicrates could well have been shown by a model.

To get the proper teaching is not so easy as to say we want it, but I think in architectural education, as in general education, we must endeavour not to teach that which is dead nor that which is useless, but confine ourselves to the necessary and the useful. I think it is obvious that architecture is the poetry of construction, and consequently the very first thing to be taught is construction, and it is not the mere rough knowledge of the main principles, but that exact and accurate knowledge which was possessed by the late Romanesque architects of the properties of stone. They got this knowledge mostly by the failure of their buildings, but they reasoned on the causes of the failure they observed, they thought and they dared; while we have most accurate means of testing the strength of every material that falls to our hand, and if we be mathematicians we can solve every stress and strain as the engineers have done. We have many new materials that our predecessors had not, and some of extraordinary strength and of a capacity for taking nearly every form with ease; I speak here particularly of cast-iron. This is not without dangerous qualities when exposed to fire, but we ought not on that account to neglect it. With wrought-iron we have other difficulties to contend with besides the danger of fire, for it is very difficult and still more expensive to make this in any agreeable or beautiful shape and to ornament it; but we cannot believe that the Mediæval architects would not have largely used both materials if they had possessed them. We have, too, practically a new material in concrete, but this material also is not without its difficulties and its drawbacks, and we have, besides, the whole of what I may call old-world materials to our hand to deal with structurally in a more perfect way than they ever could have been dealt with before, and the whole category of old shapes to use and new forms to adopt that have never been used before. If the dictum of Sir Joshua Reynolds be true, that by becoming familiar with the invention of others we learn to invent, the great knowledge that we possess of past architecture should make us more ready to invent; but in fact the gift of invention, so far as architectural forms are concerned, seems almost extinct. We have only this to say in excuse, that from the fifteenth century to the middle of the last century European architects had nothing but Roman architecture, or its Renaissance imitation, to study and to use; since then we have had Greek and Gothic. Neither of these styles, however, was used to stimulate invention, but merely to copy, and even in the present day it is doubtful whether the invention of a new form, unless it were surpassingly beautiful, would be tolerated, for antiquarianism has usurped the place of architecture.

We must of course study the expressive and beautiful buildings of the past to learn how their effects were produced; but having learned that, our object should be to invent other proportions and other shapes, whose effects shall be equal or superior to those of the past; and when I speak of invention it is merely the adaptation of some of the innumerable forms of nature. In the present day we should say that there was even less invention amongst architects than there was amongst the Romans, for the Romans at least started a new method of adornment when they carved the shafts of their columns or covered their pilasters with running foliage; but of course it is to the Gothic architects that we must look for those rapid adaptations that we now call inventions. Gothic architecture from the time that it emerged from Romanesque passed rapidly through what we call Geometrical and Decorated, till it fell into the mechanical stiffness of Perpendicular. Were these men blessed with greater powers of invention or adaptation than we are? or is it that the gift has become atrophied for want of use? At any rate, the substitution of archæology for architecture must tend to this result, for if the wing of the apteryx dwindled to the size of your thumbnail for want of use, it is probable that our powers of invention will do the same. I think that we are not so destitute of invention as we appear to be, for in out-of-the-way places in the country you see the elements of new Gothic and new Classic, where the architects have not been very learned, and have not had the fear of the archæologist before their eyes.

When one speaks of invention, good invention is meant, and if we have the gift of invention it is only by the constant exercise of it, and by comparing our inventions with the excellence of the past, that we are likely to progress. I feel sure that the architecture of one century, or perhaps even of one quarter of a century, should not exactly resemble that which went before it, for besides our proclivities and aspirations not being exactly those of our fathers' time, if our knowledge and invention were progressive we should want the one for use and the other for emulation. In poetry we do not want the poets of our own time to portray again the character of times long past, for in that we can take but small interest, but to portray our advancing knowledge and the good, striking and dramatic characteristics of our own time, as Tennyson so transcendently did; and we must never forget the labour and study he undertook to perfect himself, for he learnt Hebrew to see how the Hebrew poets arrived at sublimity. I do not speak about ornament, whether carved or painted, for that is the business of the sculptor or the painter. I by no means wish to discourage architects from being painters, sculptors and ornamentalists, so long as they are good architects as well; but it is absurd to give up the advancement of our own art for the sake of being dabblers in the arts of others. I have said nothing about the art of planning, although that is a most important art, and in these days, where convenience is thought of more importance than anything else, it is the art by which most competitions are gained. No one can deny that it is a useful art, and may be a very impressive one, and I am sorry to say that in its highest form it is not sufficiently studied.

I must say something on the results of our own examinations, for they have had a very stimulating effect on the students. The examinations let them know some of the things they ought to study and give them an object to aim at. Examinations, however, have certain shortcomings like everything human, they test insufficiently. Besides a parasitic growth clings to them, they lend themselves to cramming, whilst to cram is the last thing we should wish any architectural student to do, for it is a pure effort of memory to recollect what has been before written or said and repeat it at a given time, while the great object of instruction is to teach people to think and act properly. The sort of memory architects want is for the thing to be remembered to be firmly and permanently fixed; while anything crammed, when it has once answered its purpose, is almost immediately forgotten and leaves scarcely a trace behind. Architecture in every one of its three branches requires accurate thinking to the end in view, and no cramming is of the slightest use in that direction. The only use I ever heard claimed for it is that it enables a man to seem to know what he does not know, which may be useful on occasions.

The plan or arrangement of a building requires to be made perfectly suitable for its purpose, and in the cases when the building is not for common use it should have a certain effect, and if for high purposes the forms require to evoke feelings of dignity, stateliness, sublimity or awe. I cannot refer to more perfect examples than the Parthenon and the inside of the Pantheon. Plans embody not only the general conception of the building and its supports, but should roughly inform a skilled person of the whole scheme of the completed building. We judge of the constructional skill of the architect by the smallness of the ratio of supports to the total enclosed area.

Every one of the three branches of architecture is not only sufficiently difficult, but may be considered transcendental, *e.g.* when we look through many plans we see that some are not only more convenient and more striking than others, but sometimes it seems as if the great planner were first and the rest

nowhere. As buildings are meant to stand, it has always struck me as rather a paltry trick to arrest attention, to make a building look unsafe, or to put in a piece of construction which forces us to ask how the architect has managed to make it stand. We want everything to look stable, so that our whole attention may be given to the æsthetic effect; but at the same time skill in construction will enable us to give great variety in the different parts of the building, some parts being slight or slender as compared with the important members of support, which must necessarily be bulky. No building should be put up that has not some evidence of the intention to make it comely, unless it be those buildings that are intended to convey horror or antipathy, of which I spoke before. Every building wants character, and that character should show its use; and when buildings are for the purposes of dignity, reverence or awe, it is most important that their proportions should excite these feelings, and that any sculpture or painting that is put on them should heighten their effect in the same direction. Although it may seem a paradox to say so, the special convenience that should attach to every building is not so important in the highest sort of monuments, as for the monument to excite a feeling of sublimity, and for this reason that high thought clothed with beauty is much more lasting than ordinary wants. If we could call to life the high priest of the Parthenon he might tell us that Iktinus and Kalikrates made the temple very inconvenient for the service, but for more than fifteen hundred years that service has been abolished, and we are still enamoured of the sublimity of the temple.

The principal things that want teaching when construction and the art of planning have been mastered are the proportions that have raised the various emotions in existing buildings, the art of moulding and the exercise of the inventive faculties, for it is doubtful if invention is denied to any average human being, although some have it in such profusion that it is easy to them to invent, and you probably recollect Plato's saying that those entrusted with public duties should find them easy. I have so often said before, the construction should be the best that is known and practised, and that any construction that is used merely because it is old is mere pedantry.

In every new building we arrange, difficulties arise in giving the necessary parts that æsthetic expression that we wish them to have. It is comparatively easy to mask the construction so that we may use the æsthetic solutions of deceased architecture, and so long as we pursue this course, architecture can never advance. What should be done is to encourage the student to solve the difficulty in his own way, and that is why ironwork is so serviceable, because in that the student has nothing to copy from, and he must use his inventive powers. Very long columns and stanchions, for instance, have junctions that must be kept together by ugly lugs and bolts or some other cumbrous addition, and these have to be made graceful or beautified. There are difficulties about moulding in iron, and in trying to solve these difficult problems the student should be recommended to aim at simplicity and elegance. If after many trials he cannot do anything towards a solution of these problems, he should abandon architecture.

As regards the practice of some of the younger members, there is too much straining after effect; too much recourse to easy means of arresting attention, such as by rustics; too much partiality for curious and incongruous forms; the sewer-arch or water-opening is too much adopted for entrance doorways and attic windows—anything for a novelty; corners of square openings are rounded off and projecting members are slightly curved or bellied out. Now there is, in my opinion, nothing like straight lines for dignity, and the rounded corners and bellied door and window heads mostly produce meanness. Another device is to make columns like those barrels that are used to fill in the odd spaces in ships, where the middle diameter is nearly double that at the base and necking, a gross and vulgar caricature of the entasis of the Greek columns. This device truly arrests attention, but only to make the judicious observer note the absence of any feeling but for vulgarity. Architecture is a very difficult fine art, and these attempts to attract attention easily merely show want of proper training and laudable ambition. Horace's maxim is as true now as it was then, that "you should study Greek examples by day and by night." The simplicity, grace and restraint of Greek work cannot be too much studied, and that profusion of ornament that is now so common is not only opposed to Greek practice, but to good taste, for, as has been truly observed, nothing great is obtained without simplicity.

There is one feature we want badly, and that is a well-designed large window, for there is great demand for these in the new public buildings, and we have nothing but the huge Roman semicircular window of the Baths, and the west end Perpendicular windows, which have little claim to beauty.

There is a great want of study of lighting; half the effect of large complex interiors is got by concentrated light against "a mighty contiguity of shade," while most of our buildings are spotted all over with windows. One of the architectural devices the student should study is to get harmonious grouping of immense windows with those of ordinary and small size, and another is how to treat the problem of the seventeen-storey building; for though we have not yet adopted this American device, the increasing scarcity of ground and price of land in large cities tend to produce it.

The only use of these addresses is to correct mistakes in teaching, to point out, if one can, where the defects in our practice lie, and to stimulate each other to greater exertion, and, if possible, to find out the way to the advance of our art. The chief things that act as incentives to mankind are the hope of wealth, the hope of honours and the hope of immortality; and I certainly think that we might well increase one incentive by insisting on being paid for our work, for we are not paid now. I think the powers that be might well make another incentive more common by bestowing honours on the profession, which is now hardly recognised, although it does so much to raise the reputation of the nation by designing monuments which persons from all parts come to see. I can only hope that the prospects of immortality may induce those with congenial genius and the highest ambition to devote themselves to architecture, and to spare no thought and no labour in perfecting their work, so that it may vie with the best Greek in grace and with the Mediæval in impressiveness. We all wish that a great architectural genius may arise for the sake of our art and of our country; and it is good for everyone but the genius, for his highest traits are mostly brought out by misery. As Shelley says, "We learn in suffering what we teach in song."

I think, or at least hope, that with all the present teaching, striving and devotion we shall find the true path of progress, and that in the near future architecture may realise the transformation of the dragon-fly:—

> To-day I saw the dragon-fly
> Come from the wells where he did lie.
>
> An inner impulse rent the veil
> Of his old husk: from head to tail
> Came out clear plates of sapphire mail.
>
> He dried his wings: like gauze they grew:
> Thro' crofts and pastures wet with dew,
> A living flash of light he flew.

Lieutenant-Colonel Prendergast, in proposing a vote of thanks to Professor Aitchison, said that the President must have found that it was necessary to deal carefully with such an architectural Fashoda and Marchand as were embodied in his address. As the time was warlike it would be well, he thought, to have some of the spirit of it introduced in the Institute. Why should they not take sides and have a discussion on the President's address, which might be the means of increasing the impression it produced?

Professor Roger Smith, in seconding the resolution, said it was very difficult to consider architecture with a clear mind; they could not easily get rid of the associations which were connected with Greek and Roman and later buildings. It was therefore only to be expected that the nearest approach to originality would consist in modifications and new combinations of older elements. Some might doubt whether we were advancing, but let anybody compare the illustrations in the technical journals of to-day with those published in them a quarter of a century ago, and the difference would be manifest.

SIR EDWARD BURNE-JONES.

ON Monday, at the Birmingham and Midland Institute, Sir William B. Richmond, R.A., delivered a lecture entitled "A Tribute to Sir Edward Burne-Jones." He said when he had the honour to be invited to address them at that famous Institute his first impulse was to decline—partly because of the many demands upon his time, but chiefly because he did not at once see his way to a subject which would interest his audience and stimulate himself. Upon second thoughts, however, he determined to accept the invitation, because by doing so an opportunity would be afforded him to enter in sympathy with them upon a subject of which they were justly proud, and in harmony with his sympathies. For had not Birmingham the honour of being the birthplace of Sir Edward Burne-Jones, in his way and after the fashion of his genius the greatest of English artists of this or of any time, and who was equal in many respects to the great names which adorn the art of Italy? Sir Edward was born in England, but his spirit was born in Italy. Birmingham had produced great men, among others two happily still with us—a renowned politician and the Prince Bishop of Durham, Dr. Westcott. Dr. Lightfoot, second to none he believed as an historian of the early stages of ecclesiastical history, and Sir Edward had passed to their rest; their work was finished, but their labours are enduring for all time. The two prelates and the great painter were contemporaries, and educated at King Edward's Grammar School. Each in his calling had manifested his genius and

that indomitable power of work, patience and persistence in overcoming difficulties without which genius is not only valueless but a snare. Of these distinguished men the artist was, perhaps, the greatest, for he is the rarest product of modern life. There have been other centuries more sympathetic to the artist than this has been. But with all its drawbacks a practical spirit was shown by a section of the public—not large, perhaps, but influential—that there is enthusiasm in England for the noblest forms of art. Sir Edward fought bravely in the cause which was his, for what he liked and what he enjoyed doing. Finally he won. He won by persistence, by sincerity, and in spite of initial prejudice he attained the highest distinction, and commanded not only respect but gratitude. Those who respect his work are legion, those who love it increase in very remarkable proportions. His art finds keen admiration all over the world. His audience must not, he said, expect from him critical remarks. He was not a critic but a painter, whose business was to create, not to destroy—to win over to the side of beauty whoever may be wavering. What he should say had been formed by conviction, and he might state at once that he was in profound sympathy with Sir Edward's art. The question often asked, "Will the art of so-and-so live," was a silly one, and it was impossible to answer it with truth. What concerned them was the present Does such-and-such an art live for us?—is it a vital expression of something felt, something desirable, hitherto dreamed of, perhaps, but unstated? That was a question worth considering and worth answering. Fancy the critics of the day—and he dared say there were such—wasting their time by questions regarding the effect upon future generations of the art of Pheidias, Homer, Michel Angelo, Shakespeare or Milton. He suspected that no age had been exempt from silly people; unfortunately ours prints and so hands down the follies. The common saying that poets are born and not made was, broadly speaking, true. Equally true was it that certain races were more creative than others. Artistic temperament was evidently more commonly a Celtic than a Saxon property. Sir Edward Burne-Jones and William Morris were Welsh by descent. As co-workers, as well as individuals, they had exercised enormous influence upon modern thought and taste; in combination they revolutionised the attitude of the upper middle classes towards the domestic arts. They had refined the taste of England. In combination they made the best stained-glass of the century. Those artists gave their great gifts, their labour and self-sacrifice to their country for its pleasure and use at the present and future. An artist revealed himself by his craft; through it he transmitted his most delicate impressions of nature, his sensitive imagination, as well as by his patience, industry and love of perfection. He set forth his best with affluence, for his own delight, and by so doing he pleased someone else and perhaps many. When he ennobled his own he ennobled others' lives. But his first instinct was to please himself. Through his craft he kindles our imagination, sets before us his ideals of beauty, tells us delightful stories, or presents in portraiture great men and lovely women for us and for our children's children. And it was thus that the arts must hold supremacy over every other product of mental activity, as being the most civilising in the true sense and the most enduring. They are, as it were, a part of us. Sight, hearing and sympathy are the most delicate cords of emotions which are set into vibration by beauty. Art which is not beautiful can scarcely be said to exist at all. Art and ugliness are antagonists. Sir Edward from first to last was always seeking fresh and more delightful means by which to set forth his fertile invention and exquisite sensitiveness to beauty. He was ever at the feet of nature, always her lover, but also her master. He was a poet in a true sense, not only literary, but in the highest degree graphic. His appreciation of beauty was second to none. Leonardo, who had the same kind of fantastic imagination, was not endowed with more exquisitely-tempered sensibilities. His instinct also was his strength. His genius started him, his patience made him. That wonderful thing, originality, which, when absolutely spontaneous, was a quality to the last degree winning, was his. It was not startling or shocking, but of a very human origin—sympathy with all that finds a place where love is. Referring to church decoration, he said religion and beauty would be united; their union was right and natural. No longer are our churches to be ill-kept and ugly barns. They are to be places of worship, wherein the beautiful stories which have made religion what it is are to be exhibited upon their walls for the delight and instruction of the poor as well as the rich. To Sir Edward and to William Morris are due some seven hundred stained-glass windows in this country, among which are some of the most delightful designs ever executed. The art of Burne-Jones, he maintained, had been very ill-defined whenever it had been called "limited." Few men had ever made such exquisite drawings as he, and in every kind of medium. He meant that if they took the great masters of line, who should they call his superior? As a colourist how various—now pale and silvery, presently full, rich and glowing; then in almost monochrome, what delightful tint of varieties of hues he gave. Burne-Jones was not only the most prolific designer of his day, but the most various—he even did exquisite drawings for jewellery. No, our fellow townsman was not limited except in as much as he was human. Before concluding Sir William said he desired to make a few remarks upon the future of art in England. They would be entirely in sympathy with his subject. Happily there is growing a very healthy desire for the union of the arts, and in that a wholesome dislike of specialism. Then, also, the arts are widening their scope and play, therefore they are acquiring a firmer as well as a wider sympathy. Painting of pictures is slowly becoming to be regarded, as no doubt it is, a very important branch of the arts, but not the only one. The marked strides that sculpture has made in recent years is very remarkable. He questioned if England had ever had cause to be so proud of her sculpture as at present. Among us we could name many men who are doing first-rate work—most of these are in the prime of life—and there is evidence that there is a younger race springing up, whose energy and talent will ere long come to the front. The younger school of architects is composed of men who, while they stand by traditions, are original, and original upon very safe lines; their work is severe and restrained. With regard to the crafts, and he confessed to having a tender place in his heart towards them, the advance is so striking that one cannot help drawing a conclusion therefrom, namely, that English people are really going to be tasteful as well as commercial. If that does happen England will be even greater than she is now. It is a remarkable sign of the times when technical schools are being established all over the country, and a still more interesting fact that the work done is already upon a high level of excellence. He could not help congratulating them—and while he did that, the head-master of the Birmingham School of Art—that he and they moved with the times. It had often passed his lips that the Birmingham School of Art was the best in England—the best because the instruction is not only thorough, but very broad in its outlook. Especially did it interest and delight him to know that the lesser arts found great sympathy in their educational programme. They might take his word for it when he said that the decorative arts, inclusive, would be the event of the future. They would be wise to aid and encourage that movement. And they would do so if they were practical rather than theoretical. Designing for metal, mosaic and pottery was only valuable when the designer knew the capabilities of his material. South Kensington had been a great lesson. The system there had failed to succeed, as it might have succeeded if the original plan had been practical, not theoretical. While the South Kensington authorities had been asleep, some cities, such as Birmingham, and even towns, had become alive to the necessity of training for the crafts, and training for them by practice in them. He confessed that he looked forward to a time—it would not come in his life possibly—when England took her place, not even second to Italy at her best time. That would come when the unity of the arts had been established—when architecture, sculpture and painting were all working together hand in hand with the crafts. It would come when the smallest jewel had been set so exquisitely, and with such exuberance of fancy and finish, that it is prized, not for its intrinsic worth or marketable value, but because it is lovely. When the taste for the beautiful has been fully established in small things, and when people decline to buy ill-made and badly-designed articles or finery, then the great epoch to which he had alluded would commence. It would be a time of a great liberal union—a great federation of all the states of art. They in Birmingham were going the way to attain it. But there was a great deal to be done yet before such an ideal is consummated. Art as a commercial business would have to cease. All labour should be well paid, but the labour which is always a pleasure is often far too highly paid. And those who desired the best must want the best, and they would get it. He could not but think that all who listened to him would feel that the great movement was due in a great measure to the labours of Burne-Jones and William Morris. At that point he could not separate those two friends—even brothers—nor did he think that he in any way exaggerated when he said that what is going on at the present time, which is truly vital and influential, has been in a large measure due to those great artists. So there is, indeed, hope for the future, and, even more than hope, a belief that Englishmen will ere long determine to have all things beautiful as well as useful, and, perhaps—but he would not prophesy—two centuries hence history might say, "Yes, what we know now is due to a few artists of the nineteenth century. There were some great painters in those days, but there were two great designers who opened out their invention for the public good, and gave their best not only to picture galleries, but to our churches and homes and to the people—William Morris and Edward Burne-Jones."

The Wesleyan Centenary Hall which it is proposed to erect in London is estimated to cost 250,000*l*.

THE PARTHENON MARBLES.

AS a memorial of the late Duchess of Leinster a course of lectures is to be delivered annually in the Alexandra School, Dublin. This year Miss J. E. Harrison, D.Litt., LL.D., was selected as lecturer, the subject being, "The Parthenon Marbles in relation to recent Investigations." In the first lecture, according to the *Irish Times*, Miss Harrison said that Hegel held that not to have known the works of the ancients was to have lived without knowing beauty; the study of the work of the ancients was, indeed, necessarily good. Some of them might not have had the opportunity of learning the literary language of the ancient Greeks, and it was of supreme importance. Let them study the originals in the other and simpler kind of language—that of art—and let them begin with the study of the Parthenon marbles. She gave this advice because the Parthenon marbles were the fullest and most characteristic expression of the Greek mind that had been left to them in art; they told what the Greeks felt and how they felt, and how they expressed it at the very apex of the development of their art; and she thought it better to begin at that point and with them, and then to study how it was led up to and how step by step Greek art dwindled away. There was a second reason for their studying the Parthenon marbles which should appeal very strongly to them. These marbles were a national treasure, she might almost say the greatest of their national treasures. They were, as they knew, in the British Museum, where they were very carefully tended by the officials. Savants from all parts of Europe came to study them, and she thought it was part of their business as loyal British subjects to understand something at all events of the work, and of the beauty and meaning of these wonderful sculptures of which they were the guardians. It had been charged that it was almost a sin for them to have these marbles, and Lord Elgin had been called all manner of names because he stripped the Parthenon of them and brought them to England and housed them in the British Museum. Was that charge a just one or not? There was no question Lord Elgin deserved some very small measure of criticism and blame for the way in which he took the marbles away. He was not an archæologist, he could not be in the early part of the century; and when he took them away and stripped them off from the temple, he damaged a good deal of the architecture of the temple in a way in which no man of culture nowadays would dream of doing. But after all they could not ask a man to be in advance of his age, and it seemed to her that Lord Elgin had conferred an inestimable boon not only upon them, but upon all civilised Europe by rescuing these marbles from what was almost practically certain destruction. For what was the modern history of the Parthenon marbles? Athens was taken by the Romans, and when the Romans pillaged what was movable in the temple, so far as they knew, they did not do much destruction to the actual structure. During the long Byzantian period it was fairly safe, but a certain small amount of damage was unquestionably done, because the church of Athena Parthenos the Virgin was turned into the church of Mary the Virgin, but the damage did not appear to have been of a very serious order. In 1453 Constantinople was taken by the Turks, and Athens fell under Turkish rule. Their religion laid upon the Turks the injunction to destroy all embodiments in art of the human form, and how careless they were about protecting the national temple would be shown by one simple fact, that when Venice besieged Athens the Turks turned the Parthenon into a powder magazine, and when a Venetian bomb was thrown into the Acropolis it fell into the Parthenon and the centre of the temple was laid in a mass of ruins. Before that disaster the French Ambassador with the Porte had taken with him an artist, and got him to make a series of drawings of the marbles on the temple, and recent researches had proved these to be more and more accurate, and on them rested their knowledge of the destroyed marbles. The whole of the centre of the western pediment was broken by the Venetian general in the attempt to take them down by means of a crane or some other instrument and to carry them off. Any Turk thought he had a right to pick up fragments of the marbles—to smash up the heads of the heathen idols as he called them—to break up statues and make of them mortar of which to build his house. Such were the dangers to which the Parthenon was exposed, and as any cultivated man would be, Lord Elgin was grieved at heart to see the destruction that was going on. At first he had no intention of removing the marbles bodily; he simply wanted to make certain measurements, to take certain casts and register down certain facts. So disastrous, however, was the destruction that went on that at last he decided to get a firman to remove the sculptures. For that he paid a few dozen yards of scarlet cloth and a hundredweight of coffee, which served to show how little the Turks cared for the treasures in their care. With great difficulty and labour, and with a carelessness that belonged to his time rather than to himself, he took the marbles away. He offered them to the Government, and, a fact which showed that Lord Elgin was not worse than the rest, the Government hesitated long about the buying of the marbles, and they lay in the cellars of Burlington House for many a day. The report of the special committee of the House of Commons was very curious reading, showing very clearly that to those people brought up on meretricious showy sculpture the austere models of the Parthenon seemed lacking in grace and beauty; 35,000*l.* was paid by the Government for them, and it is only fair to say that Lord Elgin was never fully repaid for the money he spent. They were housed in the British Museum in 1816, and it was not until 1821, as a result of the War of Independence, that the Greek came into possession of his own again. The Greeks of the present day took excellent care of their remaining marbles, and it should be mentioned that the recent earthquakes in Greece had so shaken and damaged the Parthenon that it had been found necessary to appoint an archæological commission to undertake the work of careful restoration. She thought, therefore, that they should be thoroughly grateful to Lord Elgin, and should venerate his name for having preserved these marbles from imminent destruction. During recent excavations an older Temple of Athena—in archaic style—had been found close by, and from investigations and study the conclusion was forced upon them that Phidias did not let his creations spring straight from his brain—as some people imagined—but worked carefully and laboriously in the school his predecessors had established for him, and that the Parthenon was the heir to a great artistic tradition. The Parthenon was begun about 447 B.C., and was completed and ready for the reception of the great gold and ivory statue in 438. Its appearance they always identified with the great liberal statesman Pericles. After the great liberal measures of Pericles a reaction ensued, which was marked by the name of Nikias and the building of the Erechtheum. Greek sculpture was mainly significant when it was taken away from the architectural frames in which it was encased, and in its conception the Greeks were always careful to select subjects which, while they were connected by continuity, could nevertheless be broken up into separate groups. The Parthenon was the embodiment of Athens after the great tide of the Persian invasion had been turned back, and in expressing their glory they looked on their history in the light of their mythology, and defeated the barbarian hosts conquered by the Greeks of heroic days. They selected several subjects—the battle of the Olympian gods against the earth-born giants, the battle of the Greeks and Amazons, and the battle of the Lapiths and Centaurs, the former of whom were the ancestors of the ancient Greeks, and the latter primitive hosts of men with whom they had to contend. It was interesting to note that while in the early metopes horizontal and vertical lines were used, in the later metopes, such as those of Phidias enclosing the battle of Lapiths and Centaurs, diagonal lines were beautifully introduced to give rest and relief to the eyes. It was remarkable that in these metopes the Lapiths were sometimes represented as being physically defeated, although of course they ultimately won. The Greeks had no fear that it would be misunderstood, and it enabled the composition to be varied. The battle took place at a wedding feast. The Centaurs could not stand the taste and smell of the wine; it went to their heads. They attacked the guests, and tried to carry off the bride and slay her friends. The series of groups representing this episode was interrupted in the middle by another series of interpolated metopes, and the lecturer was inclined to think that these latter were taken from the older temple, and represented the solemn dedication of the first image of Athena. The Greeks were conservative in matters of art, and if they could they would get a bit of an old temple and carry it over to the new.

In her second lecture Miss Harrison said she had now come to what was, perhaps, the most interesting part of the subject, namely, the question of the great Ionic frieze which surrounded the inner cella of the Parthenon. The condition on which it was erected was quite different from that of the Doric frieze on the outside of the temple. It could not be seen until one came quite close to the building and had climbed the steps immediately beneath it. As a consequence it was not worked in high relief as the metopes of the Doric frieze were, but in quite low relief, and it was easily observable in the British Museum that the upper part of the relief was worked in slightly higher relief than the lower, so that in looking at it, as they must, turning their eyes upwards, the upper part of the relief did not fall out of sight, but overhung the lower a little bit. It was one of the delicacies in the execution of sculpture which was observable in Greek work, and showed that the artist considered in the most perfect manner possible the exact conditions under which his work was to be seen. It had been asked why this matchless work had been so hidden away, and in answering that question they had to remember the position the cella occupied. The cella was the essential part—the inner kernel—the most sacred portion of the temple. A Greek temple was a solid oblong box—the house of the god—intended to contain his image, frequently quite dark, unlighted by windows, and only illuminated by the door. It was almost certain that the Parthenon was only

illuminated through the door. The subject of the frieze was the celebration of the Panathenaic festival of the whole body politic of Athens, gathered together to worship the goddess Athene, which took place on her birthday, late in July. The celebration culminated in a great procession, which wound its way up to the Acropolis, and there the gods and mortals sat down to a banquet together. The Greek idea of sacrifice was a human and genial one—it was always that of a common banquet, to which the gods were invited. Such a feast was called a Theoxena, and they were really the foundation-stones of most Greek festivals. In the frieze the great procession of the body politic of Athens was represented as appearing in the presence of the twelve Olympian gods. At the western end the cavalry—the young horsemen of Athens—the flower of Athenian chivalry, were seen dividing north and south, and overtaking the chariots again, the sacrificial victims, cows and sheep, votive offerings sent by some of the colonies, and so on, and each of these two parts of the procession meet again at the east end. The maidens with the sacrificial vessels come into the presence of the magistrates, and finally enter the presence of the gods, which are divided into two groups, divided again by a central group of people belonging to the procession. Excavations and investigations have shown that the roads famous in antiquity along which such processions passed were extremely narrow. Panathenaic Way was especially so, and it was a matter of surprise how chariots and unruly votive cows were driven along to the Acropolis within such a narrow space. Phidias did not accomplish his idea of the frieze of the Parthenon without having predecessors, for recent discoveries of sculpture at Delphi had disclosed the prototypes of his figures, so that instead of having to conceive the idea as a lesser genius might have done, the great artist was enabled to put forth all his powers in adding grace and beauty to the thought already conceived. The young horsemen were shown coming closer and closer together into serried ranks, growing ever more beautiful as they linked themselves together. After the votive offerings they had the youths carrying the water vessels. In these figures of the young Athenian aristocrats they had typified the Greek virtues of self-sufficiency and great soulness; as in the figures of the maidens also carrying sacrificial vessels they had portrayed the two other Greek virtues of reverence and grace. So that they had here the cardinal virtues of the Greek expressed in sculpture. They were inclined, perhaps, to be a little disappointed with the Greek ideal of their gods. Their idea was a human idea, only a little grander, on a more stately scale, with little advance into the spiritual conception; but they must not ask the virtues of one nature for another, nor should they ask the Greeks to be Christians, which they were certainly not. The maidens were received by the magistrates standing in a group, and it was interesting to note how the magistrates seemed to stem the tumult of the procession before it entered the presence of the gods. First they had Hermes, the messenger of the gods, and then a beautiful group seated together with knees entwined—the goddess Demeter, Dionysius, the wine god, the only one who had a cushion to his seat, and the Thracian god Ares, who was regarded as an outsider, and sat in a casual posture with his hands joined across his knee. Then they had the father of the gods, Zeus, in the head place and with arms to his chair, and close beside his wife Hera, with her attendant maiden, and next Athene, Hephæstus, Poseidon, Apollo, Artemis, the typical maiden goddess, and, last of all, the sitting deities of the Parthenon, Aphrodite attended by the boy god Eros. The Greeks made all their gods creatures like themselves, and all that they could add to their human ideal was a sort of larger circumstance. The actual centre-piece of the frieze consisted of two maidens carrying seats, who were received by a priestess and an elderly man who was receiving a robe from a boy. This was the famous central group about which controversy had raged for years. Now, the Ionic frieze represented a Theoxena—a guest feast given to the gods. It happened that in very important inscriptions which they had they possessed an elaborate account of just such a Theoxena given to the twelve Olympian gods, which said, "Let the images of all the twelve gods be brought in their best clothes, and let the couches be strewed." The lecturer's belief was that this central group contained the preparations for the feast; they had an indication of the bringing of the seats and the bringing of the robe or piece of drapery which was to be strewn for the reception of the gods.

In commencing the third lecture Miss Harrison said she had now reached the consideration of what was, though not the most beautiful, perhaps the most important portion of the Parthenon marbles, namely, the marbles that decorated the pediments. On the western pediment the subject was the contest of rivalry of Athene and Poseidon, while on the eastern pediment there was depicted the birth of Athene, the cardinal dogma of Athenian religion. Whereas in the Ionic frieze they had a narrow strip of sculpture unfurled round the temple, and in the Doric frieze alternate metopes and triglyphs strung like beads around the temple, it was necessary that the triangular space should be filled with some subject which would culminate in the centre, and the interest of which would diminish towards the two angles. Gradually the notion grew up that the centre part of the pediment should contain the principal action, and the remainder the frame of the action, the spectators and persons immediately concerned. The kernel of the whole was always in the centre. In the contest of Athene and Poseidon there was no actual fight—the word which denoted it in Pausanias was more accurately translated rivalry; but the two deities brought their characteristic tokens or gifts—semeia, as they are called—and the people decided which they would have. Poseidon was first of all almost exclusively a fisher god, and held in his hand the trident; but when the fisher folk who worshipped him shifted to Lybia they cultivated horses, and as a god was always made to embody the occupations and character of his people, they adopted the horse for his symbol. There was a fanciful interpretation that the horse of Poseidon typified the white waves of the sea, but that was too poetical a conception for a primitive people. He was the elder of the two divinities, but Athene dispossessed him in the favour of the people, although his cult always continued in the ancient temple of the Erechtheum. The olive, the sacred tree of Athene, was a great source of riches and of beauty to Athens. In the central group of the pediment the two deities were seen displaying their tokens, Athene her olive, Poseidon, with his horse and with his trident, drawing forth from the earth the salt sea spring, and the Athenians were then to decide which had first claim to their worship. It took them back to primitive days, the old god and the new goddess contending for the worship of the land and the cause decided by the primitive inhabitants arranged on either side. They got some idea of the way in which Phidias depicted the episode from a Greek vase painting in the Hermitage, St. Petersburg, in which, with great vigour and probably with considerable likeness to the pediment, the same incident was represented. As spectators, they had Cecrops, the old king of Athens, of whom they were quite sure, and one of his daughters clinging anxiously to her father. Another figure was known as the River God. Of the eastern pediment there was little left. The birth of Athene was the great cardinal doctrine of Athenian religion—it was the dogma which the people developed for themselves, which they did not inherit from anyone, and was not shared by other states. It was therefore the distinctive Athenian dogma. The whole of the centre-piece was absolutely lost—the angle figures they had. Yet they could attempt to reconstruct the centre of the pediment. They had in archaic Greek art many representations of the birth of the goddess, and amongst them one in the British Museum, where Zeus was seen sitting on a splendid seat while straight out of his head came forth the tiny deity, and the Olympian gods were gathered round in astonishment. Certain matters, however, that had come to light proved to demonstration that Phidias did not represent the incident in that way. Zeus was probably seated on his throne, and in front of him was the goddess full grown in her armour—newborn, but immediately after the birth. From the angle figures which they were fortunate enough to possess they could see how beautifully the pediment was composed, how gradually the figures sank away into the angle, some sitting, some recumbent, and what beautiful variety Phidias introduced into his lines. The messenger of the gods was represented coming from the scene with tidings that the birth had been accomplished. There was no doubt about the figures that occupied the angles. They saw two horses' heads rising out of the sea while Helios, the god of the Sun, strained at the reins to check his steeds at the birth of the goddess, and at the other end of the angle the horses of the moon were gently descending into the sea to indicate that Athene was born at the rising of the sun and the setting of the moon. Next to the horses of the Sun was a figure around which controversy had ceaselessly raged. It was usually called Theseus, and was a matchless incarnation of the human male form. But Theseus was quite impossible; he was a late democratic hero, and identified with late political revolutions, and it would have been an absolute anachronism to depict him as being present at the birth of the goddess. Other people had thought the figure that of the mountain god—the incarnation of Olympus itself; but at the time Phidias worked his marbles actual incarnations of mountains and rivers were unusual, and a fifth-century Athenian would not have understood this figure as that of a mountain god at all. The lecturer offered the interpretation that it was the god of universal nature, Pan, who was frequently represented watching the rising of the sun; they had him on a coin reclining in the same attitude as in the Parthenon marbles, and moreover he was very popular in Athens at the time. Of the two figures next to Pan, archæologists gave the beautiful interpretation that they represented the two seasons, or, as the Greeks called them, the hours. In the other pediment they had local conceptions, local gods, local kings or spectators, but here they had depicted the great cosmical powers. All nature waited for the birth of the

goddess. Balancing these, they had the three most beautiful figures of the pediment, known as the "Three Fates." It was natural that the three great sisters should weave the thread at the birth of the goddess. Dr. Waldstein had given another beautiful interpretation. Why should one fate be lying in the lap of the other? Ancient sculptors rarely selected a pose simply to make a graceful composition, and the lecturer quite agreed that an explanation was required. They must have great cosmical powers only present, and it seemed to her that the two views would be combined by taking the figures as representing the "Three Fates" of the three departments of the universe. Urania, the fate of heaven, the fate of the earth, and the fate of the sea. Athene, the goddess for whose birth all creation watched, had a very humble beginning. Her first image was, in fact, a bit of her own sacred olive tree. When her people advanced and became warlike, she put on the guise of a warrior—the high helmet, the great round shield, the spear; but after the Persian war, when peace reigned supreme, and she had no further use for her armour, though she still wore her helmet and ægis, she assumed a less warlike form and carried in her hand the god of victory. Athene was the bringer of victory to the Athenians. So she was the incarnation of every phase of the nation's life. The Greeks modified their conception until Athene was identified with achievement and success, especially success in the athletic games. She was the impersonation of the creative activities of the people—she was the first sculptoress, she made the image of the first woman, Pandora, and what was counted more precious in the lecturer's county, Yorkshire, she made the first horse. This was unfair to Poseidon, who was the horse god, but the greater deities invariably absorbed the lesser and took all their attributes and functions. Athene was the incarnation, in fact, of the principle by which the Athenian people boasted they lived—the principle of pure reason. It had been said that the Greeks were not only people who taught them art, but the power of rational thought. "Greece and her foundations are built below the tide of war; based on the crystalline sea of thought and its eternity."

(*To be concluded.*)

TESSERÆ.

The West Doorway, St. Peter's, Monkwearmouth.

THE most interesting portion of the church at Monkwearmouth is its western end. From this projects a tower evidently of Anglo-Saxon date. This tower has arches on three sides of its lower storey, which were not only walled up, but almost buried in the accumulated earth. In September, 1866, they were excavated, and the western entrance opened out by the local archæological society, with the help of Mr. Johnson, architect, of Newcastle. The side doorways were found to have monolith jambs 6 inches wide on the face, which are notched into a continuous sill and support massive imposts, from which the arch springs, with very bold voussoirs. The western entrance, which is 6 feet 4½ inches to the springing and 4 feet 8½ inches wide, has an arch springing from massive abaci 10½ inches thick, supported by baluster-shafts very similar to those found at Jarrow, two of which occupy the width of the wall on either side, and stand upon jambs each of a long and a short stone, the reveal of which is curiously sculptured with entwined serpents. This is decidedly the most remarkable doorway of this kind yet known. Above the doorway runs a band or string sculptured with animals and edged with the cable mould; at the same time, the two lower storeys of the tower were found to have originally formed a gabled porch, two windows of construction very similar to the side arches above described having been stopped up in the end of the church by the conversion of this porch into a tower. Baluster-shafts have been discovered in the internal jambs of these windows.

Anglo-Saxon Characteristics.

Rude work and rough material, walls mostly of rubble or ragstone, with ashlar at the angles in long and short courses alternately; openings with round or triangular heads sometimes divided by a rude balustrade. Piers plain, square and massive. Windows splayed externally and internally. Rude square blocks of stone in place of capitals and bases. Mouldings generally semi-cylindrical and coarsely chiselled. Corners of buildings square without buttresses.

Correggio.

The excellency of Correggio's manner has justly been admired by all succeeding painters. This manner is in direct opposition to what is called the dry and hard manner which preceded him. His colour and his mode of finishing approach nearer to perfection than those of any other painter: the gliding motion of his outline, and the sweetness with which it melts into the ground; the cleanness and transparency of his colouring, which stop at that exact medium in which the purity and perfection of taste lies, leave nothing to be wished for. Baroccio, though upon the whole one of his most successful imitators, yet sometimes in endeavouring at cleanness or brilliancy of tint overshot the mark, and falls under the criticism that was made on an ancient painter, that his figures looked as if they fed upon roses.

Prejudice in Art.

Prejudice is generally used in a bad sense, to imply a predilection, not founded on reason or nature, in favour of a particular master or a particular manner, and therefore ought to be opposed with all our force, but totally to eradicate in advanced age what has so much assisted us in our youth is a point to which we cannot hope to arrive. The difficulty of conquering this prejudice is to be considered in the number of those causes which makes excellence so very rare. Whoever would make a happy progress in any art or science must begin by having great confidence in, and even prejudice in favour of, his instructor, but to continue to think him infallible would be continuing for ever in a state of infancy. It is impossible to draw a line when the artist shall begin to dare to examine and criticise the works of his master, or of the greatest masterpieces of art; we can only say that his progress to this capacity will be gradual. In proportion as the scholar learns to analyse the excellence of the masters he esteems—in proportion as he comes exactly to distinguish in what that excellence consists, and refer it to some precise rule and fixed standard, in that proportion he becomes free. When he has once laid hold of their principle, he will see when they deviate from it, or fail to come up to it, so that it is in reality through his extreme admiration of, and blind deference to, these masters (without which he never would have employed an intense application to discover the rule and scheme of their works) that he is enabled, if we may use the expression, to emancipate himself, even to get above them, and to become the judge of those of whom he was at first the humble disciple.

Roman London.

It is a very remarkable fact that no architectural remains of Roman London of any importance have ever been discovered. It is not difficult to show that for 200 years the various excavations made within the walls have been under the inspection of competent and anxious inquirers, and yet nothing of any importance has occurred. Beginning with the great excavations of St. Paul's, Sir Christopher Wren was evidently desirous to discover and to care for Roman remains, but nothing was found. Again, he built fifty churches in the Metropolis and repaired many others; but in the course of all the excavations for these buildings we do not hear of any discovery, though Woodward was at hand making his collection and storing it with all the best remains of Roman antiquities disclosed amidst the clays and gravels of Spitalfields, where most of the bricks required for the rebuilding the City were made. It is quite true that Woodward urges Sir Christopher in his letter to publish his notes of what he had found; but the report itself, in the "Parentalia," literally describes nothing but the foundations of a causeway and some Roman remains at Bow Church. The Society of Antiquaries was established in 1718, and in 1747 began to publish the "Vetusta Monumenta"; but in vain do we turn to those volumes, or to the memoirs of the "Archæologia," commenced in 1779, for any notice of important Roman remains of edifices. In the meanwhile the architectural remains at Bath and elsewhere show what has been found in other Roman cities, doubtless then of far greater importance than London, though we have been taught to infer from our present metropolitan importance our former pre-eminent greatness. It may be answered that London was often sacked and burned, but still Roman edifices of stone are not so easily disposed of. In all ages such fragments have been made use of as building materials, and have in the course of time been gradually brought to light. Bath, Gloucester, Cirencester and other places can witness; yet their entire absence in London convinces us that Roman London was a brick city, and, in the words of Tacitus, "a place not dignified with the name of colony, but the chief residence of merchants." As a further confirmation of this opinion the great difficulty of procuring good workable stone at that time must not be forgotten. At Bath the oolite was at hand, and also generally northwards there were equally abundant materials, but for London the same deficiency existed then as now. There was no stone available for building purposes nearer than the oolites of Wiltshire, and in the Roman walls no stone is found but the Kentish ragstone.

The Monastery of Yuste, Estramadura.

From the day when the body of Charles V. quitted Yuste, where his cloister years were lived, the convent and palace were neglected alike by the kings and people of Spain. Left to the gentle keeping of a climate more conservative than man, all might to this day have remained in excellent preservation; but in 1809 a party of Soult's soldiers, flying from Oporto, and

irritated by disgrace, set their mark on these beautiful districts. They clambered up the hill, pillaged and then fired the convent; the royal wing only escaped from the thickness of the walls of the intervening chapel. Under the reign of the Constitution in 1820 such restorations as the brotherhood had been able to effect were unmercifully dealt with by the Liberals. Their ravages were again partially made good when the monks returned on Ferdinand VII.'s recovery of power; but his death was soon followed by the total suppression of the monastic system. Like the rest of their class, the beadsmen of St. Jerome were ejected; the whole edifice speedily fell into irremediable ruin, and chaos is come again. A visitor who described the melancholy scene wrote:—"It was inhabited only by the peasant-bailiff of the lay proprietor, who eked out his wages by showing the historical site to the passing stranger. The principal cloister was choked with the rubbish of the fallen upper storey, the richly carved capitals which had supported it peeping here and there from the soil and the luxuriant mantle of wild shrubs and flowers. Two sides of the smaller and older cloisters were still standing, with blackened walls and rotting floors and ceiling. The strong granite-built church, proof against the fire of the Gaul and the wintry storms of the Sierra, was a hollow shell, the classical decorations of the altars and quaint woodwork having been partly used for fuel, partly carried off to the parish church of Cuacos. Beautiful blue and yellow tiles, which had lined the chancel, were fast dropping from the walls; and above, the window through which the dying glance of Charles had sought the altar remained like the eye-socket in a skull turned towards the damp, blank space that was once bright with holy tapers and the colouring of Titian. In the palace the lower chambers were used as a magazine for fuel, and in the rooms above, where the emperor lived and died, maize and olives were gathered, and the silk-worm wound its cocoons in dust and darkness. His garden below, with its tank and broken fountain, was overgrown with tangled thickets of fig, mulberry and almond, with a few patches of potherbs, and here and there an orange-tree or a cypress, to mark where once the terrace smiled with its blooming parterres."

Tree Coffins.

Among the Anglo-Saxons, indeed, such tribes as practised the rite of inhumation seem for the most part to have committed their dead to the earth in the very simplest form, unprotected by coffin or aught that could delay the work of decay. The sole example of a todten-baum in our own country, therefore, is that of Gristhorpe, in Yorkshire, and this belongs to the Celtic period. But it was not so with the Franks. Round Merovingian graves a black residuum will often be noticed, which might easily be taken for charcoal, but which has been shown by chemical analysis to be formed by decomposition of wood. This residuum is very solid, and, as nails do not appear to be met with, it is most probable that these old Frankish noffi, naufi or sarcophagi were in fact formed from solid trunks of trees. In a Merovingian cemetery discovered just outside the gates of Metz, M. Victor Simon found the marble column of some Roman edifice which had been sawn asunder and hollowed out to receive the remains of a Frankish chieftain, in lieu perchance of the more perishable todten-baum. Herr Lindenschmit also has met with the same circumstance at Mayence. The opinion too finds further confirmation in a remarkable passage in Gregory of Tours relating the cruelty of Rauchingus, a Merovingian noble, who caused two of his slaves to be interred alive for marrying without his consent. It is stated that a tree was cut down for the purpose; the bole was cleft with wedges, and hollowed out to receive the offending lovers. The words "ibique puellam ut mortuam componens" are very significative of the accustomed funeral employment of such a noffus. This was about the middle of the sixth century, and the Christian priest had the coffin exhumed, but too late to save the woman. The word naufus, or noffus, with its many readings and corruptions, which in its primary sense represents tree-burial, appears to be derived from a very ancient Frankish word, nau, meaning a small boat. In the old Gothic the word naus means a corpse. The Sanscrit, again, has the word nau, so used in its uninflected form in composition, but which when inflected becomes in the nominative before certain letters, nau-h, or nau-s, sometimes nau-r, and means a boat or ship. This ancient derivation of naufus, and its close correspondence with what we learn of the old Scandinavian sepulchral rites, is very striking. This derivation stands remarkably in relation with the mysterious fancies of Teuton heathenism as to the wanderings of the soul after death and its passage over the dark waters which encircled the land of spirits. The Scandinavian rovers too seem to have frequently been buried in their vessels, and in the old poem of Beowulf, indeed, we find a hero's corpse placed with all honours in his ship, and so abandoned to the will of the winds and the waves. So too in the Vilkina Saga, Wieland hollows out the stem of a tree, in which he encloses himself and his mystic treasures, and is floated over the sea to another land. Going still further north, we learn from Scheffer that the Laplanders thus buried their dead in the trunks of trees, or these failing, in their sledges.

Roman Concrete Walls.

The chief objection to rubble and concrete walls is the roughness of the surface. The ancient Romans got over the objection in various ways; at first they faced them with the large blocks of tufa, such as had previously been used in the time of the kings (rubble walls only came in with the Republic); afterwards, in the latter days of the Republic and in the early Empire, they faced them with small wedge-shaped blocks of tufa; the square surfaces of those small blocks were placed diamond-wise, resembling in appearance a small net, hence called network, or reticulated work (*opus reticulatum*). Afterwards they used brick or tiles of a triangular shape, with the long surface outwards, and thus these also formed a sort of wedges, but the mortar held them so tight that even if held by the point only the brick or the block of tufa will break before it can be pulled out. The smooth surfaces are then frequently plastered and painted, or covered with marble. In building such a wall the wedge-shaped blocks or tiles were placed in order and filled up with the broken stones to the depth of about a yard before the cement or hot-lime grouting was poured in. The whole was thus bound together in one solid mass, with openings left for doors and windows.

GENERAL.

Mr. W. W. Boyington, of Chicago, lately died in that city. A great many of the buildings erected after the fire were designed by him.

A Collection of drawings of Old Glasgow, which is supposed to be the most complete that can be found, is now on view in the People's Palace of that city. The drawings are mainly by Mr. W. R. Mainds.

The Proprietors of Atholl Crescent and Coates Crescent, Edinburgh, intend to oppose the proposed erection of the Usher Hall near their property.

Mr. G. F. Bodley, A.R.A., has designed the silver casket presented to Lord Kitchener with the certificate of freedom of the Fishmongers' Company.

The Boadicea Group is not likely to be erected on the Thames Embankment as quickly as was intended, for the County Council have been officially informed that the written consent of the Office of Works is necessary before any statue can be erected in London.

The Competitors for the seat of the late M. Lenepveu in the Académie des Beaux-Arts are MM. Cormon, Humbert, François Flameng, Dagnan-Bouveret and probably MM. Albert Maignan and Roybet.

A Bust of Thomas de Quincey, the "English Opium Eater," by Sir John Steell, has been bequeathed to the Scottish National Portrait Gallery by the late Mr. John Ritchie Findlay.

A Memorial of the late Richard M. Hunt, consisting of a granite and marble bench with a bronze bust by D. C. French, has been set up in Central Park, New York.

Andrew Marvell's Cottage in Highgate was taken down a few years ago. It is now proposed to mark the site by a brass tablet fixed to a wall near the site, bearing the following inscription:—"Four feet below this spot is the stone step formerly the entrance to the cottage in which lived Andrew Marvell, some time M.P. for Hull, and Latin under-secretary, patriot, poet, wit and satirist. Born 1620; died 1678. He was buried in St. Giles's-in-the-Fields. This memorial brass was placed here by the London County Council, November 1898."

The Loan Exhibition of Lithographs which has been organised by the Department of Science and Art, at the suggestion of the Society of Arts, to commemorate the centenary of the invention of lithography by Aloys Senefelder in 1798, will be opened on Monday, November 21, and will remain open until February 28 next. The exhibition has been arranged in a building adjoining the machinery section, southern galleries, South Kensington Museum (entrance on the west side of Exhibition Road). The public will be admitted, without payment, at all hours when the Museum is open.

An Examination is being held at Queen's College in the preliminary stage for qualification as Associate of the Royal Institute of British Architects, under the local conduct of the Birmingham Architectural Association, which is an allied branch of the Institute. The holding of the examination in provincial centres is a late departure of the Institute, with the object of enabling local candidates to sit without having to go up to London.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s.; by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

ABERAVON.—Dec. 1.—Plans are invited, with estimated cost, for the extension of the covered market. A premium of twenty guineas will be awarded to the architect whose plans shall be selected. Mr. Jas. Roderick, borough surveyor, Aberavon.

BRADFORD.—Jan. 2.—Designs are invited for erection of a central fire-brigade station. Three premiums are offered, viz. 100*l.*, 50*l.* and 30*l.* Mr. George McGuire, town clerk, Bradford.

BURNLEY.—Jan. 14.—The Burnley School Board invite designs for a new higher-grade school and pupil-teachers' centre, to be erected in Ormerod Road, Burnley. Competition is limited to architects having offices within 60 miles of Burnley. Mr. E. Jones, clerk, Town Hall, Burnley.

HARROGATE.—Jan. 2.—Competitive designs are invited for erection of a pump-room, &c., the cost of which must not exceed 8,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* Mr. Samuel Stead, borough surveyor, Municipal Offices, Harrogate.

HULL.—Jan. 1.—Designs are invited in competition for a central public library in Albion Street. Premiums 50*l.*, 30*l.* and 20*l.* Mr. Sidney R. J. Smith, 14 York Buildings, Adelphi, W.C.

CONTRACTS OPEN.

ARBROATH.—Nov. 14.—For erection of a post office. Mr. George Morham, 39 George Street, Edinburgh.

ALLERTON.—For erection of nine houses at Avenel Terrace. Mr. R. Drake, architect, 142 Allerton Road, Allerton.

BAILDON.—Nov. 30.—For erection of a country house, stabling, lodge, drainage, roadmaking, &c. Messrs. Isitt, Adkin & Hill, architects, Prudential Buildings, Bradford.

BARNSLEY.—Nov. 14.—For additions and alterations at the Malt Shovel inn, Darton. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnsley.

BARNSLEY.—Nov. 17.—For erection of an additional wing to the infants' school, Lamb Lane, Monk Bretton. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnsley.

BARRASFORD.—Nov. 18.—For alterations and additions to the parochial schools. Messrs. Armstrong & Knowles, 38 Grainger Street, Newcastle-on-Tyne.

BEXLEY.—Nov. 14.—For erection of fourteen shelters in the airing courts at the Heath Asylum. The Clerk of the Committee, L.C.C., 21 Whitehall Place, London, S.W.

BIRKENHEAD.—Nov. 14.—For erection of public baths in Corporation Street and Prince Street. Mr. Charles Brownridge, borough engineer, Town Hall, Birkenhead.

BLACKBURN.—Nov. 16.—For alterations of and additions to the present conveniences at No. 1 Market House. Mr. William Stubbs, borough and water engineer, Municipal Offices, Victoria Street, Blackburn.

BRADFORD.—Nov. 15.—For erection of stabling, &c., for seventeen horses at Gordon Street Dyeworks. Messrs. Joshua Robertshaw & Son, architects, 55 Tyrrel Street, Bradford.

BRIDGEND.—Nov. 24.—For erection of a chapel at Parc Gwyllt Asylum. Messrs. Giles, Gough & Trollope, architects, 23 Craven Street, Charing Cross.

BURTONWOOD.—Nov. 16.—For erection of boundary walls, gates and bierhouse, and the formation of walks and the drainage of proposed burial-ground. Messrs. William & Segar Owen, architects, Warrington.

BUSHEY.—Nov. 23.—For enlargement of the new Bushey Board school, Chalk Hill. Mr. W. H. Syme, 4 High Street, Watford.

CARDIFF.—Nov. 15.—For erection of a fish market and offices at the Hayes. Mr. W. Harpur, borough engineer, Town Hall, Cardiff.

CARDIFF.—Nov. 16.—For alteration and renovation of the borough treasurer's offices. Mr. J. L. Wheatley, town clerk, Town Hall, Cardiff.

CARLISLE.—For plastering of five houses in Beaconsfield Street. Mrs. Roper, 5 Alton Street, Currock Road, Carlisle.

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CARMARTHEN.—Nov. 18.—For erection of a stone bridge of three arches and approaches thereto over the river Towy at Drysllwyn. Mr. Thomas Codrington, Shire Hall, Carmarthen.

CORK.—Nov. 14—For erection of offices for the Cork Electric Tramway and Lighting Co., adjoining the power-house, Albert Street. Mr. Robert Walker, architect, 17 South Mall, Cork.

DRIFFIELD.—Nov. 17.—For erection of the new church of St. John's. Messrs. Hicks & Charlewood, architects, Driffield.

DULWICH.—Dec. 1.—For additions and alterations to the school premises, East Dulwich Grove. Mr. Arthur J. Gale, architect, 4 Serjeants' Inn, Fleet Street, E.C.

ELGIN.—Nov. 22.—For erection of a hotel. Mr. Geo. Sunderland, 51 High Street, Rothes.

FULHAM.—Nov. 22.—For erection of a laundry receiving room at the Western Hospital, Seagrove Road. Messrs. A. & C. Harston, architects, 15 Leadenhall Street, E.C.

HASTINGS.—Nov. 21.—For additions and alterations and sanitary works at Hollington Boys' school. Mr. Arthur Wells, architect, Queen's Chambers, Hastings.

HASTINGS.—Dec. 2.—For erection of coastguard buildings, consisting of quarters for an officer and thirteen men, &c. Director of Works Department, Admiralty, 21 Northumberland Avenue, W.C.

HERTFORD.—Nov. 25.—For erection of additional vagrant wards at workhouse. Mr. Russell Austin, 13 Villiers Street, Hertford.

HOLBROOK.—Nov. 16.—For works at Holbrook schools. Mr. Edward Fernley Bisshop, architect, 32 Museum Street, Ipswich.

IRELAND.—Nov. 14.—For alterations and additions to a house near Lisburn. Messrs. Graeme-Watt & Tulloch, architects, 77A Victoria Street, Belfast.

IRELAND.—Nov. 17.—For repairs at the dispensary residence at Mill Street. Mr. Daniel J. O'Connor, Mill Street.

IRELAND.—Nov. 28.—For extension and improvement of the infirmary, steam cooking apparatus and laundry improvements, new sewers and water-closets. Mr. James Perry, county surveyor, Galway.

KINGSTON-UPON-THAMES.—Nov. 19.—For erection of cottage in Portland Road. Mr. Vincent Davison, Bartley Lodge, New Malden.

KNUTSFORD.—Nov. 16.—For erection of temporary fever hospital at workhouse. Mr. Robert J. M'Beath, architect, Birnam House, Sale.

LANCASTER.—Nov. 19.—For erection of small-pox hospital on Lancaster Marsh estate. Mr. T. Cann Hughes, town clerk Town Hall, Lancaster.

LEEDS.—For building square chimney 45 yards high at the Kirkstall Brick Company, Limited, Canal Side, Kirkstall, near Leeds.

LEEDS.—Nov. 19.—For erection of United Methodist Free Church chapel, at Armley. Messrs. Walter Hanstock & Son, architects, Branch Road, Batley.

LONDON.—Nov. 15.—For erection of public conveniences at Blackwall Tunnel (north side), for the London County Council. Particulars at the Architect's Department, General Branch, 13 Spring Gardens, S.W.

LONDONDERRY.—Nov. 16.—For erection of new factory, Foyle Road. Mr. Daniel Conroy, architect, 2 Bishop Street, Derry.

LONGWOOD (HUDDERSFIELD).—Nov. 16.—For erection of a villa residence, Botham Hall Road. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

MARYPORT.—Nov. 18.—For pulling-down and rebuilding the Victoria Vaults and Royal Oak inn. Mr. Chas. Eaglesfield, architect, Maryport.

MORECAMBE.—Nov. 17.—For erection of four houses in Fairfield Road, Sandylands. Mr. James Hartley, architect, Exchange Buildings, Skipton.

MORECAMBE.—For erection of hotel, Regent Road. Messrs. Harrison, Hall & Moore, 36 Albert Road, Morecambe, W.

NOTTINGHAM.—For erection of business premises, &c., at Lenton. Messrs. F. Ball & Lamb, architects, 23 King Street Nottingham.

OLDHAM.—Nov. 22.—For enlargement of the Oldham post office, for the Commissioners of H.M. Works and Public Buildings. Mr. J. Flew, 11 Popplewell Chambers, Market Street, Bradford.

PADDINGTON.—Nov. 15.—For erection of a coroner's court building at Manor Place. Architect's Department, L.C.C., 13 Spring Gardens, S.W.

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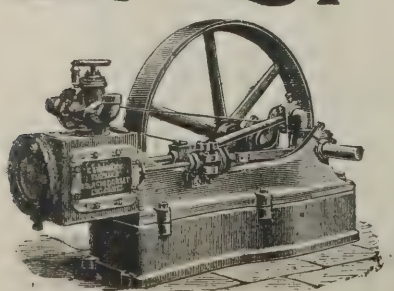
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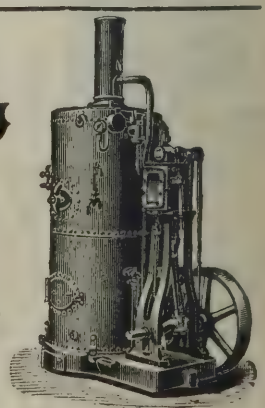
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[*Mention this Journal.*]

PERTH.—Nov. 11.—For offices and stores, Canal Street. Mr. A. G. Chalmers, architect, 9 High Street, Perth.

RIPON.—Nov. 17.—For constructing underground lavatories and public conveniences in the Market Place. Mr. M. Kirkley, town clerk, Ripon.

ROTHERHAM.—For erection of seven houses, stables and shed. Mr. E. Hutchinson, Howard Street, Rotherham.

SALE.—For erection of ten shops on the Romiley Park Estate. Mr. Sidney Smith, architect, Sale.

SALISBURY.—Nov. 17.—For additions and alterations, with new shop front. Mr. Fred Bath, architect, Crown Chambers, Salisbury.

SANDBACH.—Nov. 21.—For erection of additional rooms and other works at the Sandbach School and Almshouse Foundation, Globe Pottery, Cobridge. Mr. Alfred Price, architect, Elworth, Sandbach.

SCOTLAND.—Nov. 14.—For erection of workmen's cottages at Castle Row, Fochabers. Messrs. A. & W. Reid & Wittet, architects, Elgin.

SCOTLAND.—Nov. 14.—For erection of dining-hall and six bedrooms, &c., at the Stotfield Hotel, Lossiemouth. Mr. R. B. Pratt, architect, County Bank House, Elgin.

SCOTLAND.—Nov. 17.—For additions to warehouse at Strathmill Distillery, Keith. Mr. Charles C. Doig, architect, Elgin.

SCOTLAND.—Nov. 18.—For erection of public hall at Pitlochry. Messrs. John Bruce & Son, architects, Dundee.

SELBY.—Nov. 16.—For erection of a house for the locomotive foreman, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

SHEFFIELD.—Dec. 3.—For construction and erection of urinals and wall at lower entrance to Weston Park. Mr. Charles F. Wike, city surveyor, Town Hall, Sheffield.

SOPHIA (BULGARIA).—Nov. 21.—For erection of eight public offices, viz., a Ministry of Public Works, Ways and Communications, a Ministry of Commerce and Agriculture, a Ministry of the Interior, a Ministry of Public Instruction, a Ministry for Foreign Affairs and Public Worship, a Ministry of Justice, and an Audit Office. Particulars can be obtained at the Commercial Department of the Foreign Office between the hours of 11 and 5.

TORQUAY.—Nov. 14.—For erection of Central Hotel, Abbey Place. Messrs. E. Appleton & Son, architects, Torquay.

UXBRIDGE.—Nov. 23.—For erection of a building for receiving the dead at the joint hospital, Kingston Lane, Hillingdon East. Mr. Bertram Freeman, 24 New Windsor Street, Uxbridge.

WALES.—Nov. 14.—For alteration and conversion of the existing three departments of the Treherbert Board school into one department, for the Ystradyfodwg School Board. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—Nov. 15.—For erection of a master's residence at the Board schools, Rhosllanerchrugog. Messrs. J. Morison & Son, architects, King Street, Wrexham.

WALES.—Nov. 21.—For erection of an infants' school at Pontlottyn. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—Nov. 30.—For erection of a school at Rhiwfawr. Mr. W. W. Williams, architect, Island Chambers, 63 Wind Street, Swansea.

WATERFORD.—Nov. 14.—For erection of a house for the chief officer at Dunmore East Coastguard Station, co. Waterford. Mr. H. Williams, secretary, Office of Public Works, Dublin.

WEST HARTLEPOOL.—Nov. 16.—For foundations and flues to receive six Lancashire boilers, also the erection of a chimney 150 feet high, for the North-Eastern Railway Company. Mr. William Bell, company's architect, York.

WICKLOW.—Nov. 16.—For building a portion of South Quay wall, filling behind, &c., at the Slip, opposite Mr. Hopkins's stores, for the Wicklow Harbour Commissioners. Mr. Francis W. MacPhail, secretary, Harbour Office, Wicklow.

WIGAN.—Nov. 14.—For erection of a county court and inland revenue offices for the Commissioners of H.M. Works and Public Buildings. Messrs. Hunt & Steward, 45 Parliament Street, London, S.W.

WINDERMERE.—Nov. 23.—For alterations and additions to the Lancaster Bank. Mr. Robert Walker, architect, Public Buildings, Windermere.

WOOD GREEN.—Nov. 15.—For erection of a temporary isolation hospital, wire wove or similar material. Mr. Chas. J. Gunyon, surveyor, Town Hall, Wood Green.

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CAMBRIDGE.

For erection of a house at Great Shelford. Mr. FRANK WATERS, architect, 7A Alexandra Street, Cambridge. Quantities by Mr. W. CULLING GAZE, 2 Walbrook, E.C.

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J. EVANS, Bryntifi, near Cardigan (*accepted*)	£210 0 0

CHESHIRE.

For additions to administrative block, new mortuary and drainage to the fever hospital, Clatterbridge. Mr. C. O. FRANCIS, architect, Leamington Chambers, 5 Richmond Street, Liverpool.

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J. Lee & Son	1,480 18 9
R. Allen	1,455 6 0
McLachlan & Batkin	1,398 0 0
Delany & Shanks	1,389 0 0
J. BARNES, Lower Bebington (*accepted*)	1,300 0 0

CHELSEA.

For repairs to ovens at the workhouse.

Smith & Co.	£52 5 0
Harrison	46 18 0
J. Hawley	68 10 0
G. Crook	50 2 4

DARTFORD.

For erection of twenty-six cottages in Gordon Road. Mr. ERNEST J. HAMMOND, architect, 111 High Street, New Brompton.

J. H. Harris	£5,255 0 0
J. Saunder & Co.	5,146 0 0
J. S. Trueman & Son	4,989 0 0
H. E. WHITTELL, Rochester (*accepted*)	4,320 0 0

EDINBURGH.

For construction of the first gasholder tank at the new Granton works.

C. MACANDREW, Edinburgh (*accepted*)	£17,804 0 0

ESSEX.

For providing water storage tanks above engine-house at the *Exmouth*, Grays.

Stanford & Co.	£295 10 0
R. W. Moss	275 0 0
S. Hodge & Sons, Limited	265 0 0
W. C. Reeder & Co.	259 0 0
Clark & Standfield	230 0 0
PRINCE'S DRY DOCK CO., LIMITED, Billiter Street, E.C. (*accepted*)	210 0 0
G. E. Martin	161 10 6

FULHAM.

For making-up and paving Farm Lane. Mr. CHARLES BOTTERILL, surveyor.

Roadway.

J. Mears	£775 0 0
E. Parry	773 0 0
B. Nowell & Co.	770 0 0
H. Greenham	750 0 0
G. Wimpey & Co.	740 0 0

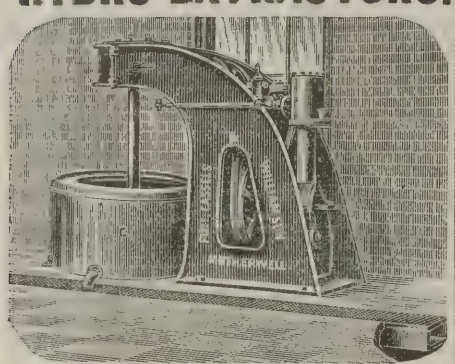
Paving footpaths—York.

B. Nowell & Co.	344 0 0

Imperial.

Imperial Stone Co.	204 0 0

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GRAVESEND.

For erection of buildings to house the Gravesend Rowing Club and the Thames Conservancy Board.

T. G. SANDFORD, JUN. (*accepted*)	£295 0 0

GREENWICH.

For new workhouse at Grove Park.

Leslie & Co.	£204,640 0 0
Foster & Dicksee	203,503 0 0
Killby & Gayford	201,410 0 0
B. E. Nightingale	199,853 0 0
W. Shepherd	199,320 0 0
Cubitt & Co.	198,520 0 0
J. J. Wise	194,000 0 0
C. Gray Hill	193,200 0 0
C. Wall	192,788 0 0
H. L. Holloway	192,090 0 9
Kirk & Randall	189,137 0 0
Wallis & Sons	187,800 0 0
Pattinson & Son	184,282 0 0
T. Rowbotham	175,020 0 0

HACKNEY.

For construction of public convenience at north-east corner of town hall grounds.

T. J. West	£1,420 0 0
B. Finch & Co.	895 0 0
Thomas & Edge	842 0 0
G. Jennings	805 0 0
J. Dolman	798 0 0
F. Bull	785 0 0
General Builders, Limited	700 0 0
W. Shurmur, Riverside Works, Upper Clapton*	686 0 0

* Recommended for acceptance.

HULL.

For erection of creamtorium, for the Corporation.

T. GOATES (*accepted*)	£2,183 0 0

ISLE OF WIGHT.

For sewerage works at Fairlee, Newport. Mr. ERNEST A. SWAYNE, Upper St. James's Street, Newport, Isle of Wight.

S. Dredge	£650 0 0
G. F. Quinton	572 10 0
F. HAYDEN & SONS, Sandown (*accepted*)	499 0 0

ISLE OF WIGHT—*continued.*

For sewerage works at Carisbrooke. Messrs. STRATTON & MILLGATE, engineers, 21 Quay Street, Newport.

F. Hayden & Sons	£2,017 0 0
S. DREDGE, Gurnard, Isle of Wight (*accepted*)	1,850 0 0

KINGSTON VALE.

For construction of new water-closets and the drainage to Faithful Cottages. Mr. VINCENT DAWSON, architect, New Malden.

H. Joyce	£418 0 0
H. J. Shelley	240 0 0
J. Scofield	225 0 0
W. Swaker	205 0 0
T. EVANS, 32 Sefton Street, Putney (*accepted*)	175 0 0
Hill & Colenutt	174 18 0

LITTLE BIRCH.

For alterations and additions to house, for Mr. Evans. Mr. ERNEST G. DAVIES, architect, 6 St. John Street, Hereford.

W. C. TAYLOR, Ross (*accepted*)	£250 0 0

LONDON.

For alterations to the Mitre public-house, 13 Edgware Road. Mr. G. GARD PYE, architect, 19 Ironmonger Lane, E.C.

T. W. Rhodes	£1,540 0 0
Snewin Bros.	1,521 0 0
J. Bennett	1,363 0 0
H. WEYMOUTH & CO. (*accepted*)	1,123 0 0

For new system of drains and sanitary appliances at 47 Pall Mall, S.W., for Messrs. Bell, Rannie & Co. Mr. A. R. HENDERSON, surveyor, 47 Pall Mall, S.W.

Houghton & Co.	£230 0 0
B. Finch & Co.	190 0 0
W. S. BEATON (*accepted*)	145 0 0

NEWHAVEN.

For levelling, making-up, kerbing, channelling, paving, surface drainage and lighting Lawes' Avenue. Mr. F. J. RAYNER, surveyor, Newhaven.

H. A. Chambers, Seaford	£925 0 0
Grounds & Newton, Bournemouth	814 3 9

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NEWQUAY.

For erection of new Council buildings and public conveniences. Mr. JOHN ENNOR, jun., surveyor to the Council.

T. J. Smith	£1,197	0	0
Tippett & Cocking	994	0	0
W. F. JAMES, Greenbank, Newquay (*accepted*)	960	0	0

ROTHERHITHE.

For erection of the Terriss Theatre, for Messrs. Marler & Saunders. Mr. W. G. R. SPRAGUE, architect, Fitzalan House, Arundel Street, Strand, W.C. Quantities by Mr. A. R. HENDERSON, surveyor, 47 Pall Mall, S.W.

Harris & Wardrop	£25,800	0	0
Patman & Fotheringham	25,551	0	0
W. H. Lorden & Sons	22,420	0	0
F. & H. F. Higgs	22,375	0	0
Kirk & Randall	22,340	0	0
H. L. Holloway	22,132	0	0
William Downs	21,550	0	0
C. F. Kearley	21,510	0	0
Stimpson & Co.	21,500	0	0
C. Gray Hill	21,500	0	0
Walter Wallis	21,022	0	0
Wilkinson Bros.	20,133	0	0
WALTER WALLIS (*amended and accepted*)	17,000	0	0

SCOTLAND.

For improvement of the water supply to the village of Johnshaven.

W. Smith	£694	0	0
C. Wilson	673	15	11
D. Gilmour	600	2	10
R. Morgan	576	15	0
J. W. Bain	537	6	6
J. L. Warden	507	3	4
C. Wood & Co.	496	2	7
A. Matthieson	423	15	4
R. & W. PETER, Bervie (*accepted*)	413	4	5

For erection of a cottage at Johnshaven, N.B. Mr. G. GREGORY, jun., architect, Stonehaven.

Accepted tenders.

Hunter & Co., Johnshaven, mason	£240	0	0
D. Anderson, Johnshaven, carpenter and joiner	179	0	0
J. Bowman, Montrose, plasterer	56	10	0
R. & W. Peter, Bervie, plumber	47	8	0
J. Lindsay & Son, Montrose, slater	33	5	11

STAMFORD.

For rebuilding portions of the boundary-wall at the cemetery.

J. WOOLSTON, Stamford (*accepted*)	£90	9	0

ST. HELENS.

For supply of new boiler plant at the Corporation Electricity Works.

YATES & THOM, Blackburn (*accepted*).

STROUD.

For supply of a new steam fire-engine.

Rose & Co.	£394	0	0
MERRYWEATHER & Co. (*accepted*)	294	0	0
Shand & Mason	250	0	0

TOOTING.

For alterations, &c., to one of the wards at the home for aged and infirm, Church Lane.

E. Wall	£432	0	0
R. A. Jewell	400	0	0
E. Heather	385	0	0
Gregory & Co.	377	0	0
R. S. RONALD, Wandsworth (*accepted*)	366	0	0

WALES.

For sewering, levelling, paving, metalling, flagging and channelling Augustus Street, Paget Street, Archer Street and Other Street, at Ynysybwl, Mountain Ash.

Evans & Owen	£1,261	5	9
Barnes, Chaplin & Co.	1,053	12	6
E. Davies	1,010	7	2
WILLIAMS BROS., Cribbyn-du, Ynysybwl (*accepted*)	890	9	6

WAKEFIELD.

For a complete installation of electric lighting at the Mechanics' Institution.

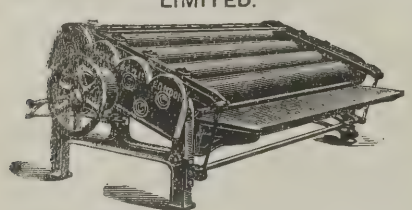
WAKEFIELD ENGINEERING CO., LIM. (*accepted*)	£120	13	6

WALTHAM ABBEY.

For making-up, sewering and paving Lee Road. Mr. C. W. WIGGS, surveyor, Waltham Abbey.

M. T. Kitteringham	£1,400	0	0
Critcher	1,224	0	0
Betts	1,134	0	0
W. Griffiths	1,110	0	0
W. Gardener	950	0	0
W. LAWRANCE, Waltham Abbey (*accepted*)	899	0	0
Surveyor's estimate	900	0	0

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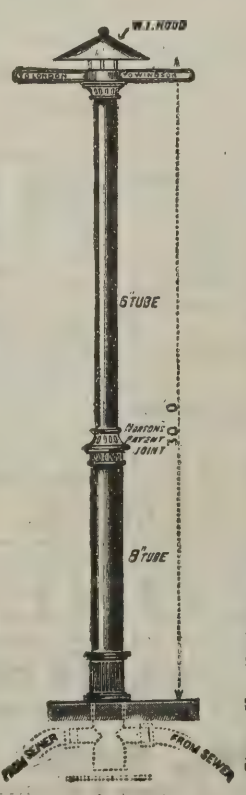
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WETHERSFIELD.

For alterations and erection of new cloakrooms at the National school. Mr. J. W. CLARK, architect, Coggeshall.

T. W. WICKS, Wethersfield, near Braintree (*accepted*)	£88 0 0

WHITBY.

For alterations and additions to premises in Skinner Street, to convert them into shops. Mr. EDWARD H. SMALES, architect, 5 Flowergate, Whitby.

R. Harland	£3,733 0 0
J. BRAIM, Silver Street (*accepted*)	3,480 0 0
C. Winterburn	2,995 0 0

WHITEHAVEN.

For enclosing and laying-out a new burial-ground and other incidental works, for the Moresby and Barton joint burial committee. Mr. GEORGE BOYD, surveyor, 33 Queen Street, Whitehaven.

T. Davidson	£495 0 0
J. T. HARRISON, Distington (*accepted*)	4co 0 0

TRADE NOTES.

THE new Art Schools, Bury St. Edmunds, are being warmed and ventilated by means of Shorland's patent Manchester grates, by Messrs. E. H. Shorland & Brother, of Manchester.

MR. H. PARRY, of Tunnel Works, Kirton Lindsay, informs us that owing to ill-health he has decided to incorporate his business into a private limited company consisting entirely of members of his family, and that it will in future be conducted as before, but under the style of H. Parry & Sons, Limited.

A FIRE broke out late on the 7th inst. on the premises of Messrs. Lavender & Sons, builders, Manor Street, Clapham. A range of buildings used as workshops and stores became involved, but several engines arrived, and the firemen set to work vigorously. About midnight the main structures had been burned out, and commenced to collapse with loud crashes. The work of the brigade was thus much simplified. The fire, however, was not subdued until the morning had considerably advanced, and then Messrs. Lavender's premises had been completely burned out and had fallen down.

VARIETIES.

THE closing night of the season at the Alexandra Palace was a great success, the attendance being 27,145. The Palace will reopen for a week's carnival at Christmas, and next season will commence at Easter.

A LARGE estate at King's Lynn, upon which eighty-one houses are now in course of erection, has been named the Khartoum Estate, and two streets running through it Kitchener Street and Fashoda Street.

THE Mausoleum at Friedrichsruh, in which the remains of the late Prince Bismarck are to be laid on Sunday, the 27th inst., has now been roofed and plastered, but the cupola is still unfinished, and the internal decorations and the embellishment of the grounds will not be complete till the spring.

ST. MARY'S Roman Catholic church, Moorfields, is wanted for railway purposes, and the handsome sum of 200,000*l.* has been offered for it. Although some of the authorities are quite willing and anxious to close with such a desirable bargain, there is a determined section who are very much opposed to selling the church for secular purposes.

THE school recently completed for Rutherglen School Board at Eastfield is now open. It was built to accommodate 604 children at a cost of 7,500*l.*, which included the whole o the ground belonging to the Board.

AT a meeting of the members of the Grimsby Corporation, convened by the mayor (Mr. J. Sutcliffe) a committee, consisting of the mayor, Ald. Doughty, M.P., and a few prominent townspeople, was appointed to wait on the town clerk (Mr. L. Grange) to ask him to accept the honorary freedom of the borough and also an oil-painting of himself, which they purposed to have executed. It is understood that Mr. Grange, who has occupied the position of town clerk of Grimsby for about fifty years, refused a similar honour some time ago.

A CURIOUS residence has been erected at Yokohama by an eminent German bacteriologist. It is a microbe-proof house, built of glass blocks. There are no window-sashes, and the doors, when closed, are air-tight. The air-supply is forced into the room through a pipe and filtered through cotton-wool to cleanse it of bacteria. To insure further sterilisation the air is driven against a glycerine-coated plate-glass, which captures all the microbes the wool spares. The few microbes brought into the house in the clothes of visitors soon die in the warm sunlight with which the house is flooded.

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THE projected removal of the famous Ponte Vecchio, or Old Bridge of Florence, the only one now left of any importance, with its Mediæval houses lining either side of it, is creating a great stir in the artistic world, both in Italy and the rest of Europe. A committee has been formed for the "Protection of Old Florence," which includes amongst its members the most illustrious Florentine names, and a circular has been sent out to all parts of Europe soliciting signatures against this act of vandalism.

THE opening meeting of the Northern Architectural Association will be held at the meeting-room of the Art Gallery, Newcastle-upon-Tyne, on Wednesday next, November 16, at 7.30 P.M., when the president, Mr. Frank W. Rich, will deliver his inaugural address.

ON Saturday afternoon the ceremony of dedicating St. Hilda's chapel-of-ease, Hunt's Cross, Woolton, was performed by the Bishop of Liverpool (Dr. Ryle). The new chapel, which has been erected close to the Hunt's Cross station, is a well-planned, well-constructed little building capable of seating about 150 persons. It is built of terra-cotta brick in the Early English style, and is neatly and comfortably finished as to the interior.

AT Penrhyn on the 3rd inst. the Mayor and Corporation of the borough entertained Mr. G. A. Jenkins to a complimentary banquet in the Town Hall, to commemorate his jubilee as town clerk. The gathering included the leading inhabitants of the town, several councillors from Falmouth, the town clerk of Truro, and county magistrates and officials. As a permanent memento of their good wishes the gathering presented the guest of the evening with a silver service, a cathedral clock and ornaments, and an address on vellum.

TRACES of Roman occupation, of great interest to archæologists, are from time to time brought to light in Belgium. The latest discovery is the remains of a Roman cemetery in the neighbourhood of Namur, where about twenty tombs have been unearthed, together with a quantity of coins, vases and flint tools of various descriptions. A subterranean passage has also been discovered leading from the cemetery to the ancient village of Villers, formerly a Gallo-Roman station.

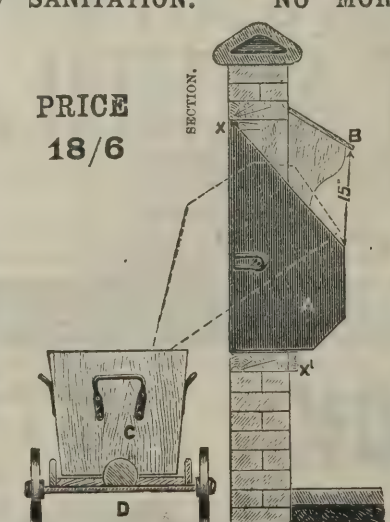
AN examination of master and operative plumbers applying for registration under the National Registration of Plumbers was held on Saturday by the Worshipful Company of Plumbers at King's College. Twenty-one candidates presented themselves for examination from various parts of London; also from Cambridge, Carmarthen, Guildford, Maidstone, Ramsgate, Windsor and Worthing. The tests in workmanship included lead-bossing, pipe bending and joint making, and the examination questions included the subjects of roof covering, contamination of drinking water from faulty connections, arrangement of bath, sink and closet wastes, drainage of town houses and disconnection with sewers. Nine succeeded in passing the examination in practical workmanship.

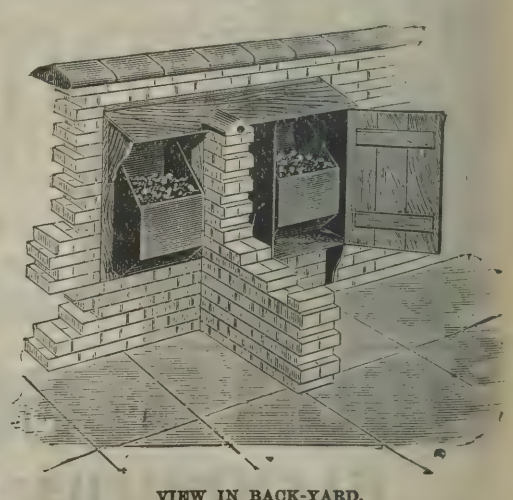
AT the meeting of the Metropolitan Asylums Board, Mr. A. C. Scovell brought up a report of the works committee recommending that the following clause relative to the stipulations to be observed by contractors as to rates of wages of workmen be inserted in all contracts entered into by the managers, viz.:—"The contractor shall on all work executed for the managers pay the rates of wages and observe the hours of labour agreed upon by the association of employers and the representatives of the workmen; but in the case of any trade where no such agreement exists, then the rate of wages and the hours of labour must be those current in the district where the work is executed." After a lengthy discussion the recommendation was agreed to.

ST. BRIDGET'S CHURCH, Wavertree, was reopened for divine service on Sunday last. Consequent on a fall of plaster from the roof, the necessity for closing the church for repairs was realised. While an expensive scaffolding was erected the clergy and congregation determined to proceed with the internal decoration, which has for years been contemplated. Messrs. G. H. Morton & Son, Bold Street, Liverpool, were instructed to prepare a decorative scheme in harmony with the Byzantine character of the building. This beautiful drawing has been much admired in the Walker Art Gallery, but the cost of the elaborate work was prohibitive. It was decided to abandon practically all the ornamentation, mosaic and figure painting and revert to a scheme wherein the broad line of the original colour composition might be introduced, thus forming the basis of the more elaborate decoration which may be undertaken in sections as funds permit. This conception has been successfully carried out by Messrs. Morton. The colour scheme, consisting of the richest tones of red, blue and gold colours (each brilliant in hue), is by artistic application rendered thoroughly harmonious, pleasant and beautiful to the eye. All the enriched plaster-work of the ceiling and walls, the arches, pilasters and panels in the nave and aisles have been effectively

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emphasised by the decorative artist. The apse, having a red base and pilasters of the same colour, rises to a deep celestial blue in the semitone, upon which there is placed a constellation in gold. The fine mosaic figure of the Lord's Supper, after Leonardo da Vinci, which cost about 750*l.*, gains by its new colour surroundings.

A NEW parish-room and caretaker's cottage adjoining St. Mark's parish church, St. Helens, Lancs., was opened on the 20th ult. The building, which has cost 1,600*l.*, is the Jubilee gift of Sir David to the parish of St. Mark. In addition to the cost of the building the hon. baronet has given the land, comprising an area of 520 yards, and has supplied the furniture. The buildings are of red brick with stone dressings, and comprise an assembly-room 40 feet by 30 feet, with wood-block floor, and a dado, of glazed brick 4 feet 6 inches high. The place is heated, as is also the waiting-room, by hot-water pipes. The main entrance is from North Road, at the south-west corner of the assembly-room, another door being situated at the east end to the right of the platform and leading into the vestibule. The caretaker's cottage, divided from the west end of the assembly-room, is spacious, and has every domestic requisite. The architect of the building is Mr. James Gandy, and the contractor Mr. Peter Tickle.

NEW swimming-baths have lately been opened in East Hull. The building is a brick structure, and adjoins the Reckitt Library, in Holderness Road. The front elevation is an artistic treatment of red brick and terra-cotta, which harmonises with the architecture of the adjoining library. There is a large swimming-bath 96 feet by 30 feet, with 3 feet 9 inches to 6 feet 6 inches of water; a boys' bath 60 feet by 30 feet, with 3 feet 6 inches to 4 feet 6 inches of water; nine ladies' slipper-baths (one with immersion bath attached) and ten men's first-class baths and twelve men's second-class baths. The large swimming-bath occupies a position at the back, and is excellent in its design and construction, possessing a semicircular roof of iron and glass. A gallery for spectators runs over the dressing-boxes, and provision has been made for turning the room into a meeting hall in the winter. The boys' bath, behind the library, is built on the same plan, only the dressing-rooms are open recesses. The boiler-house and laundry stand between the swimming-baths, whilst the waiting-rooms face the slipper-baths in the central corridor. The slipper-baths are arranged in short corridors, and are all fitted up with the best conveniences, hot and cold showers and the like. The manager's house, which completes the equipment, is over the front part of the building. The plans of the building were prepared by the city engineer, Mr. A. White, and the assistant engineer, Mr. Bricknell, and under their supervision the work has been carried out. The premises have cost about 15,000*l.*

A NEW Liberal club was opened in Birkenhead on the 3rd inst. The elevation to Claughton Road is faced with red Ruabon brick, variety of colour being obtained by the plentiful use of cream-coloured terra-cotta. The principal entrance from Claughton Road opens into a hall 15 feet by 12 feet, the floor of which is laid with encaustic tiling. On the right are the secretary's office, principal staircase and refreshment bar. On the left the reading-room (17 feet by 13 feet), and at the end the billiard-room (40 feet by 25 feet), fitted with three first-class tables by Mr. James Ashcroft, of Liverpool. Beyond the billiard-room are situated the gentlemen's toilet-room, a committee-room with separate entrance from Greenfield Street, and a secondary fireproof staircase, giving access to green-rooms, &c. A mezzanine floor at the rear of the building contains a ladies' toilet-room and a cooking kitchen. The entire first floor is occupied by the lecture-hall, with its stage and two green-rooms. The lecture-hall is a spacious and lofty room, and will accommodate about 400 persons. The stage and the green-rooms communicate with the hall and the secondary staircase, and are provided with fireproof floors. From the lecture-hall access can be obtained to a small balcony, which, with its central window, forms an agreeable feature of the front elevation. Adjoining the club buildings, and communicating with the same at the rear, is a residence for the keeper. The buildings have been carried out from the designs of Mr. Thomas Cook, architect, Liverpool, the contractor being Mr. Peter Rothwell, Claughton Road, Birkenhead.

THE new wing of the Upton County Lunatic Asylum, Cheshire, was opened last week. The enormous dimensions of the new structure may be imagined from the fact that its corridors and subways measure about 2 miles. It contains eight and a half million bricks. The establishment has 1,250 windows and a spacious dining-hall, 100 feet by 60 feet, with accommodation for 1,000, and a stage at one end, so that in addition to serving as a dining apartment it will be admirably suited to the purposes of entertainments, dances and other events of a social character. Altogether the new wing will accommodate 404 patients, and the complete and costly internal equipment makes it one of the finest buildings of the kind in the country. There are eight wards. Every apartment is completely furnished, the whole place is lighted with electricity generated on the premises,

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there is an ample water supply, and as a protection against an outbreak of fire there are a fire-escape and ninety-two hydrants fitted with Shone's patent nozzles. The buildings are faced with Edwards's Ruabon bricks. Messrs. Doulton & Co. have supplied the sanitary fittings. The extension is costing 90,000*l.*, but deducting from that half the cost of the administrative block and apportioning it to the old wing of the institution, it is said that the cost per bed works out at 187*l.*, and that is lower than the cost per bed of any other institution in the country of a similar character. The architects have been Messrs. Grayson & Ould, Liverpool and Chester, and the builders Messrs. Jones & Son, Liverpool.

THE completion of the restoration of Chester Town Hall, after the fire which occurred there in March, 1897, has been celebrated. The council chamber was thoroughly gutted in the fire all the old pitchpine panelling and roof being burnt. The Council decided to restore it, and placed the work in the hands of Messrs. T. M. Lockwood & Sons, architects, of this city. The committee decided that the new Council chamber panelling should be carried out in oak. The original design has not been adhered to. The new panelling is 10 feet in height, pierced in several places for handsome brass open panels, behind which and hidden from view the hot-water coils are placed, while at top of this panelling is a richly-carved oak frieze. The frieze at the top of the room is carried out in fibrous plaster specially modelled and designed and picked out in colour. The roof is formed with No. 4 principals, partly showing below the ceiling line and the cove around the room in the ceiling has a very pleasing effect, besides being better for acoustic purposes. The ceiling itself is panelled out by oak ribs. The gallery front is very handsomely treated, with oak panelling underneath, and an open front with turned oak balusters. In the centre is a clock, presented by his worship the mayor (Mr. J. Gooddie Holmes), with an inscription underneath showing the date of the fire and restoration of the room, with the names of the mayor and sheriff at those times. The two handsome stone chimneypieces at either side of the entrance from staircase are carried out in Caen stone, very handsomely carved and worked, and within are two brass dog grates. Above these chimneypieces are oak overmantels carved with the arms of the city of Chester and the Earl of Chester in the centre panels. The furniture of the room has been specially made and designed, the seats of the Mayor, ex-Mayor and town clerk being raised above the aldermen and councillors on a dais. The general contractor for the whole work was Mr. Wm. W. Freeman; the carving and modelling was executed by Mr. Geo. Tyrrell, the furniture by Messrs. Lamont & Son, and the whole was designed and under the superintendence of Messrs. T. M. Lockwood & Sons, architects, of this city.

ELECTRIC NOTES.

THE Whitechapel District Board have purchased a site in Osborn Street, Whitechapel, at a cost of 18,250*l.*, for use as an electric-lighting station.

HIGH WYCOMBE has had an experience similar to that of several districts in London in the early days of electric lighting, an explosion having occurred in the mains, with much consequent inconvenience in the shape of extinguished lamps and alarms of fire.

AT a recent meeting of the Paisley Town Council it was reported by the electric-lighting committee that at a special meeting the Provost stated that he had had the meeting convened from his having been impressed, when recently visiting the works, with the desirability of acquiring additional ground for future extensions. He explained the probable future requirements of the works, and, after consideration, it was agreed, on the motion of Councillor Eadie, seconded by Bailie Robertson, that negotiations be opened with Sir Michael Shaw Stewart for the acquisition of from two to three acres of ground to the east of the works. It was remitted to the Provost and Councillor Fisher to communicate with Sir Michael's factor and report.

LAST week a successful trial was made of the electric-light installation which is being completed at the works of Messrs. Alexander Cowan & Sons, Limited, papermakers, Valleyfield, Penicuik. Several years have elapsed since the electric light was first made use of in certain departments at Valleyfield Mills, but a few months ago it was resolved to have a new and complete installation over the whole works. The contract was given to Messrs. Lowdon, Dundee and Edinburgh, who have carried it out successfully; and the installation, while surpassed by some jute mills, is understood to be the largest in any paper-making works in Scotland. An engine of 100 horse-power furnishes power through the medium of patent Brush clutches to three shunt wound continuous run dynamos, two of which are 140 amperes each and the third of 80 amperes. The dynamos can be worked up to 250 volts. Upon the switchboard are placed twelve switches directing the current to as

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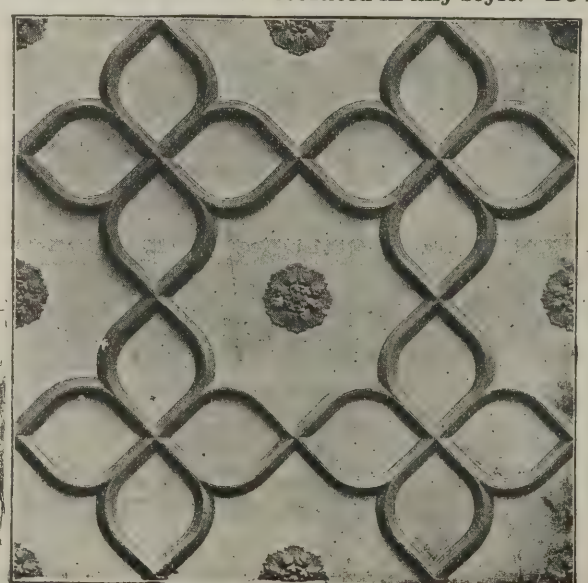
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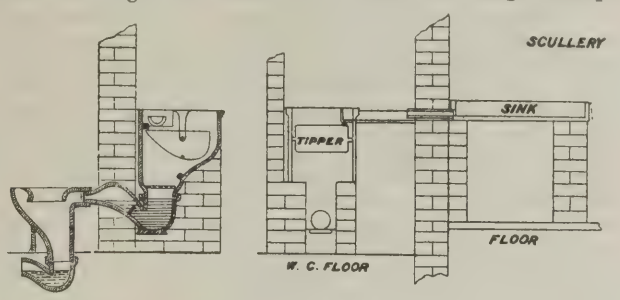
many sections of the mills. The lighting is effected by means of thirty-six arc lamps of 2,000 candle-power each, and close upon 1,000 incandescent lamps of from 16 to 50 candle-power.

AN inquiry was held at Cheltenham on the 4th inst. by Lieutenant-Colonel A. E. Smith, R.E., inspector under the Local Government Board, into an application by the Town Council for sanction to a loan of 17,200*l.* for the purposes of electric lighting. The town clerk stated that the amount borrowed up to date was 68,152*l.* In consequence of the demand for the light further extensions were necessary, hence the present application. The deputy-mayor (Alderman Norman) said that in 1895-96 47,700 units were sold, the gross receipts being 1,050*l.*; in the following year the figures were 90,300 units and 2,040*l.*; in the next, 140,600 units and 3,215*l.*; and a moderate estimate for the current year gave 204,200 units and 5,020*l.* as the receipts. After allowing rebates and for the street lighting, he put the receipts for the current year at 6,600*l.* net, as compared with 971*l.* net in the first year. The first year's trading result was a deficit of 622*l.*; in the following year there was a surplus on the working expenses to go to the sinking fund of 54*l.*; in the next year the surplus was 1,262*l.*, and he put the figure this year at 3,300*l.*, which was sufficient to pay the whole of the interest and the annual amount required for sinking fund to pay off loans. Mr. Hamilton Kilgour, borough electrician, gave other particulars, and, there being no opposition, the inquiry closed.

AUTOMATIC FLUSHING.

THAT the waste water from a sink might be utilised as a means of flushing the pan of a closet is but to state a self-evident truth. Everything of course depends on the system under which the feat is accomplished or attempted. Messrs. S. Dibble & Son, of 30 Ledsam Street, Birmingham, appear to have done the former by means of a patented apparatus which the inventors have called the Sink and Automatic Waste-water Flushing Closet.

The principle of this device is very simple. The waste water from the scullery sink passes through the usual perforated trap into a receiver, which is called the "tipper"—for a reason which will be presently apparent. This receiver is swung on a pivot, and is so arranged that when it has been charged with a certain quantity of waste water—usually three gallons—the weight of that water causes the receiver to "tip" and discharge its contents. This it does through an open



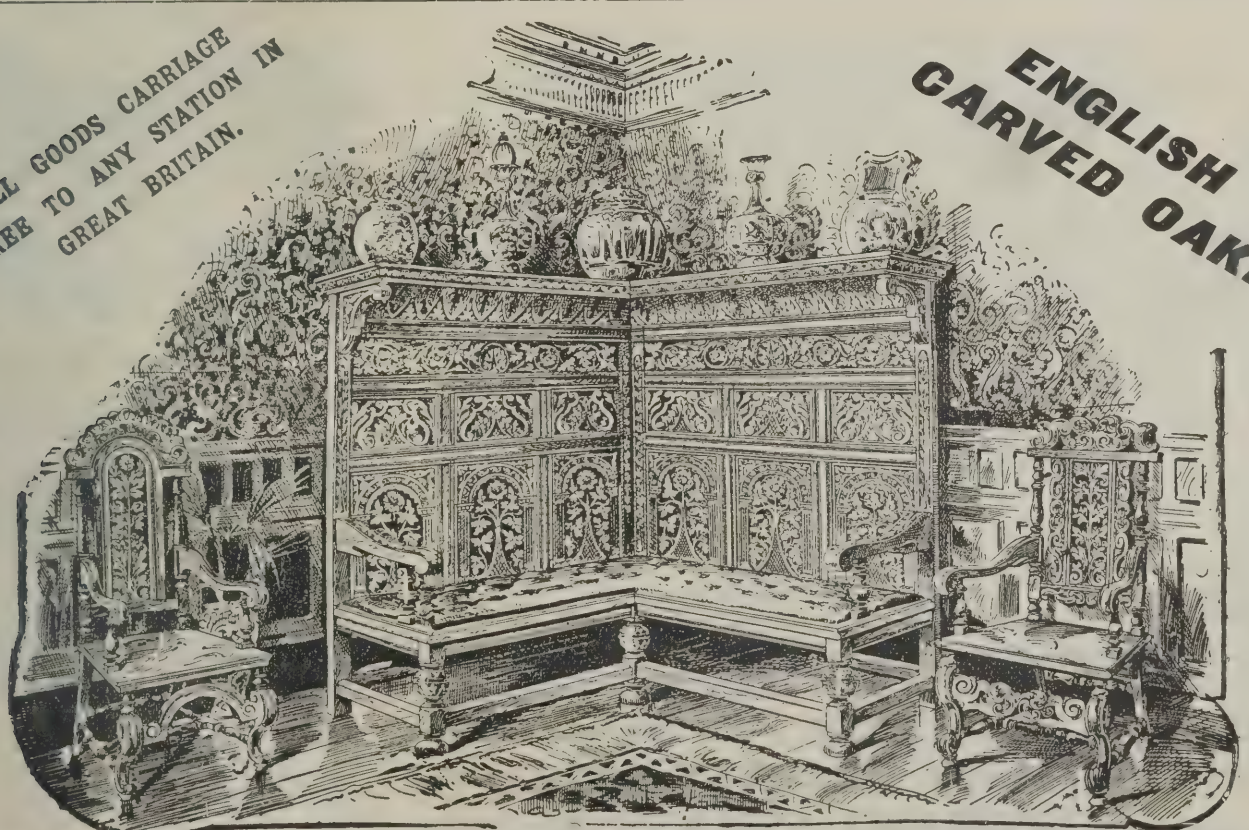
channel into a trapped gully, whence it is conveyed—or rather passes—to the closet pan, which it flushes in the usual way.

From this arrangement several advantages flow. To begin with, a closet-pan is always clean and sealed; no chain or other pull is required. Then there is little risk of injury from frost, as hot water is of course constantly passed through the scullery sink. Further, there is a considerable reduction in the amount of sewerage passing into the drain, while the saving of the fresh water used is enormous. This would be a most important consideration where water is used by meter. Moreover, as there are no cisterns or lead pipes, there is not only a saving of expense in that direction, but, as the inventors justly point out "there are no unsightly and ever-running overflow pipes to cause damp, and no crumbling walls to be everlastingly painted up and repaired."

Such is the principle of Messrs. Dibble's most ingenious and useful system—a system which, as our readers do not require to be told, could be adapted in different ways to suit different conditions of construction. That the system is one worthy of the attention of architects there can be no doubt whatever.

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Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations

BUILDING AND BUILDERS.

A PLOT of ground in West Street, Boston, 280 yards in extent, has been purchased by the Boston Free Library committee for the purpose of erecting thereon a free library and reading-room, the price paid being 280*l.* The committee have decided to offer prizes for the most suitable plan for the new institution.

ALL the bricklayers employed by the Battersea Vestry have come out on strike, alleging that their privileges were being encroached upon by labourers, who laid drain-pipes at the Central Library.

A LABOURER named John Burke, who was employed on some buildings in course of erection in Alton Road, Tuebrook, was admitted on Monday to the Mill Road Hospital suffering from injuries sustained by a fall. He was carrying a hod of bricks up to a scaffold, and on arriving on the platform he by some means slipped and fell backwards to the ground, alighting on his head. He appeared to be badly injured, and on examination it was found that he had received two deep gashes on the head, a badly injured spine, and it is feared a fractured skull.

THE opening of the new Baptist chapel in Adnitt Road, Monk's Park, Northampton, has been fixed for Thursday, January 19, next year. The chapel is being erected by Mr. A. J. Chown, from designs by Messrs. Mosley & Anderson, architects, on a site in Adnitt Road exactly opposite Allen Road, while the school, on an adjoining site, will have a frontage to Lea Road. About 400 persons may be seated in the chapel, which has a floor space of 75 feet by 42 feet, and forty will be accommodated in the choir gallery.

A SERIOUS scaffold accident occurred on Monday afternoon at a house in course of erection in New Road, Nantwich. Four men—Thomas Lloyd, Roland Ankers, Gabriel Tilley, bricklayers, and Arthur Austin, labourer—were working on a scaffold 20 feet high, when it suddenly collapsed, precipitating the men to the ground. Austin was rendered insensible, and received injuries to the legs and arms, Ankers sustained a severe shaking and a sprained ankle, while Lloyd and Tilley were cut and bruised. The men had a marvellous escape, especially Lloyd, who fell head first.

THE foundation-stone has been laid of a church at the corner of Villa Road and Mansfield Road, Liverpool, to be erected from designs by Messrs. Brewill & Bailey. The freehold site cost 3,400*l.* in all, and the architects estimate that 4,500*l.* will cover the expense of erecting the church. It is to be built in the Late Gothic style of architecture, with Derbyshire stone, and will accommodate about 520 people. There is a suggestion of providing a lecture hall and schools adjoining, but for the present that remains in abeyance, and one of the villas will serve for awhile as the home of the church's organisations. The builder, Mr. Thomas Cuthbert, has already made considerable progress with the work, which is to be completed by May 31 next.

THE plans which the Caledonian Railway Company are preparing in connection with their scheme for the extension of the Central Station, Glasgow, provide for the inclusion of all the property between Argyll Street and the Clyde as far as a line drawn southward in continuation of the east side of Hope Street. The company already own all the property on that side of Hope Street with the exception of St. Columba's Established Church, and their property there will also be included in the station. These extensions also include the erection of a bridge across the Clyde, which will be twice the breadth of the existing one, a bridge across Ann Street and a bridge across Argyll Street, which will be a continuation westward of the present bridge, and one and a half times its breadth.

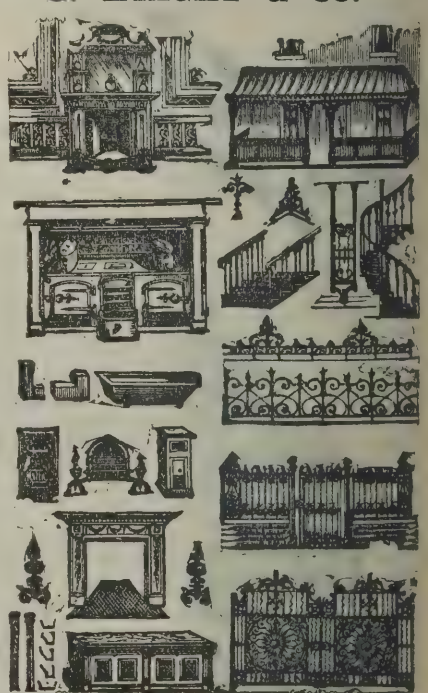
AT a special meeting of Aberdeen Harbour Board on the 27th ult., Lord Provost Mearns presiding, the works committee recommended that in the Bill for which the commissioners are to apply in the ensuing session of Parliament power should be taken to borrow for the purposes of the harbour, including the reconstruction of the graving dock, the sum of 200,000*l.* Amongst the works which Mr. Gordon Nicol, the engineer, considers it might be desirable to undertake during the next ten years are:—Deepening the navigation channel to 30 feet at high water of spring tides, including the removal of rock, 54,000*l.*; deepening the Albert Basin, tidal harbour, river Dee and dock, 9,000*l.*; improvement of Pocra harbour, 9,500*l.*; improvement of Point Law, 17,000*l.*; improvement of river Dee, 13,000*l.*; reconstruction of part of Provost Blaikie's quay, 12,000*l.*; reconstruction of part of Provost Matthews's quay, 2,500*l.*; reconstruction of goods sheds, new houses for officials and extension of workshops, 4,500*l.*; strengthening the quays for steam haulage, 1,800*l.*; extension and renewal of rails, 16,000*l.*; causewaying of roads and quays, 12,000*l.*; hydraulic machinery for lock gates, 2,800*l.*; new cranes and steel-yards, 5,500*l.*; electric-light fittings for buildings and sheds, 11,000*l.*; additions to plant, 14,000*l.*; contingent allowance for repairs to sea works, 6,000*l.*; engineering expenses, 7,000*l.*;

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new sea lock, 40,000*l.*—total amount, 227,700*l.* Shoremaster Meff moved the adoption of the report, and explained that before carrying out the reconstruction of the graving dock they had to ascertain their financial position, and they found that they would have to go to Parliament for borrowing powers. Before doing so the engineer had been asked to report, stating what schemes he considered it would be necessary to carry out within the next ten years, and the probable cost. Many of the suggested works would require to be carried out within the next few years, and others might be allowed to lie over for a time. They must go to Parliament for borrowing powers to the extent of 200,000*l.*, but it would not be necessary for them to spend all this money, though it was necessary to state in the Bill in detail the work for which the money was required. Mr. J. S. Smith seconded. Bailie Taylor moved as an amendment that the Board seek borrowing powers for only 150,000*l.*, and this was seconded by Dean of Guild Walker. The report was carried by twenty votes to two. The finance committee were empowered to proceed with the Bill.

THE CROWN THEATRE, PECKHAM.

In the description which we gave in our last week's issue of Mr. Runtz's latest achievement we omitted to mention that the complete and even elaborate electric lighting, with the handsome fittings for the auditorium, were put in by Messrs. Strode & Co., of Osnaburgh Street; the locks and door furniture by Messrs. Hobbs, Hart & Co.; the constructional ironwork by Messrs. Dennett & Ingle. The plaster-work was executed by Messrs. C. Jackson & Sons, and Messrs. Doulton were responsible for the terra-cotta, which enters largely into the scheme of decoration.

THE "SAMSON" SASH-LINE.

Inferior or defective sash-lines are the cause not only of great annoyance, inconvenience and damage, but not infrequently of serious personal injury. Thus the sash-lines which bear the above title, and for which Messrs. W. E. Peck & Co., of Bradford Avenue, London, are the wholesale agents, may be usefully commended to the notice of our readers.

As we need hardly point out, the strain on any cord over a pulley is greater than any other, and this strain is in the ordinary sash-line met by the outside surface rather than by the inner substance of the material. In the "Samson" sash-cord the resistance is very much greater, inasmuch as the strands double on each other, and running through close to the centre, form one homogeneous whole, which offers the same resistance throughout.

The makers of this sash-cord aver that it is even superior to the best metals, chains and tapes, and there is good reason to accept the statement. Anyhow, a very slight examination is quite sufficient to establish the fact that the "Samson" Special-braided Cotton Sash-line is well named, in that it is greatly superior in strength and durability to any twisted, cable-laid or hollow-braided line.

THE HOOLEY ESTATES.

The Pillar Hall, Cannon Street Hotel, was crowded yesterday afternoon, when Messrs. Douglas Young & Co., of 51 Coleman Street, offered the Wiltshire and Essex estates forming part of the assets of Mr. E. T. Hooley. The extensive property in Wiltshire, comprising numerous farms, model villages, &c., was put up in one lot, and after a spirited competition knocked down to Sir Christopher Furness for 98,000*l.* The Essex estate, consisting of a manor-house, farm holdings, &c., and carrying an important advowson with it, fetched 39,500*l.*, and a small separate property known as Finchingfield went for only 250*l.*

PUBLIC WORKS IN EGYPT.

The correspondent of the *Times* in Cairo sends the following summary of the report for 1897 of Sir W. E. Garstin, K.C.M.G., Under-Secretary for Public Works, upon the Irrigation Department.

Although the Nile flood was a poor one and late in arrival, causing some loss of crops, the development of the irrigation system in Upper and Middle Egypt limited the area of actually unwatered land to less than 10,000 acres. The experiment of permanent rotations for the distribution of water in Lower Egypt, which was first introduced in 1896, has proved a marked success, as by alternately raising and lowering the water surface in the canals during fixed periods the surplus water supply is reduced throughout the year, and consequently the evils caused by infiltration and water-logging of land are diminished, whilst with less water turned into the drainage



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canals the latter discharge their functions more efficiently. Whilst permanent rotations are applied to counteract the disadvantages of an excess supply, temporary rotations are put into force whenever during the summer months the canals furnish a scant supply necessitating an economical use of water and its equitable distribution amongst cultivators. These are now alive to the benefits of both systems, and the rich or powerful landowner is precluded from monopolising the water supply to the detriment of his poorer neighbours.

Treating of the chief crop, viz. cotton, which, of course, owes its steady and rapid increase to the extension and improvement of the irrigation system, the report shows that this crop, which in 1888 produced 2,700,000 cantars (1 cantar = 98 lbs.), yielded 6,500,000 cantars in 1897, but unfortunately the average price, which was piastres 272·5 (55*s.* 11*d.*) per cantar in the former year, fell to piastres 162·97 (33*s.* 5*d.*) in the latter—the lowest recorded during the ten years.

The sugar crop planted in 1897 yielded 1,330,000 cantars as against 1,740,000 cantars in 1896, a diminution attributable to the winter of 1897-98 having been the coldest experienced in Egypt for many years. The prolonged low temperature lasting from October to February besides causing serious damage to the cane plants materially diminished their yield of sugar.

Much hardship was inflicted on the fellaheen by the failure of the maize crop, their staple food, owing to a caterpillar which destroyed large areas, especially where the sowing was late.

Referring to the gauges established on the Victoria Nyanza, Sir William Garstin regrets that, owing to the insurrection in that region, no information respecting the lake level had been received since the end of July 1897. At that date the water surface of the lake stood some 4 inches higher than at the same period of the previous year.

The hope is expressed that steps will again be taken to observe the daily water surface in this lake, and the urgent need to Egypt of a gauge on the Albert Nyanza is indicated. Gauges were fixed in the Nile at Kerma and Merawi, the third and fourth cataracts, and it is intended to place them also at Berber and at the junction of the Atbara with the Nile.

The department spent 295,000*l.* on drainage works, of which sum 256,000*l.* were given by the Caisse de la Dette as a special credit, and the Caisse granted a further amount of 261,000*l.* to be expended in 1898. The report, alluding to the vital importance of good drainage, states as a well-known fact that to prevent deterioration of the land every drop of water turned on to it for irrigation, minus the quantity evaporated by the sun's heat, should be carried off by drainage.

The usual annual item of 400,000*l.* appears under the heading of expenditure for relief from forced labour, and 21,000*l.* were spent on agricultural roads, of which nearly 1,100 miles are now existent throughout Egypt, and the native provincial councils are continually voting large sums for extensions.

The important work of consolidating the Barrage, for which experiments had been made in 1896, was undertaken on an extended scale, and by the end of the year the cavities under every pier of the Rosetta branch had been filled up with pure cement grout. Five holes were drilled in each pier, extending from the surface of the roadway to well below the lowest depth of the foundations, and into each one of them, 348 in all, and averaging 54 feet in length, pure cement grout was poured until no more would run in. No pressure was applied beyond that exerted by the weight of the column of grout, which, as was found by experiment, balanced a column of water of twice its own height. This pressure, with the water surface in the river standing at metres 13·50, was 26 tons per square metre, or 2·4 tons per square foot, and must undoubtedly have forced the liquid cement into the cavities in every direction in which travel was possible. The total cost of the work was only 3,130*l.*, and it is hoped that by the end of 1898 the Damietta branch of the Barrage will be similarly consolidated. But as the most effectual way of rendering the Barrage perfectly safe would be to reduce permanently the head of water which it has to hold up during low Nile two supplementary dams down stream—one on each branch of the river—were planned, a project rendered feasible by the Caisse de la Dette having granted 543,000*l.*, and it is hoped that the work will be completed by the summer of 1901.

The design of the weirs may be described as a core of rubble masonry in cement sunk well below the river bed and protected up and down stream by a long slope of rough stone blocks or pitching. The masonry core will be rendered watertight by a mass of clay puddle upon either side of it, and the weight of the pitching upon this puddle will tend to compress it and prevent the passage of any springs through or under the work. The weirs are so designed that the head of water on the Barrage, which during times of greatest pressure amounts to 4 metres, shall become reduced so as not to exceed 2½ metres.

The great Nile reservoir, for which the contract was signed in February 1898, had previously been the object of much

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preparatory work in 1897. It is described as a dam and reservoir at Assuan, which will hold up water to R.L. 106 metres, or 20 metres above the present low summer supply, and is calculated by Mr. Willcocks to contain 1,065 million cubic metres. In addition a Barrage is to be constructed at Assiut which will raise the river level so as to increase the discharge into the important Ibrahimieh canal. The benefits of summer irrigation will thus be given to the basin lands in the provinces of Assiut-Minieh and Beni-sue, whilst summer irrigation in the Fayum will be extended. The provinces south of Assiut will benefit from the extra water supply as new pumping stations on the Nile will be permitted and an increase in the cultivation of sugar cane and other valuable crops be rendered possible. The province of Gizeh and Lower Egypt will gain as it is proposed to erect in the former large pumps on the Nile, and the latter will have an assured summer supply, whilst any surplus water will be available towards reclaiming new lands in the northern portions of the Delta. It has been judged best so to distribute the water that all parts of the Nile Valley may participate to a greater or less degree in the benefits resulting from an increased water supply.

Sir William Garstin terminates this subject by saying that it is chiefly due to the energy and talents of Mr. Willcocks, who designed the dam and Barrage, that Egypt will in five years' time be endowed with such a magnificent gift, and expresses regret that, owing to Mr. Willcocks's retirement from the irrigation service, he cannot supervise the construction of the dams and thus put the crown upon the colossal scheme which he originated.

The geological survey commenced in October 1896, and directed by Captain Lyons, R.E., has covered 70,000 square kilometres. A difficulty is encountered from the circumstance that there are no maps available upon which geology can be directly plotted. The topographical features have to be sketched in when a few points have been fixed by plane table triangulation, and the route traversed by day is checked by astronomical observations for latitude and time at night. Consequently each surveyor has to be taught the work and methods of observing before joining a party. Another hindrance is that the work is to terminate at Midsummer 1899, and consequently the surveyors, after acquiring some ability, seek more permanent employment elsewhere. Out of seven surveyors three resigned during the year. Captain Lyons states that there exists throughout the Delta and Nile Valley, as far south certainly as Esneh, a thick deposit of water-bearing sands at a depth of about 50 feet below the surface. A collection of 5,000 specimens of rocks and fossils has been made and awaits a place where they can be arranged and exhibited.

The well-known Khalig canal, which ran from the Nile through the heart of Cairo and which had become a mere open sewer, has been filled up, preparatory to an electric tramway being laid along its course. Major Brown, C.M.G., in his report on the irrigation of Lower Egypt, contributes a very interesting historical and obituary notice of the canal, which for over 1,000 years was annually the subject of one of the greatest popular festivals at the periods when the embankment was cut to admit the flood-water of the Nile.

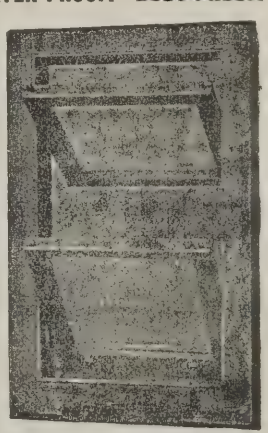
Referring to the licensing and inspection of steam-engines in the towns, the report speaks unfavourably, but states that this is entirely due to the action of the Mixed Tribunals, who, when the new law was submitted for their approval, so altered the wording of its clauses as to render it practically unworkable. Proprietors of engines can defy the Government with impunity and may keep them in as bad a state as they please, risking no severer punishment than a fine of ten piastres.

THE CITY HALL, BELFAST.

At an adjourned meeting of the Belfast Corporation on the 2nd inst., the town clerk stated that the minutes of a special meeting of the improvement committee included several letters from Mr. J. W. Gamble, clerk of works, concerning the manner in which the building operations at the new City Hall were being carried out, and finding serious fault with several matters concerning piling and concreting. With regard to these Mr. John Martin and Mr. H. Martin, jun., attended before the improvement committee on October 28, and stated that they had heard of Mr. Gamble's report, and they had come at once to put themselves right with the committee, as the statements contained in Mr. Gamble's letter, of which they had been shown a copy since they came, in some cases required explanation and in others contradiction. They assured the committee that the clerk of works' statement regarding the alleged dummy piles was not true, and explained that under certain circumstances short lengths of piles were necessary and allowed owing to the impossibility of driving piles of the full specified length past the strata of rock present in portions of the site, and that in some cases where piles, apparently sound, when being driven into the ground broke owing to soft places in the piles,

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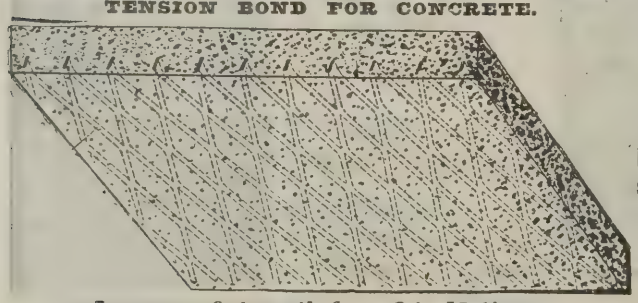
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these were cut off, left on the ground and sound piles driven beside them—but that dummy piles were driven designedly was false, and they had their superintendent pile driver in attendance should the committee desire to question him. Messrs. Martin stated that at the commencement of the work they had assured the clerk of works that they were anxious to carry it out as specified, and that he had only to point out anything he noticed out of order and they would have it made right. They also stated they were being kept back and interfered with, so that the contract at the present rate of progress would take from ten to fifteen years to complete. Messrs. Martin having retired, Mr. Gamble, clerk of works, was questioned as to their statements, and he reaffirmed his report in every particular, and in reply to a question stated that the two piles he referred to were still in the ground, and that the committee could have them drawn, as they were not concreted over, and it was resolved that the surveyor and clerk of works be instructed to have these piles drawn and report to the committee as to whether they were dummy piles as reported or otherwise; and it was also resolved that any instructions to the clerk of works from the architect relative to variations in the specification be made in writing and reported to this committee.

The city hall committee reported:—During the present month the committee has held several meetings, and at one of these meetings the architect, Mr. Thomas, was present. Having carefully considered the matter of raising the ground around building so as to form a gentle slope outwards from the same, and also having learned that such was originally intended by the committee having charge of the competitive designs (although omitted to be included in the contract drawings), we are unanimously of opinion that the height of building should be increased 2 feet for this purpose, and that two additional steps be added to all entrances. This will increase the height of elevation 3 feet, and as 2 feet of the added height will be below the ground line, the cost of the work will be less than if they were over it. From the book of drawings supplied to each member of the Council it will be observed that the contract provides for facing the courtyard or quadrangle with brickwork. This, we believe, would be a serious mistake, as the courtyard must of necessity be considered a special feature of the building, and as such would warrant the expenditure of an additional sum in substituting stone for brick. The cost of doing so cannot be very great, seeing that all moulded and ornamental stonework around doors and windows of courtyard is already provided by the contract. We, therefore, recommend it, and have given instructions for an estimate of the cost to be provided for your information. The only emergency staircase from public hall mentioned in the contract has been taken away by reason of the altered projection in elevation to Donegall Square North. We feel that not to provide a suitable and necessary exit is wholly inconsistent with our dealings with the public in exacting similar erections, and we recommend that the staircase shown on the contract drawings (but afterwards eliminated) be again put back in its original or other position. From a careful reading of the specification we are forced to the conclusion that the work is not adequately described, its clauses are not sufficiently binding, and its provisions are, in some instances, for work very little removed from ordinary domestic buildings—notably that for rafters of roof, which are described as 4½ inches by 2½ inches and 15 inches apart. Several items of extra work have been done (the steel girdering, concreting and piling in foundations of dome, for instance) without the knowledge of the Council or your committee. As extra works are likely to arise very frequently throughout the work, we recommend that it be an instruction to the architect not to order any such work or any variations in the specification without first obtaining sanction of your committee. We do not consider the prime cost allowances in specification as satisfactory, either as to the amounts allowed or to the method of expending them. Before any such sums are expended it should be for you to see that estimates are obtained for the several works, and that the same are carried out to your orders. In this connection we may mention that all attendance upon, and materials required by the several specialists (with the exception of a small sum for heating engineer) in carrying out their works, together with all jobbing work incidental to the completion of each trade, is to be paid as extra work. This is most unsatisfactory. No provision had been made in the plans for a waiting-room in connection with the improvement committee room. This is an error which must be remedied, and to which we have directed the attention of your architect.

In a letter dated October 5 the architect (Mr. A. B. Bramwell Thomas) wrote in regard to these matters that, having provided the clerk of works with the necessary assistance, it will now be to his personal discredit for irregularities to occur, and it may safely be presumed they will not occur in future.

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At a special meeting of the improvement committee on October 31 it was resolved that the following recommendations of the sub-committee be approved of and sent to the Council for confirmation :—"That as in carrying out of the contract for the erection of the City Hall additional outlay is likely to be required for additions which the Council may desire to make on the plans, and for extras, also for furnishing the hall, and without binding the Council as to details thereof, the sub-committee recommend that powers be taken in the Bill to borrow 30,000*l.* in addition to the 150,000*l.* already authorised for these purposes."

The following letter was also read :—"7 Queen Anne's Gate, S.W.: October 31, 1898.—Dear Sir,—In pursuance of the resolution of the city hall committee, that I should report to them as to the desirability of making the alterations which have been considered—(1) Raising the building 3 feet and the ground about the building 2 feet, so that an extra foot in height will appear above ground ; (2) stone facing to courtyard ; (3) the provision of two emergency staircases to the public hall—I have to report that in the event of the committee being able to recommend the additional expense, the alterations are, in my opinion, improvements. I should mention that these alterations would cause no modification to the present foundations, which are adequate to support the increased weight of the building consequent upon the raising of the structure.—I am, A. B. THOMAS."

After a long discussion, it was decided to obtain powers to borrow the money required.

ENGINEERS' WAGES AT SHEFFIELD.

A FULLY attended meeting of the Sheffield and District Engineering Trades Employers' Association was held on Friday to consider a letter received from the workmen. It may be remembered that the men asked for an advance of 2*s.* per week and a reduction of one hour in their time. The employers offered an advance of 1*s.* per week and no change in the hours. This offer the men refused to accept. At the meeting of employers on Friday they instructed their secretary, Mr. Norris Henry Deakin, to reply to the letter of the men, expressing regret that the offer had not been accepted. The letter proceeds :—"Having regard to the fact that the suggested alteration in hours cannot be dealt with locally, the employers feel that the only course is to refer the whole question to our respective executives, and ask them to meet, in order to obtain a settlement mutually satisfactory at the earliest possible moment. Knowing that the joint boards referred to meet in London next Thursday to consider other matters, our association feels that a prompt reference to them on the Sheffield questions would bring about a satisfactory settlement during next week, and have no doubt that this course will commend itself to your members." He asks the secretary of the men's societies to let him know as early as possible whether they adopt the suggestion, so that he may make the necessary arrangements.

SOCIETY OF ENGINEERS.

AT a meeting of the Society of Engineers, held at the Royal United Service Institution, Whitehall, on Monday evening, November 7, Mr. W. Worby Beaumont, president, in the chair, a paper was read by Mr. Perry F. Nursey, past president, entitled "The Preparation of Rhea Fibre for Textile Purposes."

In introducing the subject the author referred to the amount of time, trouble and money that had been expended in developing the practical application of rhea fibre for textile purposes, which fibre was the longest and strongest in nature. He had followed the subject for the past sixteen years, during which time he had professionally investigated and reported upon several systems, both mechanical and chemical. After describing the rhea plant, and the method of its cultivation, the author observed that the history of the endeavours to utilise its fibre extended back to the beginning of the present century. It was introduced into Calcutta in 1803, and was brought to England in 1814 by Captain J. Cotton, to whom the Society of Arts awarded a gold medal. In 1840 the Government of India for a second time offered a prize for a successful method of preparing the fibre, the prize having been first offered in 1803. No practical result, however, followed upon either occasion. In 1869 the Indian Government offered another prize of 5,000*l.*, a portion of which was awarded to a partially successful competitor. The prize was again offered in 1881, but the offer proved barren of practical results. The matter also received the careful attention of the fibre judges at the Great Exhibition of 1851, who reported on rhea fibre at some length.

The first decorticating process examined by the author was that of M. Favier, in 1882. The rhea stems were steamed, and the bark with the contained fibre stripped off by hand. The

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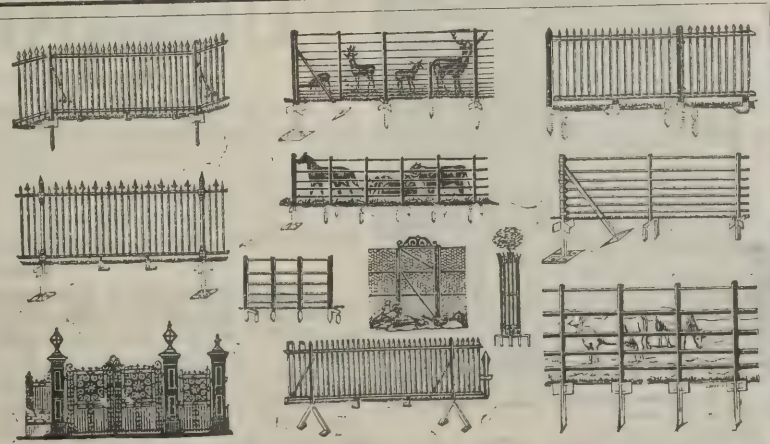
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author then described the Frémy-Urbain chemical process, the working of which he had several times investigated in France, the result proving very satisfactory, an excellent filasse being produced. He then referred to the opinion of the late Sir Joseph Lee, who had investigated the Frémy-Urbain process with the author. Sir Joseph's opinion was that that process was a great step in advance, but that the question depended for ultimate solution upon suitable machinery. The Frémy process, however, did not prove a commercial success. M. Favier devised a fibre-preparing machine, which stood in the same category. The Casper system was next noticed, in which machinery was dispensed with, and only a weak solution of caustic soda was used. The fibre-extracting machines invented respectively by Messrs. H. C. Smith, W. E. Death and J. Orr Wallace were then noticed, after which the author described the system of Mr. Henry Ferguson, which he had inspected in operation at Brighouse in 1896. This is a chemical process, the rhea ribbons being subjected to treatment, first in an alkaline solution and subsequently in an oleaginous bath. The filasse produced was being spun into yarns in the same mill. The author then described the Burrows-Radclyffe system, which he inspected in operation at Wraysbury, near Staines. Decortication is there effected mechanically, the subsequent treatment being chemical. At the time of the author's inspection in 1896 yarns were being produced from the filasse prepared in the mill, and the process is said to be still working satisfactorily.

The Gomez, the Macdonald-Boyle and the Eyssen processes were only referred to in passing, the author having been unable to obtain particulars of either of those systems. In conclusion, he observed that the preparation of rhea fibre for the spinner had advanced somewhat, albeit very slowly, and he expressed the opinion that the solution of the problem would be found in a combination of mechanical and chemical processes, chemistry stepping in as the handmaid of mechanics.

THE HOLBORN TO STRAND IMPROVEMENT.

A JOINT report for presentation to the London County Council has been prepared by the improvements and housing of the working classes committees respecting the Holborn to Strand and Clare Market scheme. The following recommendations are made :—

(*a*) That, having regard to the nature, extent and importance of the Holborn to Strand improvement and to the special circumstances connected with the case, the improvements committee shall, notwithstanding existing references to the committees, be charged with the clearance and laying out of all property comprised in the Clare Market scheme and of the whole area between Holborn and the Strand, the sites agreed by the two committees to be set apart for working-class dwellings being subsequently handed over to the housing committee.

(*b*) That the housing committee do supply information to the improvements committee as to any negotiations now on foot for the purchase of any property on the Clare Market area.

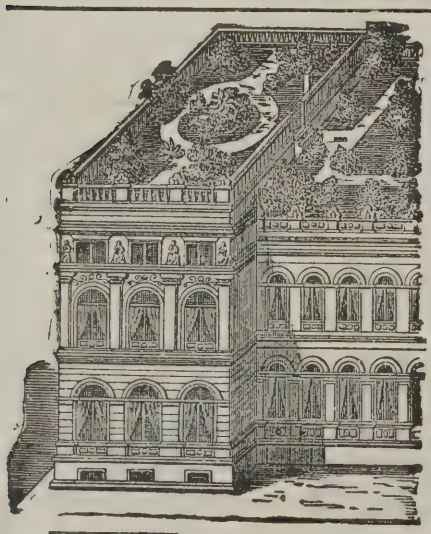
(*c*) That it be referred to the finance committee to make any necessary rearrangement of the accounts between the two committees.

(*d*) That the improvements committee do consult the housing committee when formulating any street improvement which would appear to involve a scheme for rehousing the persons of the labouring class to be displaced, or when preparing for submission to the Home Secretary any rehousing scheme in connection with a street improvement sanctioned by Parliament and undertaken by the Council.

MARKET EXTENSION AT DEPTFORD.

THE City Corporation having obtained an Act of Parliament authorising it to extend considerably the Foreign Cattle Market at Deptford and connect it by means of a railway with the London, Brighton and South Coast Railway, the work, which will involve an expenditure of 100,000*l.*, will be carried out without delay. The services of Sir J. Wolfe Barry have been secured as engineer, and from a report he has made it would appear that the railway and tramway outside the market will cost 32,250*l.* For the purpose of extending the market, property in the near vicinity will be bought up at a cost of 22,000*l.* Increased accommodation will be also provided in the shape of additional slaughter-houses, cooling-rooms, increased lairage and an extended river frontage. The estimated outlay on these works are as follows :—Slaughter-houses (a first instalment), 5,000*l.* ; lairage, 21,000*l.* ; a junction of the three jetties (providing a continuous river frontage of 880 feet), 16,000*l.* ; and property required, 22,000*l.* The extension of the market has been rendered necessary owing to the great pressure which has

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been put upon the existing accommodation. The business increases every month, no fewer than 510,618 animals being slaughtered there during last year. The financial position of the market is satisfactory, as, although the loan account at one time reached a total sum of 424,000*l.*, the amount outstanding at the close of last year was only 21,000*l.*

THE EDINBURGH BUILDING TRADES EXCHANGE.

THE first annual meeting of the shareholders of the Edinburgh Building Trades Exchange was held in the rooms at Shandwick Place on the 26th ult., Mr. Peter Lawrence, surveyor, chairman of the company, presiding. The chairman said the venture was a new one, and it had so far proved very satisfactory, as it had enabled them to pay a dividend of 5 per cent. That did not exhaust their resources, because they had a lucrative source of income from the catalogue which was being prepared, and which would enable them to pay a larger dividend next year. The Exchange was founded to weld together the different branches of the building trade and the manufacturers. They had learned their lessons from America, not directly, but through Glasgow, where an exchange was started on most successful principles. Since then exchanges had been formed in Newcastle and Halifax, and he believed that in the course of time all the other great building centres in the country would see that it was to their advantage to have a place like theirs, where the builders could meet together with the manufacturers and discuss matters in which they were interested. The membership was increasing, and what they desired was that the members should take advantage of the rooms provided for them in their present premises in order to interchange views. In olden times there used to be hole-and-corner work among builders, but that had disappeared, and they wanted to meet and consider what wages they should pay their men, and what prices should be given for their work. The directors had also under consideration the question of insurance, in view of the Employers' Liability Act, and it had been remitted to a committee to consider whether a federation of the building trades in Scotland, or in Edinburgh, could not be formed for the purpose of insuring themselves against accidents.

Sir Thomas Gibson-Carmichael, M.P., hon. president of the Association, in moving the adoption of the report, said the Exchange had done a great deal to fulfil the ideals with which it started. It was a most useful institution to the trade of Edinburgh, and he trusted it might become of even greater use in the future.

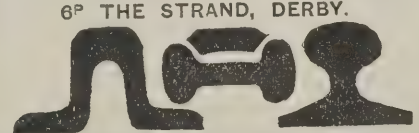
Mr. Colin Macandrew seconded the motion, which was unanimously agreed to. Directors were afterwards appointed.

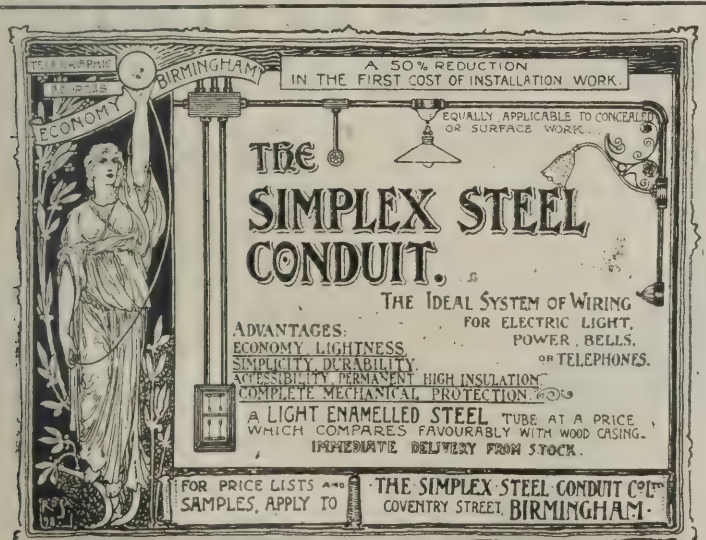
SANITARY INSPECTORS' ASSOCIATION.

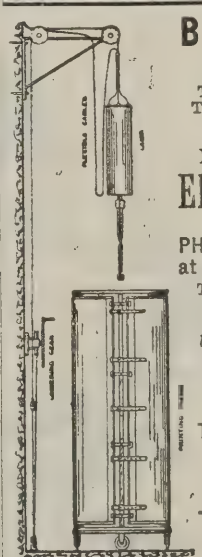
AN extraordinary general meeting of this Association was held on Saturday evening at Carpenters' Hall, London Wall, Mr. T. J. M. Flower, the newly-elected chairman of council, presiding. Mr. E. Tidman (hon. secretary) announced that the council had met that afternoon and appointed a committee to consider the general financial position of the Association. They would probably be able to present their report at the next meeting. With regard to the discussion which took place recently on the balance-sheet, he said it was felt that some misunderstanding was likely to result, and it had therefore been decided to publish a letter pointing out that the Association was far from being on the verge of bankruptcy, as had been suggested. As a matter of fact, they had 3,000*l.* invested. Mr. Foote stated that one-sixth of their income last year was expended on travelling expenses, and, after criticising other items in the balance-sheet, he contended that if they went on at the same rate as at present the Association would very soon be bankrupt. Further debate on the balance-sheet was adjourned to the usual private members' conference. The Chairman then delivered his inaugural address, in the course of which he gave an account of the origin and growth of the Association. In 1883-84, he said, their income was 92*l.*, and their total membership 171, while in 1897-98 the figures were 631*l.* and 668 respectively. He strongly advocated the amalgamation of the different sanitary associations in the United Kingdom, and said if they set about it in the right way success would attend any efforts they might make to obtain

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such a result. It was the earnest wish of them all, he believed, that there should be one organisation representing the whole of the sanitary inspectors in the country. Speaking of their finances, he remarked that it was absurd to suppose that they were nearing bankruptcy, having regard to their invested funds. The Association was doing all in its power to obtain for sanitary inspectors a respectable superannuation allowance, and he hoped that the Bill promoted with this object would in the near future pass through Parliament. Security of tenure was another matter of great importance, and the council had been working to bring about the desired change. It was only right that sanitary inspectors should be placed in a position which would enable them to fearlessly discharge their duties, undeterred by property-owners who were members of local boards. A short discussion followed.

THE GLASGOW BUILDING TRADES EXCHANGE.

THE fourth annual meeting of the building trades of the city and district of Glasgow was held on the 26th ult. in the rooms of the Exchange, Colonel Bennett presiding. The secretary read the annual report by the executive. The past year, it said, had been successful. The income had been 822*l.* 3*s.* 1*d.* and the expenditure 672*l.* 12*s.* 7*d.*, leaving a net credit balance on the year's working of 149*l.* 10*s.* 6*d.*, from which a 5 per cent. dividend would be paid. During the year the membership had increased by thirty-four. The directors were considering suggestions that refreshments should be supplied in the Exchange rooms, as in other exchanges, and that a good service of news should be got. With reference to the Workmen's Compensation Act, the questions of forming a company and of getting specially low terms from insurance companies had been discussed, and it was decided to wait at least a year in order to see the nature of the risks to be faced.

The Chairman moved the adoption of the report. Mr. Shaw seconded.

Mr. Goldie expressed himself as against a license being procured for the premises. He also called attention to what he called the severe punishment builders had to submit to by measurers. They might perhaps finish a job which had been going on for years and they could not get their money for months. They grumbled individually, but that would do no good; the Exchange should take the matter up.

The Secretary said the matter had been before the executive, and a conference had been invited of delegates from the various masters' associations.

The Chairman said that the hanging up of measurements for three, six, twelve and eighteen months was beyond a joke. He thought there ought to be a clause in contracts allowing them 5 per cent. after three months from the finish of a contract. The report was adopted and the executive, office-bearers, auditors, officials, &c., were re-elected.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

APPLICATIONS FOR PATENTS.

22327. Hugh Stanton, for "Improvements in fire-resisting floors for buildings."

22480. John Webster, John Thomas Woodhouse and Herbert Foster Worrall, for "An improved brick for building purposes."

22485. William Henry Johnson, for "Improvements in metallic lathing used as a foundation for plastering and for other purposes."

Specifications Published.

26384. Hancock & Winzer, for "Kilns or muffles used for pottery and brick purposes."

27817. Roberts, Ball & Bangham, for "Apparatus for the manufacture of ceramic and other tiles."

30387. Kenyon, for "Apparatus for mixing concrete and the like."

16335. Staley, for "Kilns for burning earthenware, fire-clay goods and the like."

18210. Grainger, for "Bricks or blocks for building."

TO INVENTORS.—Patents for Inventions, Trade-marks and Designs secured; every assistance given to inventors. Specialists in Building matters. Information free.—Messrs. RAYNER & Co., Patent Agents, 37 Chancery Lane, London, W.C.





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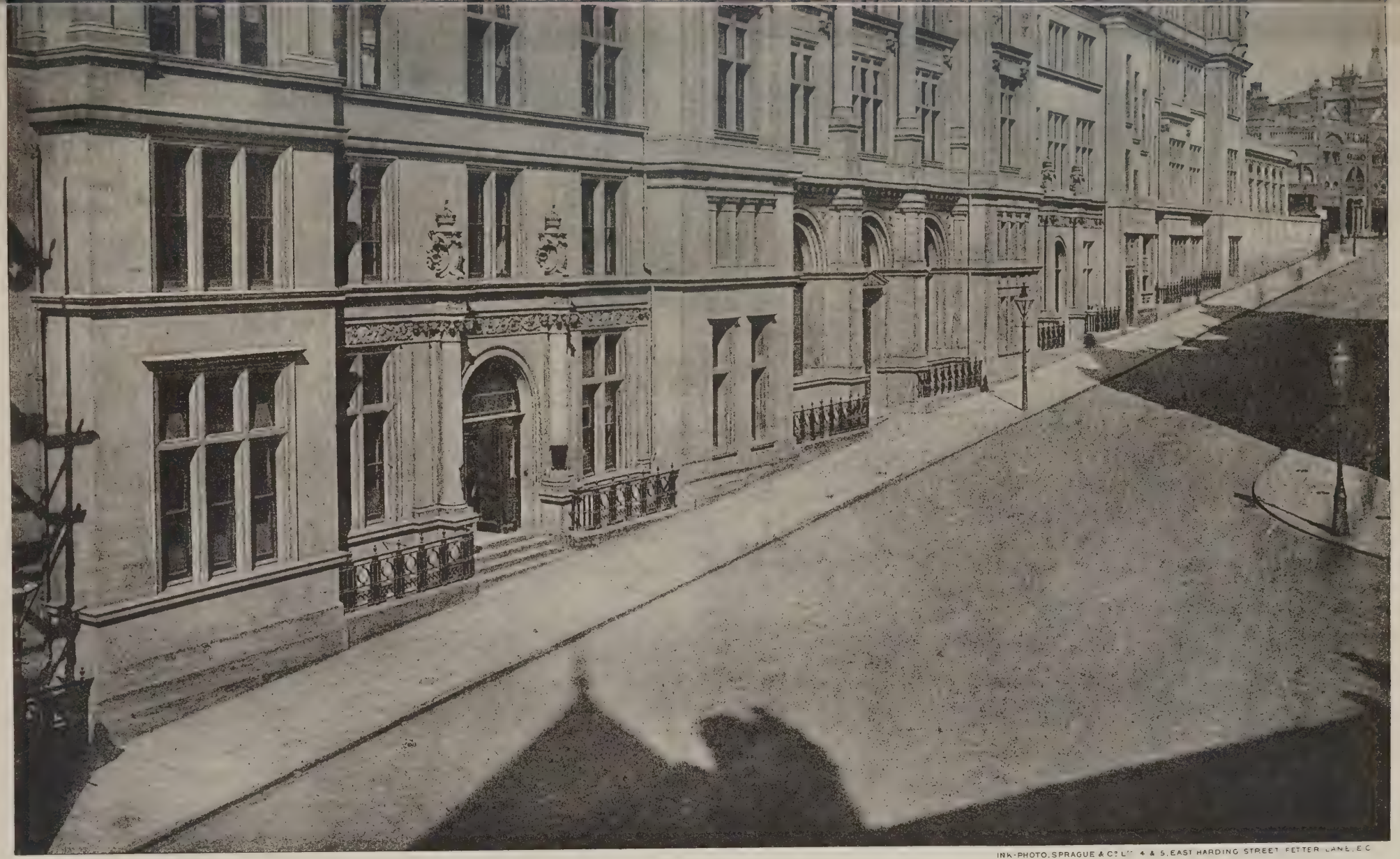


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CATHEDRAL SERIES, No. 174.—ST. ALBAN'S: THE LADY CHAPEL.





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HENRY TANNER, Architect.



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DAME OWEN'S STATUE, IN THE HALL, DAME OWEN'S SCHOOL, ISLINGTON,

J. FRAMPTON, A.R.A.

The Architect.

THE WEEK.

When an art gallery in Birmingham was erected as part of the Municipal Buildings, it was not anticipated that in a short period so many pictures would be obtained as to need a much more extensive wall-space. The site is central, but on that account cannot be readily extended. As teaching of art is now controlled in the city by the Corporation, there is a desire that no obstacle to progress should arise in the form of too limited an art collection. Inorder to hasten the erection of a new gallery Mr. J. T. Middlemore has adopted an ingenious expedient. He has offered to present to the Corporation several valuable modern pictures, viz. *Aspiration*, by G. F. Watts, R.A.; *The Triumph of the Innocents*, by Holman Hunt; and the following works by the late Sir E. Burne-Jones :—*The Merciful Knight*, *The Garden of the Hesperides*, the Pygmalion series (four pictures), and certain works purchased at the recent sale of the artist's works. Butt he offer can be withdrawn should there be undue delay in the providing of a new gallery. Lady Burne-Jones is also willing to present Mr. Watts's portrait of her husband, which is considered by the painter to be the most successful of his portraits. A sub-committee will consider the proposal, and it is to be hoped the difficulties will be surmounted, and Mr. Middlemore's noble gift will become available.

Builders will rejoice at the decision of the Middlesex magistrates on Saturday. Mr. Tennant, of Willesden, was recently summoned by an officer of the Inland Revenue for keeping a "carriage" without being provided with a license. The "carriage" was a light cart, which the builder used when visiting the works he had undertaken to carry out, and it was not used except for trade purposes. The magistrates at Harlesden dismissed the case. The officers of the Inland Revenue appealed, their contention being that in order to be exempted a cart must be employed solely for the conveyance of goods. The Middlesex magistrates dismissed the appeal, and when asked to state a case for action in the High Court, the chairman declined until they had further considered the subject. There was no precedent to guide them.

On Wednesday Sir J. Wolfe Barry, C.E., delivered the address at the opening of the 145th session of the Society of Arts. He selected for his subject the "Internal Traffic of London." It was pointed out that in the arrangements for streets there was no grasp of the greatness of the subject, for in the history of the past forty years we looked in vain for any new arterial thoroughfares traversing inner London from end to end and proportioned in width to the demands upon them at different parts of their route. On the contrary, we found in the new streets, as in the old, that the nearer they were to the heaviest of the traffic the narrower they were in absolute dimensions. Cheapside, Fleet Street, Piccadilly, the Strand, Marylebone and Euston Roads remained very much as they were fifty years ago, when the traffic was a mere fraction of what it is now. Sir J. Wolfe Barry said he desired to speak with all respect of those who executed the idea of Regent Street, for Nash's wide Waterloo Place and Regent Street, with its circuses at Piccadilly and Oxford Street, was a work conceived in a large-minded way. But most at least of modern street improvements seem piecemeal and patchwork enterprises narrowed to the smallest dimensions that would pass muster, and without any but the most meagre provision for the future, or, except in the case of Regent Street, the slightest attempt at systematic artistic treatment. In fact, there had been and was now a hitherto incurable *petitesse* in dealing with such matters in London which was in great contrast to what we saw in foreign cities of far less importance and wealth. To meet the traffic of London it was not so much additional railways, underground or overground, traversing the town and connected with the suburbs, that were wanted, as wide arterial improvements of the streets themselves. A scheme of new main thoroughfares of adequate width for present and future traffic should be laid down and realised as time and finance permitted. Apart from wide streets, a matter which had been too much lost sight of was the provision of means for allowing the north-and-south traffic to cross the east-and-west traffic with the least possible confusion. If some means could be devised for the crossing of north-and-south traffic over or under that going east and west at places like Hyde Park Corner, Piccadilly Circus, Ludgate Hill and Wellington Street, the relief to the main thoroughfares at those points would be enormous. The Euston Road (with Praed Street and Chapel Street at the west and the Pentonville and City Roads at the east), Oxford Street (including Uxbridge Road, Holborn and Cheapside), and the Strand (including Fleet Street, Ludgate Hill and Cannon Street), were almost ludicrously inadequate. Another want was a route for bicycle traffic. A new and spacious thoroughfare about 120 feet wide was also required. It might leave the Bayswater Road near Westbourne Terrace, follow the line of Wigmore Street to Russell Square behind the British Museum, and thence run to near Broad Street station. In addition, there should be two or three thoroughfares north and south, slightly less in width, which should be carried over the east and west route by bridges at the points of intersection, and all these new routes should have a raised or sunken road for bicycles, so that they should not mix either with vehicular or pedestrian traffic. Sir J. Wolfe Barry said the heavy expenditure should not affright us, for it would be repaid by the increased facilities both for trade and pleasure.

The special committee on building regulations of the Glasgow Town Council have arranged draft clauses which are to be embodied in the Bill that is to be promoted in the coming session of Parliament. They relate mainly to the height and cubic capacity of new buildings. The committee were guided in some measure by the provisions of the London Building Act of 1894. In the London Act of 1894 they found that 80 feet had been fixed as the maximum height to which buildings might be carried. The committee also concluded in favour of that limit, except in cases where the Corporation might give special permission. Looking to the great danger arising from fire in narrow streets, the committee propose that in streets of less width than 40 feet no building of the warehouse class should be erected of a greater height than the width of the street opposite the building. In streets of a width of from 40 to 60 feet the buildings might be erected to a height equal to the width of the street, and one-fifth more; in a street of more than 60 feet wide the height might be anything up to 80 feet. These proposals were not to be retrospective. The committee believe that one result of this regulation will be to encourage the laying out of wider streets. With a view to lessen the risk of the extension of fire, the committee propose a clause to the effect that no building of the warehouse class should extend to more than 250,000 cubic feet, unless divided by party walls in such a manner that no division should extend to more than that space. This clause was also derived from the precedent in the London Act of 1894. An amendment was proposed that the part of the committee's proposals with regard to the cubical restrictions be delayed. It was accordingly resolved to proceed in the meantime only with the clause in reference to the height of buildings. It was incidentally remarked that the plans were at present being prepared for a building 140 feet in height, and it was absolutely necessary that prompt measures should be taken to protect the city.

The long period which has elapsed since the restoration of the Arc de Triomphe was commenced does not give Parisians much belief in the excellence of the system for municipal works. When it was announced the Czar was to arrive the scaffolding around the structure was removed, but apparently the restoration is not complete, for, judging by the quantity of timber and stone which is at the place, the arch is not in a sound condition. It is declared that the principal cause of the delay is the want of money, and if votes can be obtained works will be expeditiously carried on. Strangers will be amazed if in 1900 they see a continuance of the present state of preparation, which has the inconvenience of suggesting the insecurity of Chalgrin's masterpiece.

PAINTINGS IN CHURCHES.

THE decision of the Chancellor of the diocese of Ripon on the subject of paintings in churches, which we reported last week, is not likely to be satisfactory to the majority of the readers of *The Architect*, although by a great many people it is sure to be approved as a check on practices which have given rise to controversy. It is the desire of architects to make buildings assume the most pleasing appearance. If the law did not intervene churches would be no exception. There is no more important class of buildings, but it is not to be expected that churches are to be exempted from the universal rule, and be able to charm the mind without any aid from subsidiary arts. An architect does his best to make his walls look well, but in this country there are days when the finest ashlar can have a cold and depressing appearance. At one time, when the private dwellings in England were not remarkable for good taste, it was no great sacrifice to pass on a winter's day from a cheerless breakfast-room to a cheerless church; both were supposed to be essential, like the bad weather, to the conditions of English life. But in our time, when the cheapest speculative villa is expected to exhibit modern taste in its wall-papering, door furniture, bay windows, coloured glass, tiles, turned balusters, as well as in the furniture, which is now obtainable on economical terms, we cannot expect that human nature will rejoice at the transition from a bright and it may be a luxurious home to a bleak church.

There are men of rigorous minds who can make light of such trivial sacrifices. But it cannot be denied that since the beginning of Christianity it was the aim of church rulers to make their churches attractive. The worshippers in the catacombs were not certain that they would ever return to their houses, and with so precarious an existence it might be supposed they would be indifferent to mural decoration. The fact was, however, that the lightest of all varieties of that work is exemplified in the subterranean chapel. It may be said the figures were intended to deceive official inspectors, or were symbolic for the initiated; it is still incontrovertible that a very joyous series of designs can be derived from the remains. The primitive Christians, we suppose, were strong in faith and could not suffer harm from the spectacle of amorini encircled with grapes when they were engaged in worship. But can we suppose if a church were decorated with reproductions of the figures and ornamentation derived from the catacombs, that a modern congregation would be in danger of falling into idolatry? Those who are so alarmed about the perils of painters' work do not do justice to the effects of modern science. We suppose there is not a child in a London Board school who would believe that a picture in which all the Royal Academicians co-operated was more than a piece of painted canvas, or that it was capable to work the simplest miracle. As long as that is the case there need be no fear of danger. Critics have, moreover, not the least hesitation about exposing the weakness of a scriptural painting, whether ancient or modern, and while they are on the watch superstition in one form at least has not much chance.

It will be said there was evidence in the Meadow Lane case that the obnoxious "Stations of the Cross," which were among the things in dispute, had induced superstitious movements, for "a lady, who was a stranger, on entering the church walked down the north aisle, stopped and bowed and made obeisance before each of the stations as she passed them." If a work of art is to become responsible for all the emotions it excites it would have a short life. We once saw a lady kiss repeatedly the relief of the boy in Panyer Alley and weep over him. Yet he only announced that he marked the highest ground in London. Why she should prize a semi-barbarous and mutilated specimen of sculpture who can tell? But would it be proper to remove the figure because it was inordinately prized? The amateur cavaliers of the White Rose League raise their hats when passing the statue of CHARLES I. at Charing Cross, their eyes sometimes overflow with tears, and in an ostentatious way they deposit posies on the pedestal. That is not constitutional conduct, and there was a time when their enthusiasm would be cooled at the public expense. But to prevent the increase of disaffection to the reigning house, would anyone propose the statue should be removed? Dr. JOHNSON considered JOHN CAMPBELL, the writer, to be a solid, orthodox man, although he was not in the habit of attending services in churches. His orthodoxy, according to the doctor, was manifest because "he never passes a church without pulling off his hat; this shows he has good principles." We are afraid Dr. TRISTRAM would not judge CAMPBELL so leniently. According to the Chancellor's reasoning, the churches before which the Grub Street writer uncovered ought to be removed in order to prevent "their being used some time or other superstitiously."

We have not seen the Meadow Lane "stations," and cannot express any opinion on their character. We are aware, however, that the majority of representations of the kind come from French or German "ecclesiastical establishments" which are not remarkable for good taste. The agents for the sale usually endeavour to get hold of the clergy, and persuade them to invest in the pictorial or sculp tured scenes without any consultation with the architects who have designed or restored the churches. As a consequence there are examples to be seen in English churches which, to say the least, are not satisfactory. Architects having a standard of fitness would be able to introduce "stations" and other representations which, while serving as aids to devotion, need not interfere with ecclesiastical law. We have only to go to Roman Catholic churches abroad where architects have power, to see the restraint which is exercised. In the new church which is to be erected on the site of the tragedy in the Rue Jean Goujon, Paris, where so many ladies were sacrificed through the burning of the bazaar, the "stations" are to be in oxidised silver, and in that material will be suggestive rather than realistically representative. In the fine church of the Trinity, where everything came under the control of M. BALLU, the "stations" are small enamel plaques in blue with white lights. There are other cases we could cite, but most remarkable of all are the "stations" recently introduced in the cathedral of Notre-Dame. Each consists simply of a number corresponding with the prayer book, with the addition of a couple of simple symbols which are repeated throughout the series. There is no representation of any kind, and yet we suppose the devotions can be as well practised as in churches with coloured reliefs on a large scale. The arrangement which answers in Notre-Dame surely should serve in England.

In arranging pictorial work what should be first considered is the object in view. Are the walls to be converted into a pictorial history corresponding with a common practice of days when books were not available for the laity, or are the figures to be typical or suggestive, like the mythological figures introduced in the catacombs? If the first-named purpose is decided on, it could hardly be expected that able painters can be obtained like those who were commissioned for the wall-paintings in the Panthéon. Occasionally it might be expected that an enthusiastic artist would contribute work gratuitously, like the late Mr. ARMITAGE, R.A., who painted scenes for a Roman Catholic church at Islington, or like the present President of the Royal Academy, who painted some scenes for a church at Dulwich. Those precedents are not likely to be often followed; besides, when several artists co-operate, as in the Panthéon, the result is not altogether satisfactory, for every painter endeavours to make his own work the most prominent, regardless of the general effect. From the size and character of that building the want of unity is not so remarkable, and now that the church has been secularised it is only a picture and sculpture gallery of a special class, and comes near the Bavarian Walhalla and Ruhmeshalle. But we hope that an English church will never become so varied. All the paintings should be subservient to the purpose of the building, and on that account pictures like the Scripture scenes which are occasionally hung in exhibitions of the Royal Academy would be out of place. What is required is a much simpler style of treatment which would be adapted to the circumstances of each building, and that character can be best determined by the architect. It is impossible to prevent human weakness from displaying itself, but there need be no difficulty in producing scenes which ordinary people would not accept as auxiliaries to superstition, and which the law of England would not be likely to prohibit.

The agitation which is now in operation, it is well to

remember, concerns works which did not come under an architect's control. They correspond to a great degree with the figures and objects introduced by THOMAS UWINS, R.A., in the picture which he called *The Interior of a Saint Manufactory at Naples*, and which obtained for him his associateship. In the Roman Church the use of such statues is generally restricted to the humbler class of churches in Europe and South America. The necessity for a less realistic treatment is becoming recognised, and in the new churches in the cities of Catholic countries the paintings and sculpture introduced are, with very few exceptions, frankly decorative. It is felt that the inspiration which belonged to the ages of faith cannot be now relied on as an everyday gift. Painters of Scripture scenes in modern times cannot expect to ascend far beyond the prosaic, and the least ambition which appears in their work, the more likely is it to be successful for the walls of a church. In other words, if architectural principles are supreme, there seems to be not much danger of enemies to orthodoxy appearing in churches, nor of works which, like those in the Leeds church, are no sooner painted than they have to be removed. Architecture and ecclesiastical law have a closer connection than is commonly supposed. At any rate, architects are not responsible for the difficulties which have arisen out of the decoration of churches, and which are causing so much trouble at the present time.

Cases often arise where a picture or a carved figure will not be considered as a mere decorative object. It becomes a trophy, a testimony of loyalty, a sign of faith. Æsthetic rules are then inapplicable, and to suggest that they should be used would be to incur a charge of heresy or irreverence. Those cases most often cause the collisions between clergy and chancellors. They all imply that the object, however inferior as a work of art, has importance and is beyond criticism. Architects as such are not in a position to deal with a work of painting or sculpture when it acquires qualities which the artist has not conferred on it. When TORREGIANO was condemned to death in Spain for breaking one of his own statues in a paroxysm of ill-temper, he could not comprehend the reason for his punishment. He considered he was unjustly treated. In the same way, it is hard to realise by anyone who has prepared designs and estimates, higgled over prices, and it may be, scolded the artists about carelessness, that the work which is the result of so commonplace a system of doing business can be in any way spiritual or unworldly in character. A lawyer takes a similar view. The question then is whether it would not be wiser to leave all arrangements relating to pictorial and sculptured work altogether in the architect's hands, when offences against English law would be as rare as those against good taste.

LONDON ARCHITECTS IN 1816.

ALTHOUGH useful, directories are not always adapted for light reading, but after a number of years they acquire a strange interest as records of men who have lived and have passed away. Chance has cast one of London for the year 1816 before us, and, as may be supposed, we turned to the names which represented architecture at that time. It is needless to say the majority do not recall works which add to the dignity of the Metropolis. The bearers of the names were no doubt excellent patriots who rejoiced that the long contest with France had ended; they may have deservedly acquired fortunes by their usefulness to their clients, and houses and other buildings by them may still exist in a sound condition. But respectability does not always confer immortality. The architects of 1816, like their successors, probably considered that more justice would be rendered to their merits by posterity than was granted by their contemporaries, but it does not require so long a period as eighty-two years to dispel illusions about fame.

We find four Royal Academicians in our list, viz. GEORGE DANCE, JOHN SOANE, JOHN YENN and ROBERT SMIRKE, jun., with one associate, JOSEPH GANDY. DANCE then lived at 29 Upper Gower Street. He was the second of the name, for it was his father, as surveyor and architect to the Corporation, who was the architect of the Mansion House. The Academician was born in 1740, and when his father died in 1768 he purchased the succession to the City surveyorship. He was only twenty-one when he took part in the competition for Blackfriars Bridge, in which ROBERT MYLNE was successful. Two years after his appointment he commenced rebuilding Newgate, the work on which his reputation rests. Among his municipal works were Giltspur Street Prison, St. Luke's Hospital and the front of the Guildhall. DANCE succeeded CHAMBERS as Professor of Architecture in 1798, but teaching was irksome to him, and he resigned in 1805. In 1815 he retired from the City surveyorship, and in the year to which we are referring he could hardly be considered as one of the practising architects of London. He lived until 1825, having survived all the original members of the Academy. FERGUSSON, while admitting the simplicity and honesty of Newgate as an example of architecture, undervalues the designer's share in its success. According to him, "From what we know of DANCE's character, we are led to suspect that it may have been *mere ignorance* that led him to do right on this occasion." With as much reason it might be said that the "History of Architecture" was a product of ignorance.

JOHN YENN, in 1816, was able to give Kensington Palace as his address. We suppose he held some official appointment. He was a pupil of CHAMBERS, and in 1771 gained the gold medal of the Academy by his design for "A Nobleman's Villa." Three years afterwards he was elected an Associate. He was principally engaged in domestic work, and lived until 1821.

JOHN SOANE was the Academy Professor of Architecture in 1816, and was then living in Lincoln's Inn Fields. At the time he was most fortunate. Originally a messenger, he had worked his way up to become chief adviser to the Government on all questions connected with building, and he could accept commissions as if he were conferring favours. Afterwards he was to suffer keenly, for the palace on Constitution Hill, which he wished to make a masterpiece, was never carried out, and he found enemies in his own household, but in 1816 there appeared a cloudless future awaiting him.

ROBERT SMIRKE, who is better known as Sir ROBERT SMIRKE, was in 1816 described as ROBERT SMIRKE, jun., for his father, the painter, was still living. The architect was one of the tenants of the Albany. He was a pupil of SOANE for one year. He travelled over a wide region, and when he came back to London in 1805 he at once found commissions. His principal works before 1816 were the Covent Garden Theatre, which was the scene of the O.P. riots, and Lowther Castle. Subsequently his public buildings were numerous. He lived until 1867.

JOSEPH GANDY, A.R.A., who lived at 58 Greek Street, Soho, was a clever man who wanted the power of self-guidance. SOANE was much indebted to him. Born in 1771, he won the gold medal of the Academy in 1790, and four years afterwards he carried off another in Rome. With all his ability he was not entrusted with commissions for building, and he depended for his income mainly on drawings for the publishers. Two of his brothers were also architects in 1816. MICHAEL GANDY, who lived at 1 Dorset Place, St. Pancras, was taught by JOSEPH, and was engaged by JAMES WYATT. He next served in the Indian Navy, and on his return to England was appointed civil architect to the Admiralty. Afterwards he joined Sir JEFFREY WYATVILLE, with whom he remained for nearly thirty years. MICHAEL GANDY lived until 1862. JOHN PETER GANDY, who was sixteen years younger than his brother JOSEPH, and one of the residents in Newman Street in 1816, could be called a lucky fellow. He entered the Academy schools in 1805, and afterwards exhibited designs of which the character is suggested by the titles, *Leading to the Apartments of the Dead*, *An Ancient City*, the *Environs of an Ancient City*. He was selected by the Dilettanti Society to visit Greece. There he met Lord ELGIN, for whom afterwards he built a house in Scotland. GANDY remained two years in Greece. On his return in 1814 he exhibited the *Mystic Temple of Ceres at Eleusis*. In co-operation with WILKINS he designed a tower 280 feet high as a memorial of Waterloo, which was never carried out. He became an Associate of the Academy in 1827. In the same year he changed his name to DEERING, in order to gain a large estate in Buckinghamshire. The

passing of the Reform Bill opened a way for him to Parliament as member for Aylesbury. In course of time he served as sheriff, and in all things was the prosperous country gentleman. DEERING died in 1850. Among his London works are Exeter Hall, a part of University College, St. Mark's, North Audley Street. As a Classic architect he would have gained a higher position if his energies were not directed to country pursuits.

WILLIAM WILKINS in those days lived at 36 Weymouth Street, Portland Place, and was in his thirty-eighth year. He was a Wrangler and travelling student of Cambridge, and was engaged on some of the University buildings. He had also designed the Nelson Column, which, in spite of much opposition, still stands in the midst of Sackville Street, Dublin, and in 1817 he was to erect another at Yarmouth. He was not to become an Associate of the Academy until 1825, but in the year following he was to be advanced to membership. WILKINS was in 1816 almost as well known as a writer by his "Magna Græcia," "Civil Architecture of Vitruvius," and "Atheniensia."

It was the time when Classic art was supposed to be the only one worthy of the attention of whoever wished to be considered an architect. CHARLES BARRY, who was to have a part in the Gothic Revival, had started in 1816 for Italy. His future associate, A. W. PUGIN, was a child of four. JAMES SAVAGE, who was a pioneer, did not display his power until 1819, when his St. Luke's Church, Chelsea, appeared as a revelation of the Mediæval spirit. He was known as a bridge builder in 1816, and his office was at 34 Walbrook. JOHN CARTER, whose knowledge of Gothic buildings was most extensive and accurate, could not be considered as a practising architect. His time was devoted to the representation of remains. CARTER lived at 12 Upper Eaton Street, but he was to pass away from an earthly habitation in 1817.

CHARLES ROBERT COCKERELL, the future professor, was in 1816 one of the English students who were then in Italy or Greece. His father, SAMUEL PEPYS COCKERELL, who was surveyor to the India House, lived at 8 Old Burlington Street. PHILIP HARDWICK was another embryo Academician who was studying abroad, but he had already exhibited at the Academy, and is entered among the architects as having the same residence as his father, THOMAS HARDWICK, the architect of Marylebone Church and of St. Paul's, Covent Garden (after INIGO JONES'S design), which was 55 Berners Street. WILLIAM INWOOD'S house was No. 3 Southampton Place, Euston Square. His son HENRY WILLIAM was a pupil with him, and it was not until some years afterwards that the adaptation of the Erechtheum for St. Pancras Church was to gain them reputation.

There were no less than four WYATTS among the architects of 1816, viz. BENJAMIN, GEORGE, JEFFREY and LOUIS. BENJAMIN, who lived at Foley Place, was the son of JAMES WYATT, R.A., and, strange to say, acted as private secretary to Sir ARTHUR WELLESLEY, afterwards Duke of Wellington, when chief secretary in Ireland, and subsequently commander in India. He was the architect of Drury Lane Theatre. JEFFREY WYATT in 1824 changed his name to WYATVILLE, in order that he might not be confounded with the numerous WYATTS that followed the arts. But in 1816 he was not of much importance as an architect. He had exhibited an imaginary view of Priam's Palace, but he had not commenced the great restoration of Windsor Castle until 1824. His residence was in Lower Brook Street, Grosvenor Square, where he died in 1840.

Two BEAZLEYS were then living—CHARLES, whose office was in Whitehall, and his pupil and nephew SAMUEL. The latter was subsequently the principal theatrical architect in England, and he also erected several railway stations. His chief work was the Lyceum Theatre, erected in 1807 and re-erected in 1830. Another architect who was afterwards to erect several railway stations was GEORGE SMITH, of Bread Street Hill. THOMAS CUNDY, sen., and THOMAS CUNDY, jun., whose names are associated with the Westminster property, were then living in Pimlico. In Henrietta Street, Brunswick Square, lived JAMES ELMES, who was surveyor to the Port of London, and wrote much about Sir CHRISTOPHER WREN and other artists. His son HARVEY LONSDALE, the architect of St. George's Hall, Liverpool, was three years of age when our directory appeared. GEORGE GWILT the second, who restored St. Mary Overy's Church, had an office in Union Street, Borough, while his brother the encyclopædist worked in, Stamford Street. Then, as now, there was a Mr. I'ANSON living in Laurence Pountney Lane. DAVID LAING, the architect of the Custom House, had his office at 48 Hatton Garden. He was not successful at the Custom House, and the building was altered by SMIRKE. LAING then retired from practice.

JOHN NASH was very busy in those days, for he enjoyed the patronage of the Prince Regent, but he was never able to become a member of the Academy; he lived at 29 Dover Street. GEORGE SAUNDERS was architect to the trustees of the British Museum and surveyor to the Commissioners of Sewers, and was to be found at 252 Oxford Street. JOHN SHAW, the architect of St. Dunstan's Church in Fleet Street and of the New Hall at Christ's Hospital, was another inhabitant of Gower Street. SAMUEL WARE, who was soon afterwards to erect the Burlington Arcade, was one of the residents in John Street, Adelphi.

It may be said that the greater number of the architects whose names we have recalled cannot be considered as worth the trouble which had to be taken. If so, what is to be thought of such men as ELSAM, DAVIS, CRESWELL, CROCKER, BUSBY, GIBSON, HUÉ, JUPP, LUGAR, MEDLAND, MALLIPHANT, ROLLS, ROPER, SEARLE, WICKINGS, SPILLER and many others? To us they are only names which awaken no more associations than those of their unknown clients.

ST. ALBANS CATHEDRAL: LADY AND ANTE-CHAPELS.*

THE subjoined report was presented to the Most Noble the Marchioness of Salisbury by the late Sir Gilbert Scott, R.A.:—

To the Most Noble the Marchioness of Salisbury.

Madam,—I have the honour of laying before your ladyship the following report upon that beautiful and venerable building, the restoration of which you have taken under your patronage.

When the abbey of St. Alban was re-erected by Abbot Paul, during the reign of the Conqueror and his son, the eastern arm of the church terminated in a semicircular apse where the "Saint's Chapel" now is; but beyond this no chapels or other buildings are known to have existed.

I am not aware that any great alteration was made in this part till the latter half of the thirteenth century; for, had such been the case, Matthew Paris, who was so minute in chronicling the changes in other parts of the church, would doubtless have told us of them.

He does, however, inform us that Abbot John de Hertford (in 1257), during the last years of his life, undertook some works at the east end of his church.

"It happened in the same year (1257) that, owing to some gaping cracks which caused alarm, the eastern part of the church of St. Alban (by the advice of the abbot and convent), after the roof had been removed in Advent, had its walls pulled down, in order that that part might be strongly rebuilt."

About 1259 or later Matthew Paris died, but he makes no further mention of this great work; and his successors, though industrious enough in chronicling all that concerned the worldly goods of the abbey, and its disputes—whether with the king or others—were singularly remiss in recording what was done as relates to the structure of their church; so that, though the entire eastern division of the cruciform structure was rebuilt or remodelled on a truly glorious design, and though it received the addition of a most exquisite group of chapels eastward of the original church, we possess, from the death of Abbot John of Hertford in 1260, to the accession of Abbot Eversden, some half century later, scarcely a hint of any such work having been in progress.

This work may, in general terms, be described as the substitution of a square-ended structure of the noblest Early Decorated style for the Norman apsidal presbytery and sanctuary, and the erection beyond it, in the same style, of the exquisite group of chapels now under consideration, which were internally united with the main structure by five arches, one in either aisle and three in the central space.

The structure thus added, though only of the height of the aisles of the church and so intimately connected with it, forms in its design a separate and complete building of itself, almost like a distinct church with its own nave, aisle, chancel and vestry.

The central space, however, which I have called a nave,

* See illustrations in *The Architect*, November 11 and 18.

was not intended to be, as now, of a single span, but to be divided by light and elegant columns into three widths, thus forming the western part of one group into five aisles, all of which were to be groined over somewhat like those of the lady chapel at Salisbury; each opening by its own arch into the church towards the west.

The three central aisles would have been of three bays in length, but the outer aisles of only two; while eastward, as a chancel, lay the magnificent lady chapel, of a width less than that of the three central aisles, though greater than one, the difference being formed by the eastern arches taking an oblique direction.

The actual date of this magnificent group, and of the eastern arm of the church of which it forms a continuation, has never, that I have been able to learn, been precisely ascertained, though it could not, of course, have been begun before the date already mentioned (1257).

Its style is decidedly later in character than that of the older parts of Westminster Abbey (1245-69), but, as it appears to me, earlier than that of the Eleanor Crosses (about 1291). I should therefore attribute it to the time of Abbot Norton (1260-91),* though it is not improbable that it may have been continued by his successor, Abbot Berkhamstede (1291-1302). Indeed the group was still incomplete on the accession of Abbot Eversden in 1308; for he not only found the lady chapel—properly so-called—only carried up as high as the string-course beneath the windows, but the central space of the west was probably still unroofed, and the contemplated ranges of pillars by which it was to have been divided into three widths had not been erected.

The style, however, in which Eversden completed the lady chapel forbids the idea that the work had been continuous; for it is of a wholly distinct phase of Middle Pointed architecture, and the same may be inferred from the historical notice in the "Gesta Abbatum" of the work of Eversden, where he is described as having "brought to a praiseworthy completion the chapel of the said Virgin in the eastern part of the church which had been begun many years before."

He is also described as having covered in the space between the lady chapel and the presbytery, or eastern arm of the church. "Moreover, that place contiguous in the shape of a square chapel, separating the presbytery from the said chapel, with a ceiling, in the middle of which the 'Assumption of the Blessed Virgin' is figured (wherein now the 'Shrine of St. Amphibalus' is placed), he at the same time took pains to finish."

It would appear, therefore, that the builder of the presbytery, or eastern arm of the church, began at the same time the entire group of eastern chapels under consideration, that he only carried up the lady chapel as high as the string-course, and that, though he erected the walls of the remainder to their full height, roofing in and groining their aisles, he failed to finish the central portion, but that, after a long interval, the whole was finished by Abbot Eversden between 1308 and 1326, in an altered style, and falling short of the original design in so far as he omitted the two central arcades of the western portion, and substituted a panelled ceiling for the intended groining.

The group of chapels thus completed offers as exquisite examples as it is possible to find of the two great phases of English Middle Pointed architecture.

The earlier portion is hardly equalled by any contemporary work in beauty of design; for, whether we look at the two arches which connect its aisles with those of the presbytery, its windows (more especially hose to the east of its aisles), its pillars (especially the eastern responds), or at its wall-arcading, it is among the most perfect works remaining; and, had its first ideal been carried out, it would have been yet more charming.

The eastern, or lady chapel, had similar details so far as the first architect went; and the second, while deviating from them, has added such exquisite beauties of his own that it is impossible to regret the change he effected. His work is groined like that of the earlier builder, with oak groining on springers of stone, but the number of ribs is increased. The vaulting shafts are intercepted by elaborate niches. The side windows, each of four lights, are beautiful examples of the Later Decorated style, the mullions and jambs being charmingly enriched with imagery. The eastern window of five lights is a singular combination of tracery with tabernacle work, while the easternmost bay on the south side, which is partly obscured by the vestry, has an exquisite window above, consisting of a richly traceried circle placed within a curvilinear triangle, beneath which is a splendid range of niches, and beneath them again a gorgeous range of sedilia and piscinæ.

The sides were arcaded similarly to the aisles of the presbytery and ante-chapel, but the whole of the arcading has been cut away. These arcades extended by one arch on either side of the east end, but the centre was left plain to receive the altar.

It is somewhat curious that the wall arcading on the south side of lady chapel and ante-chapel has rich cinquefoiled heads, while that on the north is throughout trefoiled, the distinction continuing even to the arches flanking the great altar.

The niches on either side of the arch by which the lady chapel is approached are precisely similar to two in the lady chapel itself, which seems to suggest that that arch and the wall on either side were left unfinished till Eversden's time, but this suggestion is discredited by the existence of groining springers on the earlier design which would not have been the case had Eversden built them. I conclude, therefore, that he only made alterations in this wall.

The groining of the south aisle of the ante-chapel contains charming specimens of the painting of the end of the thirteenth century, and I have little doubt that, as Eversden painted the panelled ceiling of the central ante-chapel, we shall find relics of his decorations in the lady chapel itself.

There has been a very curious passage leading into the lady chapel from the altar in the south aisle. This, I fancy, was an alteration by Eversden, or later. This altar was dedicated to St. Mary, and some ready communication may have been needed between it and the great altar of the lady chapel. This altar had a most beautiful triple piscina, now sadly ruined. The three were comprehended under one comprising arch, over which was a wide gable.

The original uses of this group of chapels must have been somewhat multifarious.

One may, in a broad sense, view it as a complete church, of which the lady chapel proper was the chancel, and the remainder the nave or ante-chapel, the arch opening from one into the other being the chancel arch, of which the original open screen of oak yet remains.

Viewing it, however, as a group of chapels, we have evidence from ancient authorities (recently collected and published by Mr. Ridgway Lloyd) as to the altars, &c., it contained. At the extreme east was the high altar of the Blessed Virgin, and in the vestry beside it the altar of the Transfiguration, which was founded by the Precentor T. Westwode in the fifteenth century, when the vestry seems to have been rebuilt.

At the east end of the north aisle of the ante-chapel was the altar of SS. Michael and Katherine, that at the east end of the south aisle was known as the altar of St. Mary of the Four Tapers; against the pillar of the north aisle stood the altar of St. Edmund, king and martyr, and corresponding with it, to the south, that of St. Peter.

In the midst of the central outer chapel stood the shrine of St. Amphibalus (renewed by Ralf Witechurch, sacrist, late in the fourteenth century), of which extensive remains have recently been found; and in front of it, to the west, stood the altar of that saint. Whether there were altars beneath niches on either side of the great arch leading to the lady chapel, we have, I believe, no record; but there is near one what may be the remains of a piscina, and near the other of an aumbry. The former, however, shows signs of having been grated with iron.

The great panels of the ceiling over this central space fifteen in number, were painted by Abbot Eversden, apparently with subjects of which the central one was the Assumption; they were afterwards repainted by Abbot Whethampstede with his favourite badges, the eagle and the lamb.

The question suggests itself whether there was an external entrance to this magnificent series of chapels, or whether it was solely approached by the aisles of the presbytery. In a document quoted by Mr. Lloyd, a doorway is mentioned as at the step of the altar of St. Mary of the Four Tapers, and leading into the cemetery. Now the cemetery lay to the south of the chapel, and Mr. Lloyd suggests that this door was the little doorway close by the altar of the Four Tapers. I at first thought this hardly possible, as that doorway led by a circuitous passage into the lady chapel. There would then be no place left for it but the portion of the opening at the south-west corner, now entering the footway so barbarously cut through the building.

There is a doorway, evidently of modern insertion, in the north aisle of the presbytery, which is formed of portions of several old works, but mainly of an ancient doorway of the date of these chapels. That it is not at home where it exists is rendered clear by many proofs, and I venture to entertain an idea that its leading features might belong to the ancient door into the cemetery above alluded to. This conjecture, however, is rendered doubtful by the somewhat curious fact that the wall-arcading of the bay in question has been capped by a very rich cresting of later date and of very unusual pattern, and that amongst the vast store of fragments dug up at different periods and stowed away in the church, there is an enormous canopy crowned with a cresting of this identical pattern. The *prima facie* conclusion from this would be that a vast niche or stall

* This conjecture is rendered the more probable by the circumstance that this abbot was buried before the high altar, and his heart before that of St. Mary of the Four Tapers, probably one of the only two then consecrated in the new chapels.

(perhaps a stall for the abbot) had in latter times been inserted in the wall-arcading of this bay. This renders Mr. Lloyd's idea as to the doorway probable.

I have before alluded to the recorded burial of the heart of the Abbot Norton near this spot. Its receptacle has been discovered while I have been writing my report. It consists of a cylindrical hole sunk in a block (or two blocks) of stone, in which was found the lid of a small wooden box of about 5 inches diameter. Such boxes have been found elsewhere, where hearts have been separately interred. This one, however, is very curious and deserves careful investigation, as its rich painting remains and is clearly of oriental character; a fact which (if proved) seems to connect itself with the friendly diplomatic relations which at that time existed between this country and Tartary.

It is stated in the annals of John de Amundesham, one of the chroniclers of the Abbey, that "in this aisle of the church near the further step of the altar of St. Mary, called 'of the Four Tapers,' there was a figure of Abbot Roger under a small marble stone holding a heart beneath his hands;" and in another place the same writer in enumerating the interments in front of the high altar of the church, describes that of Roger de Norton as in "the middle," adding, "his heart had been buried before the altar of St. Mary of the Four Tapers."

It is this little sepulchre which we have now found; and, curiously enough, the discovery has been the means of correcting an error in the printed text; for it is there said that his body ("cujus *corpus*") had been there buried; but on reference to the original MS. it was found to be not his body but his heart ("cujus *cor*"), a correction suggested by Mr. Ridgway Lloyd as soon as this curious interment was brought to light

The passage runs thus:—"DOMINUS ROGERUS NORTON MEDIUS CUJUS COR CORAM ALTARI SANCTÆ MARIÆ QUATUOR CEREORUM * * * FUERAT TUMULATUM."

This, as I have before suggested, confirms the opinion arrived at on other grounds, that both the presbytery and the eastern chapel were the work of this abbot. His body was placed in the post of honour in the presbytery, while his heart, in token of his equal interest in the eastern chapels, was placed before the more honourable of the two altars which they as yet contained.

There were very numerous burials within these chapels, but I would only allude to those of Lord Edmund Beuforde Duke of Somerset, Lord Henry Percy Earl of Northumberland, and Lord Thomas Clifforde Lord of Clifforde, who were slain in the first battle of St. Albans, and whom Abbot Whethampstede "entombed in the lady chapel, in lineal order, according to the state, rank and honour of their dignity."

The external architecture of the chapels was quite proportioned in merit to that of their interior. The windows are, of course, common to the two; the buttresses, base mouldings and parapets are all of fine design. The latter are more simple in the older chapels, these being plain and supported by a fine block cornice, whilst those to the lady chapel had a range of pierced quatrefoils and had running foliage in the cornice.

The roofs are all of low pitch, which was doubtless for the sake of avoiding any interference with the view of the eastern termination of the main building. That this arrangement is original is proved by the horizontal parapets at the east ends, both of the aisles of the ante-chapel and of the lady chapel itself, each being of the original date of its own building.

When we come to consider the present condition of these charming chapels—once resplendent with architectural beauty and replenished with objects of the highest interest and richness of decoration; their ceilings glowing with colour and rendered instructive by the sacred subjects they illustrated, their windows filled with storied glass, their floors enriched with encaustic tile and marble, and made venerable by sepulchral brasses, while in the midst stood the beautiful shrine of the proto-martyr's friend, of rich stonework below and jewellery above; and around it, in the ante-chapel, at least five altars with their accompaniments; and further on, in the lady chapel, the high altar of St. Mary, with the smaller altar in the vestry, dedicated to the Saviour, and His Transfiguration—when, I say, we come to consider the present condition of this once lovely group, how melancholy is the contrast.

The ante-chapel is a mere ruin, excepting only that its roofs have been preserved and cared for. Its stonework externally is in almost the last stage of decay and rudely repaired with brick; while internally, in addition to this, it has suffered wherever within reach from deliberate mutilation. Nor is this all, for, as if to pour out the last vial of insult upon the humbled structure, a public footway has for centuries been opened through it. This was during days of carelessness, but it would seem that some of the inhabitants still "love to have it so;" and unmindful that the abbey is the sole glory of the town, they are not ashamed to proclaim the higher value they place on the right to prolong her desolation than on the honour it would do them to say that they "take pleasure in her stones and it pitieth them to see her in the dust."

Happily, however, such ill feeling is very limited and the last-named sentiment prevails.

The state of the lady chapel proper differs little from that of the ante-chapel; for, though it looks more neat within and without, this arises mainly from the groined ceiling within being plastered and whitened and the floor boarded, while on examination the beautiful wall-arcading is found to have been almost wholly hewn away and the niches mutilated.

Externally, some restorations were effected many years back, on the south side and to the east window, but the other parts are in a most decayed condition.

The work of restoration, as will readily be judged from what I have stated, is one of no small difficulty and outlay. Take, for example, the wall-arcading, which is, perhaps, the richest of the internal details. In the ante-chapel it exists on the south side, but in a most mutilated state; while on the north, by far the greater part has been destroyed and replaced by brickwork.

In the lady chapel the whole has been ruthlessly cut away excepting one arch on either side.

Of the windows of the south aisle of the ante-chapel, one has been destroyed and the two others are ruinously decayed. Nearly the same is the condition of the north aisle.

Eversden's ceiling over the central space retains its framework but has lost its panels. The oak groining of the south aisle remains, but that to the north (if it ever existed, which I cannot doubt) has been removed.

The screen to the lady chapel exists, with just sufficient evidences to render its restoration possible.

The old floors both of the lady chapel and ante-chapels have long ceased to exist.

The stone substructure of the shrine of St. Amphibalus has in part been found. It is not so complete as that of St. Alban, yet I hope that it will be found possible to set it up in its old position; in which case St. Albans will stand alone amongst English churches in possessing intelligible representatives of two ancient shrines.

The objects I have in view in all the required restorations are to retain every fragment remaining of ancient work, to obliterate not one scrap of ancient wrought surface (preserving even the names and monograms cut in subsequent times upon the surface, many of which are very interesting); to insert no new stone or other work which is not essential; and, in short, so far as is possible, to repair the ancient structure without in any degree infringing upon its antiquity.

The lost arcading must of necessity be supplied, the ceiling of the ante-chapel rendered complete, the plastering removed from the groining of the lady chapel and the old woodwork repaired. The groining of the north aisle must be reproduced from that of the opposite aisle. The whole must have appropriate flooring.

I take it for granted that some understanding will be come to as to diverting the footway—that crying disgrace to the town—and then of course the walls which it perforates will be restored and the five arches which once united the chapels with the church will be opened out.

I can hardly imagine a moment of greater joy and thankful gratulation than that in which the chapels—restored so far as may be to their pristine beauty—are once again united with the parent church; and when the glorious series of scenes, opening out one after another, as you proceed from the western entrance —the nave—the choir—the sanctuary—the "Saint's Chapel" with the beautiful Shrine of the Proto-Martyr, shall not as now stop at that point, but shall continue through the five arches so long walled up into the ante-chapel with the shrine of St. Amphibalus in its midst; and on again, through the open screen, into the exquisite lady chapel.

This glorious consummation, Madam, will be the result of the noble work over which you have undertaken to preside, and in which I respectfully wish your ladyship every possible success.

I have the honour to be, Madam,
Your Ladyship's most obedient servant,
GEO. GILBERT SCOTT.

P.S.—I have not ventured to speak of stained-glass or of coloured decorations, while we have still to rescue the building from ruin and desolation.

EGYPT EXPLORATION FUND.

A GENERAL meeting of the Egypt Exploration Fund was held on the 10th inst. Sir E. Maunde Thompson presided.

The Chairman in his opening address expressed satisfaction that their treasurer had during the past year had to deal with no less than 5,000*l.*, a result surpassing, probably, the most sanguine expectations of the founders of the fund. Besides the Exploration Fund itself, they had the Survey Fund and the Græco-Roman branch which was started only last year

The former a few years ago was considerably in arrears; now, owing chiefly to the hard work and judicious management of Mr. Griffith, it had entirely freed itself from debt. The Græco-Roman branch had also met with the greatest success, and the sum on account of this branch for which the treasurer was answerable already exceeded 1,100*l.* The Exploration Fund itself showed dealings to the extent of 3,379*l.*, largely the result of subscriptions in this country and in America. There was also a legacy of 1,000*l.* from the late Mr. Edward Cooper. The Egypt Exploration Fund was, beyond a doubt, the most successful literary society in existence which depended entirely upon voluntary contributions. A main cause of its popularity was the immense human interest of its work. When we open a tomb and find in it the objects of everyday life, the ornaments, the personal possessions which were in use thousands of years ago and are still in almost the same condition as when they left the hands of their owners—this it was that touched us with that human sympathy that makes the whole world kin. There was, too, the keen delight in finding the unexpected, which in recent years had so often come to light, and of which the discovery of the lost Greek classics — Aristotle, Herondas, Bacchylides — were examples. But it was not only in the recovery of the classical writers that hopes were placed. The last year had brought to light the single leaf—true it was only a single leaf, but of what immense interest—a single leaf of a manuscript of the sayings of our Lord, and again we had a single leaf of a copy of the Gospel of St. Matthew; both these fragments were as early as the third century. It was not then too much to hope that sooner or later we should have in our hands substantial fragments, if not entire copies, of books of the New Testament, dating back at least to the second century of our era. As to the work of the past year, it would be remembered that the site for Professor Flinders Petrie's work last winter was at Dendereh—a site which was particularly eligible, as it was a large cemetery almost untouched in modern times. Although the finds were not perhaps sensational, a solid contribution to the history of the early dynasties, beginning as far back as the third, was the result of the excavations, and the antiquities which were discovered had supplied sufficient selections to be sent to twelve museums in this country, to five in America, and to one in Australia. They still had the temple of Deir-el-Bahari on their hands. The work carried on there by the fund this last year had consisted for the most part in repairing the walls and replacing the sculptured stones whenever their positions could be ascertained. This work had been superintended by Mr. Howard Carter, for whose unceasing energy they must always be grateful; but it was to Mr. Somers Clarke that they were particularly indebted for the advice which he gave in the restoration of this most important Egyptian temple. The repairs of Deir-el-Bahari were now practically completed, and only the protection of a few objects remained to be done. It had been a great work to clear this vast temple; the work had been carried on at great expense to the fund, and it would, of course, be a relief when they could write off the repairing account and hand over the temple to the Egyptian Government. But the handing over of the temple was not all. The drawing of the sculptures, which Mr. Howard Carter and Mr. Sillem had during the year continued to prepare, must be carried to a conclusion for the completion of the great publication which the Society had undertaken to issue under the able editorship of M. Naville. Turning to the Græco-Roman branch, subscribers had already received the first volume of the Oxyrhynchus Papyri, ably edited by Mr. Grenfell and Mr. Hunt; and they would be glad to know that preparations for a second volume were making good progress. In this later volume the editors promised some third-century fragments of St. John's Gospel, curiously written in parallel columns with another work, as well as fragments of the first Epistle to the Corinthians and of an Apocryphal Gospel; fragments also of classical writers—Menander, Euripides, Plato, Thucydides, Demosthenes and Xenophon—also a roll containing a large portion of the fifth book of the Iliad, written, alas! on the back of an important official document concerning the rights of married women. The literary papyri which were constantly coming to light proved that many works now lost were still extant in Egypt in the early centuries of our era, and consequently it was always possible that some of them would be recovered in a more complete form. The programme for the ensuing season was rather extensive. They would have four expeditions on hand, viz. the continuation of the work at Deir-el-Bahari, a further exploration at Dendereh by Professor Petrie, another visit by Mr. Grenfell and Mr. Hunt to the Fayum, and, lastly, Mr. Davies, for the survey, would turn his steps towards Sakkarah and the old tombs at Sheikh Said and Deir-el-Gebrawi, in order to complete the material which was gathered in 1892-93.

Mr. J. S. Cotton, the hon. secretary, then read his report, in the course of which he said that their activity in publication was shown by the issue last year of Professor Petrie's work on Deshasheh and the first volume of the Oxyrhynchus Papyri, Part III. of M. Naville's "Deir-el-Bahari," and Mr. Griffith's collection of hieroglyphs for the Archæology Survey. They might also expect during the year the first part of Professor Petrie's work on "Dendereh," of which the illustrations at least were well advanced, and a second volume of Oxyrhynchus Papyri. They had good reason also to anticipate larger support from America. From the foundation of the fund, and especially since the tour of the late Miss Amelia B. Edwards in the United States, they had been fundamentally an Anglo-American society. In some years, indeed, America has provided at least one-half of the income. The Archæological Survey was under the special charge of Mr. F. Ll. Griffith, whose new volume, "A Collection of Hieroglyphs," would be found to throw light on the origin and history of Egyptian writing, mainly from the collections of hieroglyphic characters formed during the early operations of the survey. For the Græco-Roman branch the total received up to July 31 was no less than 1,327*l.* Since that date about 210*l.* has been paid in. The net profits of the "Logia," of which 25,800 copies had now been sold, amounted to about 293*l.* There were twelve life members, including one from America, whose total contributions of 300*l.* had been placed to a deposit account, and he hoped for a regular income of at least 650*l.* It would be unjust to omit stating that the actual business of the Society continued to be conducted, as it had been for the last six years, by the efficient secretary, Miss Paterson

Professor Petrie gave an account of his labours, and said that the past season's work had opened out a good deal about one of the dark places of Egyptian history. The time between the close of the sixth dynasty and the rise of the eleventh dynasty at Thebes had left very few traces. In the cemetery of Dendereh, however, they had disclosed a large series of tombs which seemed to bridge over this break in the history, and to show a continuity of the civilisation in spite of poverty and rudeness. They searched all parts of the great cemetery, which stretches back about half a mile behind the temple of Dendereh and about a mile along the edge of the desert. In no part were there any prehistoric remains, the oldest tombs being a small group of about the close of the third dynasty, from which came the fine early false door of Abu-suten. But the continuous series did not begin till the sixth and seventh dynasties. Following on these tombs of the seventh dynasty they found a great number of tombs of two or three different styles of rudeness. The most elaborate sculptures were in bad proportion and ignorantly engraved. Strange to say, there was scarcely anything of the long and prosperous twelfth dynasty in the cemetery, but there was apparently a continuous series of tombs extending over the dark age of the seventh, eighth, ninth and tenth dynasties. Nothing important of later times was found until the flourishing Ptolemaic age, in which the existing temple was built. Many dozens of tombs of this age were found, usually each containing about a dozen mummies. So large a cemetery naturally contained a great quantity of sculpture, though of very diverse quality. Beside the sculptures some fine bronze vessels were found of the eighteenth-twentieth dynasty, apparently stolen from the temple and hidden in two deposits in the cemetery. The catacombs for the sacred animals were apparently begun in the eighteenth dynasty, and continually added to until the Roman age. In these catacombs they found buried three deposits of glass-work, which had been thrown away from the temple furniture. A splendid group of glass mosaic-work was thus obtained, which probably belonged to a great collar of Hathor. Thus the past year gave some much-needed light on Egyptian history, and had provided a considerable quantity of sculpture, bronzes, amulets, glass-work and other small objects which were very welcome in the museums of England and America. This was, of course, after the Egyptian Government had taken a very full half of all that they found. In the coming season they would, of course, have to work strictly under Government restraint and give up half of what was found. Moreover, again some entirely new regulations were to be applied, and they were still quite in the dark as to what obligations might be imposed. Time after time new terms of various damaging kinds were suddenly imposed at the last moment, and they had to sacrifice most costly working time of the season in order to obtain less unjust terms. The more careful and scientific the exploration the harder were the conditions of work, mere destroyers having a free hand and being rarely, if ever, punished. It was needful to say this, as so many people vainly imagined that the British occupation had in some way improved the conditions of work. They were, on the contrary, worse off by each change that had been effected.

The Church of St. Mary and St. Chad, Longton, which has been erected at a cost of 5,000*l.*, and will form the church of a new ecclesiastical district to meet the growing requirements of the neighbourhood, was consecrated on the 9th inst.

NOTES AND COMMENTS.

On the French coast, about ten miles south of Boulogne, is the village of Berck. It has of late obtained attention from French surgeons and others, for in it a Dr. Callot has set up a sanatorium for the cure of spinal diseases. Among the patients who went there as a last resource was a son of M. Besnard, the French painter, and Madame Besnard, the sculptor. The boy was cured, but Dr. Callot would not accept any fees. M. Besnard, therefore, resolved to discharge his debt by another and more enduring medium than money. He has painted the chapel of the establishment in a style which will draw many visitors to Berck. M. Besnard has already gained reputation as a mural decorator, but his latest undertaking has a completeness which was not attainable in a Paris mairie. His aim has been to depict Christ the Consoler, not as was done by Ary Scheffer in a single picture, but by a series. On one side of the nave a few of the dolorous incidents of life are depicted, at which Christ assists, while on the opposite side the Healer appears to have triumphed. Beneath are introduced the scenes of the Way of the Cross, and above are several angels with outstretched wings, and who bear scrolls on which words of comfort are inscribed. Behind the altar is another figure of Christ accompanied by a crowd of children, many of whom are weaklings. The whole scheme of decoration is adapted to the condition of the little worshippers, and it is treated with a tenderness and simplicity that recall the paintings of a more primitive age. Madame Besnard is supplementing her husband's gift by examples of sculpture.

Through the generosity of Madame Charles Garnier the library of the Ecole des Beaux-Arts will possess an interesting memorial of the architect. Like all Frenchmen of any importance he was bemedalled from time to time, and at his death possessed six of gold and about forty silver or bronze medals. They are now the property of the school. The most prized by the recipient was, although the smallest in size, that received when he obtained the Prix de Rome. Next to it in his esteem was the medal for which the workmen engaged on the erection of the Opera House had subscribed, and which was evidence of the admiration Charles Garnier had excited in minds that were not disposed to value architects very highly. The medal of the Institute of British Architects is among the collection. It was sacrifice on the part of Charles Garnier to have preserved so many valuable objects, but probably he wished them to form an heirloom. In that wish he was disappointed. The medals will not be the only memorial of him in Paris. It is proposed to have an architectural memorial designed by M. Pascal adjoining the rotunda of the library of the Opera House, which will be surmounted by the bust of Charles Garnier which was modelled by Carpeaux.

The history of the revolutions of the statue of Balzac might well form a volume in a new series of La Comédie Humaine. Our readers may remember that, after preparing several models of the figure of the novelist, M. Rodin failed to satisfy his patrons or himself. He then resolved to leave the statue for seven years without looking at it; at the end of that time he would decide whether it was worth perpetuating. The committee having charge of the undertaking gave a commission to M. Falguière. Being an admirer of M. Rodin he was placed in a difficult position, for the competition could not be on equal terms, and was without the ardour which often removes the bitterness of defeat. M. Falguière has therefore asked permission to rearrange, as it were, M. Rodin's elements. He takes the capacious dressing-gown, the big head, the mighty neck which formed the characteristic parts of M. Rodin's model. But instead of Balzac appearing to be walking in a hurry, he is seated on a bench, and on the left leg is a manuscript on which he is about to write. There is novelty in the model, and it has a suggestion of realism which should belong to any work professing to be a portrait of the great writer.

M. Frantz Jourdain, the Paris architect, who is a very wise and witty gentleman, has accepted the presidency of class 71 of the Universal Exhibition of 1900. It is a post which can be made to render valuable services to the whole world, for class 71 comprises the art of the streets in the widest sense of the term. We cannot say in England that we know all that can be done for making streets attractive, and the exhibits are therefore likely to have many of our local authorities for students. M. Frantz Jourdain is ambitious to suggest what is possible, and he has already obtained the co-operation of several architects, painters, sculptors and other artists. Leaving monumental works to the care of other sections, he will be content if he can gather examples of kiosques, seats, lamp-posts, music-stands and the like. Paris, which presents so much which is interesting at most times, ceases to respect beauty when a fair is to be held on the boulevards, or when shows are set up in the parks. Class 71 will, we hope, demonstrate how easily improvements can be accomplished. But as the objects would lose much of their value if left to themselves, it is proposed to have little fêtes, from which it can be judged whether the exhibits are convenient as well a beautiful.

A report which is to be brought before the Birmingham City Council next week reveals one of those necessities to which all towns that have advanced are liable. When houses began to be built in the Edgbaston and Harborne district, as in the other suburbs, it was necessary to be almost penurious in providing for drainage. Accordingly there are miles of small brick sewers 1 foot 9 inches by 1 foot 3 inches internal diameter, constructed half-brick in thickness, which would in more recent times consist of 12 and 15-inch stoneware pipes. Such sewers, when the joints give way or bricks perish, cannot be repaired, and a new sewer must be substituted. The manner in which connections for house drainage have been made in former years could scarcely be worse; in the brick sewers a hole has been broken through and a pipe pushed in, nothing more being done, the hole thus made being left to take care of itself. Generally the gradients are fair, although for the sake of economy the gradient has been sometimes sacrificed, with the result that what might have been a self-cleansing sewer has thus been made a sewer of deposit. It will be necessary, therefore, to construct new sewers over a large area of suburban Birmingham, and it is considered preferable to have a separate surface-water system. The cost of the work is estimated at 155,000*l*.

The president of the American Institute of Architects, Mr. G. B. Post, was able to congratulate the members who were present at the Convention in Washington on three events which he said would form an era in the history of American architecture. The first was the appointment of a supervising architect for Government buildings after a competitive examination conducted by a board of architects. The second was that architects in private practice were allowed to compete for Government buildings, and that the merits of their designs were assessed by a jury of experts In the third place, the Institute for the first time in its history had gained possession of permanent headquarters. Mr. Commissioner Wight announced that in the district of Columbia the maximum height of buildings was to be restricted to 90 feet unless in business avenues of a width of 160 feet. He also said it was the official belief that in competitions for public buildings and other works, those alone should be allowed to take part who had already shown their ability as designers. The following elections took place:—Mr. Henry Van Brunt, president; Messrs. Jenney and McLaughlin, vice-presidents; and Mr. Glenn Brown, secretary.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: TOWER AND SOUTH TRANSEPT.—VIEW BEHIND SCREEN.

SAVOY HOTEL, STRAND: NEW FOUNTAIN IN COURTYARD.

HOTEL METROPOLE, FOLKESTONE.

SUMMER HOLIDAYS AMONG FRENCH CATHEDRALS.

BY THE AUTHOR OF "ECCLESIOLOGIA GERMANICA," &c.

(*Continued from page* 311.)

II.

Some Cathedrals and Churches of Normandy.

AFTER a cup of coffee in the pleasant "place" in front of the *votive* church of La Délivrance, we pressed on to Caen, arriving there after a thoroughly enjoyable, because so diversified, walk about five o'clock, but without coming across anything very noteworthy in an ecclesiological point of view. Proceeding first to the modern church of Notre-Dame de la Gloiriette—an Italian structure on the "motif" of St. Roch at Paris, but containing nothing very remarkable beyond the finely-carved organ-case and baldacchino over the high altar—we quitted it for St. Michael de Vaucelles, to which a pleasant walk across some fields and along the banks of the Orne led us. This is a very interesting church, consisting of a low, cavernous nave without clerestory or triforium, a Norman tower on the south, and a very lofty square-ended chancel. From the flight of steps leading to the Italian façade a fine panoramic view of Caen is obtained. This church is chiefly Late Decorated; in the same style is the fine large cruciform church of St. Jean in the street of that name, with its two unfinished towers, the western one having those reed-like shafts to the belfry stage noticed before as so common in the Caen district, the central one Renaissance. No good general view of St. Jean can be obtained, shut in as it is on three sides by houses; but of St. Pierre, a structure whose feature, par excellence, is its steeple, and which, from the large size and juxtaposition of its clerestory windows ought to claim the title of "The Lantern of Normandy," views can be had from any point. The erection of St. Pierre seems to have occupied almost the entire duration of the Pointed styles, for the church consists principally of First and Middle Pointed work, while its apse and fringe of chapels show the unsparing labours of an architect of the Renaissance. Curious and interesting though they be, these chapels ill accord with the rest of the building; and one looks in vain for a style like our Perpendicular to blend the two—the transition is too sudden. The elliptical arrangement of the apse clerestory, with its two windows in lieu of the three usually seen, may have furnished Street with the "motif" for his noble vaulted sanctuary at St. Saviour's, Eastbourne. Those who only know the interiors of the Renaissance chapels at St. Pierre from Roberts's and Prout's pictures, can form no idea of their present appearance, teeming as they do with niched figures and altarpieces, and glowing with a profusion of rich neo-Gothic glass. Space forbids us to dwell further on the many beauties of this noble fane, the only defect of whose interior is that it is too light. This may be accounted for by the immense size of the clerestory and the absence of stained-glass which may at some period have graced them. From St. Pierre we strolled up to the Abbaye aux Dames, or church of La Trinité—symbolised in the three figures holding



INTERIOR OF THE CHURCH OF THE TRINITY AT CAEN.



ST. PIERRE AT CAEN, FROM THE S.E.



WEST FRONT OF ST. ETIENNE AT CAEN.

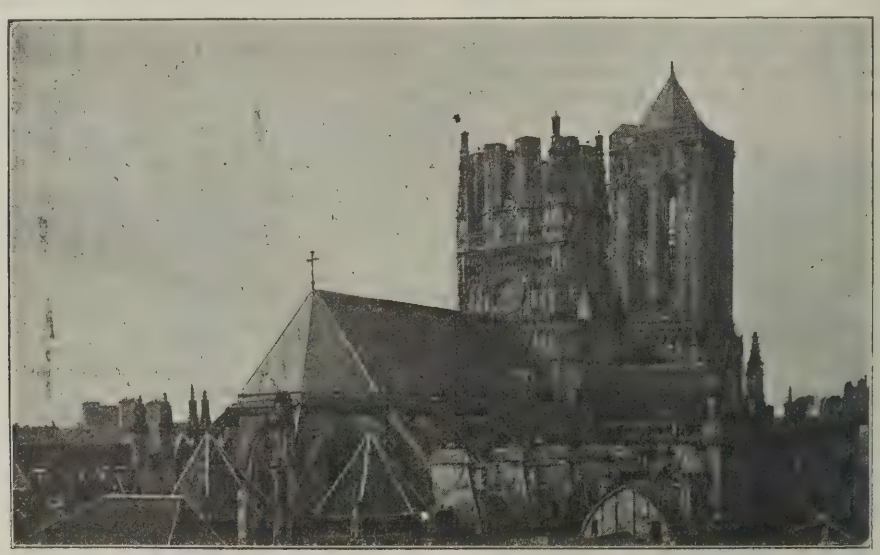
a scroll within the tympanum of the restored western portal. Here again the Renaissance architect has shown his contempt for earlier and purer forms by substituting work of his own at the tops of the western towers. That the original work was removed is clear from the fact that the whole of the south-east angle turret of the south tower still remains, and one can plainly see where the arcade was cut away. Although more ornate than the sister church of St. Etienne, the Abbaye aux Dames is richer Romanesque ; remarkably elaborated are the westernmost bays of the nave between the towers. The nave alone is used for parochial purposes, its last three bays being screened off for the "chorus-cantorum" and sanctuary, the parochial altar standing under the western arch of the lantern. Eastward of this the transept space is reserved for the malades and sœurs of the adjoining large hospital, for whose benefit an altar has been reared, backing against the parochial altar. Did the Abbaye aux Dames contain nothing else, the two exquisite First Pointed bays of the south transept would alone be worth coming to see ; they resemble the nave arcades at Wells, but are somewhat loftier. In walking hence to the Abbaye aux Hommes we noticed two desecrated churches—St. Gilles, opposite the Trinité, and St. Etienne le Vieux—both fine specimens of Middle Pointed which may, we sincerely trust, at no distant date be restored to their sacred uses.

The great pile of St. Etienne, or the Abbaye aux Hommes, whose simple, solemn Romanesque façade may be regarded as the prototype of those of nearly all the great French Pointed churches, has, viewed from the east, a rather strong Teutonic character, and, with its spires, central steeple and pinnacles flanking the apse, recalls in ensemble certain Rhenish churches. Throughout, the work is bolder and ruder than in the church of the Trinité, ornament in the nave at least being conspicuous by its absence ; but the choir in First Pointed is very graceful, and in the lancets of the clerestory there is some good modern glass. Very beautiful features are the small rose windows lighting the triforium passage in the choir, and peering through the unglazed opening in a very felicitous manner. Other noteworthy features are the clusters of vaulting shafts between the chapels in the choir aisles, which, with their First Pointed stained windows, brought Canterbury to our recollection very strongly ; the plain but massive Henri IV. stalls, and the grand open lantern above the tower arches. Early on the next morning, which was Sunday, we were strolling in the little churchyard of St. Ouen, a picturesque Late Gothic edifice which, with its "saddleback" tower filling up the angle between the south aisle and transept, is apt to be overlooked by the ordinary run of visitors, repairing subsequently to the Abbaye aux Hommes for the Morning Offices.

Those interested in the ritual and musical aspects of foreign ecclesiology will be gratified by attendance at the ten o'clock High Mass at St. Etienne's, presenting, as it does, several features not noticeable in cathedrals and churches where the Roman rite has completely superseded the ancient Gallican one. For previous to 1860 almost every diocese in France had some peculiar Use of its own, extremely interesting, no doubt, to the student of ritual matters, but which from a practical point of view was very perplexing. Thus in 1856 we find a "mandement" put forth by the bishop of the united sees of Beauvais, Noyon and Senlis, ordering the adoption of the Roman liturgy in place of the ordinary local uses, of which he says there were no less than nine in his diocese, so that it often happened that the same priest, "chargé de deux paroisses, trouve dans l'église où il va célébrer une première messe une liturgie différente de celle qui s'observe dans la paroisse où il réside; le chant, les cérémonies, les couleurs des vêtements, les usages, tout est changé."

Such reforms were, it is needless to say, received with no little hostility, many dioceses insisting on a large proprium sanctorum ; one privilege doubtless was the procession which as in all the cathedrals and churches of Normandy, made the circuit of St. Etienne's, before the office, and headed by the crossbearer vested in a cope; while another was the singing, between the Epistle and Gospel, of the Prose or Sequence in honour of St. Exuperius—upon the octave of the festival of that saint, who was Bishop of Bayeux, and therefore of local celebrity—to a very taking Gallican melody affording a pleasant relief to the severe plain chant.

In the early part of the afternoon we took the train for Bayeux, passing on the way the graceful steeples of Norrey, Bretteville and Audrieu, arriving in good time for an inspection of the cathedral before the commencement of the afternoon offices of None, Vespers, and Compline.



N.E. View of St. Jean, at Caen.

It is in its proportions, which are nearly assimilated to those of our own cathedrals, that the charm of Bayeux lies ; nothing is distorted or overstrained, and there is a repose about it which is eminently satisfactory, though we could not bring ourselves to admire the bulb-like dome of its Flamboyant central steeple. Perhaps no church in Normandy abounds in such exquisite detail as Bayeux ; indeed, it is a hard matter to decide what to admire most—the Norman nave arcade, with its wealth of diapering in the spandrels, its First Pointed clerestory and choir, or the magnificent Early Middle Pointed of its transepts. The choir seems almost to realise the very perfection of First Pointed beauty, so graceful are the combinations of clustering shafts and multitudinous lancets. The whole fabric is extremely magnificent, and built upon ground which slopes rapidly from west to east, cruciform in plan, with Romanesque and First Pointed western steeples and afore-mentioned bulb-like central dome surmounted by a flèche, and erected about thirty years ago to replace a cupola and spire of Italian design. The western steeples are noble from their simplicity, having their surfaces carved in imitation of tiles. Round the apse are grouped chapels ; the Decorated transepts project but two bays, and there is a fine south porch ranging with the chapels which

the same epoch has added to the nave aisles on either side. Taking our stand in the north transept we first noticed the magnificent window in each ; that in the south transept is



St. Etienne at Caen.

modern, the original tracery having at a debased period of the art been removed, as may be seen by one or two windows in this part of the building, but which it is to be hoped will ere long be restored. The character of these two great transept windows differs—the north, or original, window * is of seven lights with a large wheel in the head, and tracery of a more Geometrical character above each of the lights falling into the subarcuations. The south window has six lights, divided into triplets by a shaft bearing a niched figure; the large wheel above has a simple quatrefoil : both these windows have modern



Bayeux Cathedral from the S.E.

glass, with brilliantly tinctured effigies of saints well balanced by white glass. From either transept most beautiful views across the cathedral can be had ; indeed, the detail, especially of the choir, is so profuse that it is impossible at first to know what to direct the attention to first. Owing to the rapid slope of the ground there is a descent of several steps from the nave into the transepts, the crypt being confined to the centre of the church, and entered through a door in a richly arcaded wall in the first bay of the south choir aisle. The walls of the transepts below the windows are richly arcaded ; in the north transept I noticed a statue of St. Peter vested in a flowing chasuble, from the chisel of Dupont. The arches opening into the choir aisles from the transepts have foliated circlets in the spandrels, which impart great richness. The choir, entirely First Pointed, may be accepted as a typal work of that period, so graceful are the combinations of its slender shafts, multitudinous lancets and vaulting ribs. Fine grilles enclose the arches of the sanctuary ; the choir stalls, surmounted on the north by the "organ of accompaniment," are placed within the arcades, allowing the whole length of the pillars to be seen, as at Wells, and are of the most chaste Renaissance character. These and the stalls seen subsequently at Amiens were the only ones with canopies we came across during the whole of our tour. Unfortunately the coupled columns in the apse have been fluted by an Italianising hand. The spandrels of the choir groining are relieved by a series of heads of saints and bishops with their names in large letters, all carefully restored ; while from the centre boss of the lantern radiate painted angelic figures. In walking round the choir aisles we were much gratified at the total absence of those glass chandeliers and other ornaments from the toy shop with which the altars of French churches are too frequently disfigured, some having predellæ and reredos in good Mediæval taste. On the pavement of the lady chapel we noticed a memorial in mosaic-work to Carolius Didiot Virdune, who presided over the united sees of Bayeux and Lisieux, 1856-66. The first two bays on the south side of the south choir aisle are enclosed by a close screen of fine First Pointed work, and richly arcaded, surmounted by a beautiful double arcade separated by a slender



Choir of Bayeux Cathedral.

shaft, the lower stage being pierced with a door admitting to the sacristy. In the nave the work of three periods meets: the arcade is richest Norman ; the clerestory First Pointed ; and the aisle chapels Middle Pointed ; much of the tracery in the windows here is beautiful, some being curious. One window in the north aisle, a low one of six lights in pairs is traceried with a huge wheel of a very stiff and Geometrical character ; another window in this aisle is similarly traceried.

* Figured in Parker's Introduction as a typal window of the Early Middle Pointed French period.

Here is a good quantity of stained-glass, varying however in quality, but generally speaking very creditable, inserted as some of it was before 1850. A most picturesque feature in this cathedral is the flight of steps leading from the space formed at the west end between the towers down into the nave, and of which arrangement an admirable idea may be gained from the delicate outline engraving in Pugin's and Le Keux's "Architectural Antiquities of Normandy."

(*To be continued.*)

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last, Mr. G. H. Fellowes Prynne, president, in the chair.

The following were elected members :—Messrs. A. E. Bell, W. L. Binney, H. P. Buckingham, H. M. Cantley, H. F. Cundy, A. C. Stewart, S. M. Deacon, H. Dru Drury, H. L. Etherington-Smith, R. Findon, C. R. B. Godman, J. H. Mellish, E. N. Mitchell, J. A. Payne, H. T. A. Peacey, J. B. Royle, H. V. Shebbeare, C. O. Spencer-Smith, A. Symon, J. N. R. Vining, A. P. L. Wood, H. Worrow, F. F. Lemaistre, T. S. Vickery, H. E. Brown and W. J. Stainton.

Mr. H. Wilson read the following paper on

Arts and Crafts, and their Relation to Architecture.

There are certain phrases containing more or less microscopical portions of truth which only pass muster in those expansive thumb-in-armhole after-dinner moments when buttered aphorisms, like conventional oysters, slip from cloudy heights down the epigastric slopes into the clear champaign.

Among these abraded epigrams is this—Architecture is the mother of the arts—a dictum doubtless begotten by some wit with a bowing acquaintance with architecture and a refreshing innocence of art. It is one of those worn counters from an obsolete mint which keep real currency out of circulation, or, to change the lineage, it is a mental cul-de-sac, the result of what psychologists call "mental arrest." The aphorism renders real investigation difficult by acting as a stumbling-block. That said, we are tempted to think that there is nothing more to say. But immediately the stumbling-block is turned over we find that it hides the entrance to a new world of inquiry and opens out new views of art and craft and architecture. We begin to see that architecture is not the mother of the arts, for they existed thousands of years before she was born—we find that the arts and crafts are the ancestors of architecture, and that even now architecture is born from their conjunction and does not give birth to them. The question has been obscured by much discussion, and so many false ideas have been imported into it, that the right conception has been overlain by misconception and suffocated.

But if we go back to the beginning of things, penetrate as far as we can reach into prehistoric origins, we learn at once that the art of personal adornment and the craft of tool-making come first in the evidences of human activity. The art of using tools is acquired in the making of them—the stone-weighted stick becomes a hammer, the splintered hammer becomes the axe.

From splitting skulls to splitting wood the transition was easy and natural. Besides the more immediately insistent needs of protection, shelter and the satisfying of hunger, there arose in the very earliest times that other need of self expression. Full of wonder at the mysteries with which they were surrounded on every side—the dawn and the darkness, the gloom and hidden terrors of the forest, the strange creatures by whom the earth was inhabited, the dangers real and imaginary in field and flood—the minds of our half-dumb ancestors were crowded with conceptions seeking birth. This birth they found in what we call art. They eked out their stammering utterance, their gesture speech, with rude-cut symbols. They spoke to each other in their work, and one feels that art—rudimentary if you like, but still art—was the first real speech of mind to mind ; and, whether that speech took the form of decoration of weapon or bowl or person, it supplied an outlet for nervous pressure, and the labour of making relieved their minds from the obsessions of crowds of new ideas, new impressions, engendered by the beauties of the outside world. Not only did the making of things for use or ornament give an outlet for new ideas in the making of the humblest article of use, the savage by unconscious symbolism built up for himself a kind of religion. We find the Pueblo Indians, who worship water as the principle of life—to whom a vessel, because it holds water, is sacred—express their belief on their pottery in a very remarkable way. The enclosing lines, the circling bands of ornament on their bowls and vessels are never joined, but a space is carefully left open in such band. The women, who are the potters, say this is to leave a door for the life spirit. In other words, it is a departure trail for life or being.

When a woman has made and painted a vessel she will tell you with an air of relief that it is a "made being," and, as she places it in the kiln, places food in the vessel and beside it. The noise made by the pot when struck or simmering is the voice of the included being ; the clang of it when the vessel breaks or cracks is the cry of the spirit escaping.

This being never cries out unprovoked, but is supposed to acquire the power of doing so by imitation, and no one whistles, sings or makes any noise during the process of manufacture lest the being should imitate the noise, and by doing so crack the vessel and come out. Here we have art and craft as the early exponent and material source of early religions. In the South Seas we find that even the stone axe, from its associations with its maker, becomes first the symbol of the ancestor and later the object of worship. The handles of these sacred axes are carved by the "sacred men," who, during the whole process, chant songs and prayers to the gods that they may further the work and inspire the craftsman. Thus, as all the world over, the arts and crafts beget the first beginnings of expressed religion, and lay the humble foundation of the faith which made man "raise the soaring spires and sing his soul in stone." Out of arts and crafts all human achievement has sprung.

For we must remember that at this early period each man was an artist because he did not concern himself with art just as children do, and say and think beautiful things naturally ; only when we teach them do they become affected and artificial. And all that our ancestors thought of was the suitableness of the thing they were making to the use for which it was designed. The decoration of it was a natural instinct, as those of sleeping or eating. Impelled by that unconscious passion for creation, as by a spiritual procreativeness, the dimly comprehended beauties of the scene around him impinging on his perceptions stimulated his conception—pushed him out of himself into his work. His hut, with its contents, was a little exhibition of the arts and crafts in embryo. We are looking at the remains of the first beginnings of architecture In the lap of time. Our ancestors were the primary craftsmen, and this art expressed their nature, gave form to their spirit, as the plant expresses the principle of growth—the life within the seed.

Nor was this all. The offspring of this primitive artist would naturally imitate their parent. Besides the inherited aptitude, besides his precept, they would have the continual stimulus of his example to urge them on to other efforts on similar lines, and thus early arose families of craftsmen, with nascent traditions and methods of work. When the scattered families gathered into tribes and built their palisades they joined themselves into families of craftsmen and formed the rudiments of a guild, a society within a society, a centre of social activity inside the new society.

Each member of the family worked out in his own craft the budding ideas of early symbolism, doing nothing without a definite object, more influenced by the wonder of the world around him than impelled by a conscious ideal of beauty ; the character of his work was at first governed absolutely by the nature of the materials at hand, so that he found lines of beauty in the fracture planes of flint. Then by elaborating the rude notchings in the weapon haft he produced the intricate patterns on his paddle, or he evolved bands of ornament from the marks made by the cords or the wickerwork moulds which bound together his first rude efforts at pottery. He was taught by difficulty and inspired by nature. His mind grew as the plant grows, and his art was the fruit, the spore from which, under other conditions, a higher growth was to spring. When in the course of centuries the congress of the families of craftsmen gave birth to the guilds, their power came not merely from the infinite slowness of their growth, but also from the infinite ramifications of the roots which each individual fibre of that organism sent back through each item of its ancestry into the remote past.

The guild became the wide-spreading tree rooted in society, under whose branches every human being sheltered. It was as much the natural product of evolution as the family or the human being—like the human being also it found its completest development late in history. The hereditary craftsman existed, worked and trained his offspring long before city life attained any high development, but when that development took place and corporate life sprang from the associated lives, then the formative idea the soul of the society and its governing power centred itself in the guild.

And when I say that the guild only came into corporate organised existence late in history, it is only late in relation to the time taken in the evolution of society, for in Egypt in some of the earliest monuments we find that the brotherhood of masons had existed long enough even then to become mythical ; we find mention of the heavenly architect Ptah, who in conjunction with the chief of the brotherhood of masons, founded the temple of the heavens on the abyss of the waters. The master builder as prince, priest and creator is thus bound up with the origins of the religion, the shrines of which in later times his descendants were to build.

Coming down to more historic times, we find that in the development of crafts from family industries to trade guilds it early became a law that each man shall train his family in his own trade. In far-off Peru, in earliest Egypt and in India, this custom prevailed. It was the same all through Europe. In the Institutes of Theodosius a Roman youth was compelled to follow the employment of his father, and the suitor who sought the hand of the daughter could only obtain the bride by becoming wedded to the calling of her family. So in Mediæval France crafts were inherited and also in England. Thus the branching of the family through generations into a number of kindred families carrying on the same occupation produced the germ of the guild and formed a distinct cluster in towns. In process of time came apprenticeship into the family circle to learn the trade. By-and-by, with increase of trade, the master develops into the trader and the workman into the citizen. Thus the craft guild is the typical form of the institution. As Lambert says, when the townsmen of Stratford-on-Avon were required in the year 1381 to make a return to the King's Government as to the ordinances of their guild and the date of foundation, they made reply that as to its origin it was "whereunto the memory of man reacheth not." The saying was a wise one. There is no institution which has had a wider distribution or which reaches further back into the mists of ancient history, and there is, perhaps, no institution which has had a more important influence on human development.

Not only did the guilds mould and govern social life, they influenced religious life also, for there was then no distinction between the two. From almost the earliest times each guild was dedicated to some presiding genius, some to the Muses, or in Christian times to a special saint. In the Western world we have St. John, St. Michael, St. George, St. Crispin (cobblers), St. Peter (weavers), Our Lady of Pity, St. John the Baptist (tailors), St. Luke, St. Margaret, St. Barbara, St. Clare.

In the Eastern world we have Adam as the patron of the bricklayers, builders and sawyers, Nimrod of the smiths, Noah of the carpenters, and Enoch watches over the workers of metal and the makers of copper caskets.

The important meetings and feasts were held on the festivals of the patron saints; the needs of the Church were largely met by their funds—they gave windows, altars, reredoses, built chapels, chantries, whole churches even; and when we remember that the first meetings of the Christian Church in the first centuries were held as often in the guild halls, scholæ, or the collegia as in basilicas, and that in these guild halls with their apsidal ends, features absent from the pure basilica, we have the germ of the plan of the Mediæval cathedral, we see how the guild has shaped the house of religion. Even in Phœnician days we find that the factories set up in the ports scattered over the Eastern and Western world were used not merely as places of business and halls for the guilds; they were established in the first instance and were continually used as places of worship sacred to the cult of various deities, and a contribution was raised on all the mariners visiting the port for the sustentation of those places of worship; and in the later period of the Empire, Syrian merchants, chiefly Apamean, are found settled not merely in all Italy, but in all the larger emporea of the West—at Malaga in Spain, in Gaul and Germany, at Bordeaux, Lyons and Paris, at Orleans and Trèves. They are found in these Gallic towns after the Frankish conquest, and Salvianus and Gregory of Tours both speak of them, and show that they retained their national customs and organisations. Here, then, at length, we find the Roman cities of Gaul, and probably also of Britain, with their collegia and sodalicia, brought into close contact with the trade associations of the Syrians, representing the Greek and Phœnician tendencies of the commercial East. We must remember that the commerce in those days compares very favourably with the present day. In Central Asia, in Thibet and Mongolia the plains now known only to scattered colonies of shepherds, or the ignorant inhabitants of isolated villages, were once dotted with flourishing cities, the capitals of powerful kingdoms, bound together as by bands by great trade routes traversed continually by crowded caravans. Merchants from Macedonia found their way to further China, and threaded the passes of Afghanistan and Cashmere on their way to the Hindoo peninsula. Then from all these countries came traders, themselves masters of some craft, travelling with their wares over the Indus, over the Euphrates to Syria, up the Oxus to the Caspian, thence to the Black Sea and Europe. Now Central Asia is waste; the Oxus no longer flows into the Caspian; the streams of caravans have ceased, and life flows in other channels.

The Phœnicians, with their fellow civilisations, have faded utterly away. Through their descendants the Greek-speaking Syrians continued their work. But imagine the influence of these wandering guildsmen and their descendants exerted while they lived. Can we wonder that architecture is a romance book when it was written by men who came daily into contact with these living records of adventure—men with minds stored with strange legend, full of fascinating tales, who threaded the ways of Western Europe, resting awhile at each notable town, the guest of their own or the local guild, where we picture them seated with the master and the wardens at the high table, the swarthy, prick-bearded, keen-eyed Syrians, recounting adventures, pouring out travellers' tales to the open-mouthed craftsman, who from this living book got an inkling of Oriental learning, heard the latest legend, heard of the last new statue, carving or masterwork in metal, made by members of the Eastern guilds. He would see open before him bales of strange stuffs; the guildsman would display his bronze and silver ware, his belts and brooches, his earrings and bands of gold, and all, from the master to the apprentice, would drink in the influence of the East, as mystical, as wonderful to the Western then as now. Thus we get the guilds as the disseminators of culture, distributing centres of intellectual force as well as shapers of society. They were publishers of living, useful knowledge, loops in the network of organisation which art and trade, even in those early times, had thrown over the civilised world.

The influence thus gained by these organisations naturally fluctuated—wars, tumults, invasions, each brought disturbance and destruction with them. But guilds founded on an unchanging human principle grew steadily in power until in the Middle Ages in England and the Continent, as Dr. Lambert says, the whole municipal, industrial and social life moved in the circle of the guild. The guilds were the chambers of commerce, the friendly societies, the trades unions, the freemasonry, joint-stock companies, the militia and the police, and in a way were local parliaments. As early as the end of the twelfth century the rectors of the art guilds in Italy assisted the Podesta, or supreme magistrate, in governing and ordering the cities in which they lived. More than this, the guildsmen, by their shows, pageants and miracle plays, provided largely for the amusements of their times, and laid the foundation of dramatic art, which later was to give us Shakespeare, Molière, Goethe. They were at once the heart and brain of their people, and in studying their history we are carried back and plunged into that throbbing life which though it produced them they directed, and we see in what an extraordinarily simple way the whole thing was managed. Members of one great family, they sat beside each other in the feasts, played in the miracle play, rode in the pageant, fought side by side with the others, and in siege time together paced the ramparts; they helped each other in distress, saw that likely youths were made apprentices, and sang masses and burned candles before Our Lady for the peace of the souls departed. In studying their records and their works we are touching the living body of a living society: we walk with the young apprentice through the narrow streets to his master's shop; we learn the secrets of the counting house, the mysteries of the crafts, and we understand how it is that our fathers did these wonderful works which we emulate in vain, and how futile it is that isolated individuals should try to imitate or repeat what were the products of wide-based, close-linked society, instead of seeking the same harmonious and intimate relations with their surroundings which our fathers established, and working out ourselves naturally on the firm basis of individual craftsmanship. But the origins of this want of harmony with our surroundings are to be seen even in the works of the best period of the Renaissance, for after the ebb of that tide of effort which gave us the fine early work at Verona, Venice and elsewhere, we see traces of the intrusion of the designer into other spheres. We have the painter and the sculptor designing for the metal-worker, not executing the work for himself, but getting others to do it, and this invasion of the designer soon developed into the establishment of design as a separate faculty as we know it now.

To return for a moment to the consideration of the prehistoric crafts from another standpoint. These integers of design, detached, disunited, the scattered seeds of architecture, yet contain in themselves the essence and the promise of the highest art. The natural craft, the uncultured artsmanship was limited in range and achievement, because it was the product of isolated minds, but when men banded together the gestation of architecture advanced another stage. The work of each man was modified in aim and character by that of his fellow, just as the single circular cell of the primitive bee became hexagonal when clustered with other cells of other bees. The comb is the logical outcome of bee-society. In like manner each of us is modified by contact with other natures in the close-packed human crowd. As the body is built up of cells, each modified by the position and functions assigned to it, but each aiding by adding its individuality to the general system—in the production of the complex organism man—so man as an infinitesimal item comes with his instincts and faculties into the social system and is modified and developed by new conditions into a newer and higher being. His art has undergone precisely similar changes. The rudimentary arts of our ancestors, when brought into mutual contact, were changed in character and raised in aim though their fundamental nature

is the same. The personal arts were the individual components out of which the body of architecture was ultimately to be shaped. The self-centred, single expression art has become a social expression. The man, no longer concerned solely with himself, is informed by a new spirit. The scattered items are united by the social idea—the work of those items in every department of life is shaped and guided by the spirit of the race, and is the material expression of that hidden, life guiding soul which everywhere animates society.

Architecture is thus a complex art, a social art; it has never been and never can be a one-man art, as painting and the crafts, any more than a body can be composed of only one cell. And as that material envelope of the human spirit we call the body is the absolute expression of the human soul, so that material envelope we call architecture is the absolute expression of past states of the racial soul. This it is which gave the artists such strength in the past. His was not a detached existence, a separated, solitary-studio life; he had the whole body of the people behind him. He was the point with which the nation wrote its history. He was the tool of the race. And were we psychologists enough, were our powers of divination great enough, we might read in the open scroll of building not only the history of the actual craftsman, but the history of his time and people, and gain a graphic idea of the growth of mind. This because the craftsmen were the means of architecture, and the buildings were the opportunities of craftsmen.

(To be concluded.)

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

ON Monday the annual meeting of the Leeds and Yorkshire Architectural Society was held, when Mr. George Corson, the president, delivered an address. He congratulated the secretary upon the excellent syllabus arranged for this session. It promised to be the most attractive they had had for many years. The council had arranged to have the use in future of a large room in the old Medical School, and the hour of meeting had been changed to half-past six instead of half-past seven. The council had had under consideration a form of agreement between builders and those for whom they built. This form had been submitted to the Builders' Association, and he hoped it would become a general basis of contract not only in this district but throughout the country. The Royal Institute of British Architects had recently issued a revised schedule of professional charges. It was necessary that it should be understood that 5 per cent. upon the total cost of the completed building was the architect's authorised charge. Sometimes a client chose to obtain various fittings, &c., from other sources without referring to the architect, who, however, was entitled to his commission upon such fittings. Again, a client might omit certain portions of a building after estimates had been obtained and conditionally accepted. The architect was entitled to a commission upon those—not the full percentage, but at least 3 per cent. It was not where there was one client concerned, but where there was a committee or a board to deal with, that difficulties arose. Conscience was singular, not plural. Where the cost of work was small, as in alterations, it was not recognised that 5 per cent. was unremunerative to the architect, and clients thought anything higher was an overcharge, although the labour involved might be as much as in work that was of greater cost. Leeds, continued the President, was a new city, but a very old town, and it had inherited a legacy, like most old towns, from former ages. That legacy consisted of narrow streets and crooked ways, totally inadequate to accommodate the immense traffic that had resulted from the increase of population and trade. Within the last fifty years the population had increased from 200,000 to over 400,000, and was still increasing at the rate of something like 7,000 a year. From the immense increase in the value of property in the centre of the town, it might be said to be practically impossible to widen such streets as Park Row and Commercial Street. There was, however, another way in which the traffic might be relieved. New streets could be pierced through dense masses of property of comparatively small value. After Boar Lane was reconstructed the Corporation seemed to fall asleep for many years, and for some time any attempts at street improvement were spasmodic. Lands Lane was an example of this. It had taken thirty years to reach its present stage of partial widening. Of late the giant had awakened from his slumbers, and would not, he thought, be allowed to resume them. Private citizens had seconded the efforts of the Corporation, and everywhere enterprise was manifest. Victoria Square still needed artistic treatment. There they had one of the finest buildings in England —the Town Hall—affronted by a group of wretched buildings, only fit to be carted away. It would be well if the space they occupied could be added to the square as far back as the south frontage and South Parade But he was afraid this idea was utopian. Law courts and an art gallery more befitting the dignity of Leeds than the present would have to be undertaken. The art gallery had served its purpose well, but would no doubt be absorbed either by the municipal offices or the free library. The action of the council with regard to such architectural work as they had to direct had been brought to his notice by several members of his profession. In former days all such work was confined to members of their profession. But of late years it had drifted into the hands of the city engineer. At the present time he was told that certain buildings were being contracted for, the plans for which had emanated from the city engineer's office—for a police station and a branch of the free library, at a cost of about 6,000*l.* He (Mr. Corson) would have thought the engineering work properly devolving upon the city engineer's office would have been enough or more than enough for the energies of that department, without encroaching upon the special field of architecture. The present Lord Mayor had architectural tastes and sympathies, and they might ask him to put an end to this anomaly.

Mr. J. Tweedale, in moving a vote of thanks to Mr. Corson for his address, thought the President took rather too rosy a view of the probability of clients, under certain circumstances, paying adequate remuneration to architects for extra labour done by them. There did not appear to be that appreciation for the architect's labours either by the individual or corporate client that there ought to be. With regard to the appearance of Leeds, they hoped they were at the dawn of brighter things. People had got at last to be ashamed of what was considered good enough by their fathers, and no doubt in the course of a few years there would be such a revolution in the appearance of Leeds that the citizens could go away and not be ashamed of saying where they came from.

Mr. Butler Wilson seconded the proposition, which was carried with acclamation, the President briefly responding.

A smoking concert followed.

THE PARTHENON MARBLES.

(Concluded from last week.)

IN her concluding lecture, Miss Harrison said she had in her previous lectures brought before her audience the ideals of the Greeks, and had pointed out how they expressed their ideals in art, and now it seemed right that she should not complete the subject without telling how these same ideals enabled them to face death. For that purpose she would take them to the Kerameikes, or the cemetery of Athens, where the grave reliefs—found as it happened by accident during excavations—afforded them the materials for seeing what the Greeks felt in relation to death, and completed the account she tried to give them of their joyous attitude towards life. It was also the necessary sequel as regards art. These grave reliefs were a good deal later than the Parthenon marbles, and some of them carried on the tradition of the work of Phidias very carefully and closely. They had in them the same stateliness, the same proud look in the face, the same beautiful austere drapery, the same great ideal manner. She could not help thinking that when the Parthenon was finished there must have been a numerous number of sculptors more or less inferior workmen who worked under the orders of Phidias thrown out of employment. Numbers of them had come from the various schools of sculpture in the islands, and when the Parthenon was finished probably they would be unwilling to return home. They had been for years in Athens; their children would be growing up about them, and it was not so easy then to change one's home. All these workmen, with the great tradition of Phidias before them—thrown out of work—would occupy themselves naturally with any smaller works of sculpture that might come to hand. That was how, she thought, they could in a way account for the grand manner of these sculptures, for they had the grand manner, although many of them were mechanical in style. These grave reliefs were famous because of their extraordinary simplicity and simple humanity. They represented for the most part scenes of daily life. In one they saw the lady of the house having her sandal loosened; the maid stoops to tie it and with the most natural gesture the lady poises herself with her hand on the maid's head; another maid waits close by with the toilet box in her hands. In another they had two scenes from the lives of men and boys. A young man was seen going out to serve with the army; his horse was near him, he held his spear in his hand and said farewell to his father. Simpler still—almost to them incredibly simple—was the figure of a boy conning his book. There really seemed nothing to explain in these works—no difficult mythology; the whole thing was so straightforward; but as they examined these reliefs more in detail they would be struck by certain characteristics which would be explicable by having recourse to the history of certain phases of religious feeling in Greece, and particularly in Athens. It had been noted in all these

grave reliefs with what extraordinary reserve they treated grief—how very dignified, how very steadfast the attitude of the figures was when they came to the moment which was apt to shake the strongest nerve, the moment when they parted from their friends. There was, the lecturer thought, a traditional element which helped to cause this reserve in the presence of the Greek, and this led up to the consideration of certain points in connection with the burial of the dead among the Greeks. They got their information about Greek funeral customs very largely from Greek vases. There was a certain class of vase used directly in the service of the dead; they were always oil vases, and were decorated with subjects taken from funeral scenes. In one specimen the dead man was seen lying on the bier; he was propped against pillows. On his head was a wreath, for a dead man was always crowned as soon as life departed. There was a mourner by his side lifting her hand to her head in a characteristic Greek gesture, and at his head was the lekuthos, or oil vase. In Aristophanes they would remember the man who complained that his wife used to go off in the early morning to the parliament of women, and he says she left him for all the world like a dead man, only she forgot to put lekuthos at his head. Down below the tomb was a goose, which seemed to be the tom-cat of the Greeks. The bier was always an open one, and to this day in Athens the dead, dressed in evening clothes, was put on an open bier and carried through the streets at a brisk pace. It seemed very terrible to them, but the Greeks appeared to regard it as a very reverent proceeding, and the women raised a lamentation. When the dead man was buried there was yet another stage through which he had to pass, namely, to the lower world, and certainly at some times in Greek religion and thought the lower world was regarded as a place across a sea. The ferryman of the dead sea was Charon, who was regarded as an ugly slave, and on one of these vases he was seen rowing his boat up to the shore, while Hermes, with his herald's staff in his hand, was conducting the soul, which seemed to shrink back a little, as if rather disinclined to enter the boat. There was an idea as early as Homer's time, that when a man of great valour died he was not laid at rest like others, but two winged messengers came to lead him quietly into the grave; these messengers were the bearded brother Death and the beardless brother Sleep, and that idea of the winged messengers had gone on and found its way into Christian art. It was an easy transition from that idea to that of the winged angels carrying a dead man to the upper air, and there grew up bit by bit this notion of the upper heaven to which went certain elect souls, endowed by the gods with beauty and strength, and related to the gods as sons or daughters, or married to the daughters of the gods. A notable instance was that of the young and beautiful Ganymede, who was translated to the upper air to serve King Zeus. This idea was most beautifully developed in the conception of the Elysium fields presided over by Rhadamanthus, to which Menelaus, the husband of Helen, was translated. The Greeks always managed to put things beautifully, and so they put this belief of theirs, that the soul, born of rich and well-connected parents, went to this upper heaven, and yet, when they saw it put by a nation with less sense of beauty, it was not quite so admirable. They remembered the epitaph of the "well-connected lady who was bland, passionate and deeply religious, who painted in water-colours, and sent several pictures to the exhibition; who was first cousin to Lady Jones, for of such was the Kingdom of Heaven." Well, the Greeks sent their well-born heroes to Elysium, but they also sent them to Tartarus, the Shades below. The whole idea of the Homeric Hades was that it was peopled by bodiless phantoms, shadowy, utterly cut off, and without influence, except in the rarest circumstances, on the life of the living. There was another thing that they had in these slabs—they had the memory of the cult of ancestor worship. They knew that the tombs of the Greeks, especially the Athenians, were the scene of constant ancestor worship, and the tenure of land in Athens very often depended entirely upon certain rites paid at the tomb. So that on the one hand they had the Homeric belief in the shadowy life of the soul, powerless to act on the living, and on the other they had this custom of ancestor worship. They could not reconcile the two, for they belonged to two different strata of population. It seemed to her that in Pelasgian Athens, which boasted that it was home-born and home-grown, they had in these grave reliefs a dim reminiscence of this ancestor worship. She did not think that the Greeks who put up these reliefs wanted to make out that their ancestors were gods, but she believed that they were under the spell of a long artistic and even literary tradition which taught them that their dead became gods, and that this tradition lingered in that most conservative of places—the churchyard. A good deal had been said of the extraordinary dignity, beauty and simplicity of the inscriptions on Greek tombs, but she thought they were apt to go too far about them. To her they seemed bald, for it certainly would be very easy to get a better epitaph than "So and so, daughter of So and so," and there was enough to admire in the Greeks without creating fictitious objects of admiration. Modern Christian epitaphs could beat those of the Greeks anywhere. So much that was beautiful had been said about the extraordinarily beautiful parting scenes of the Greeks by Dr. Mahaffy that she did not think there was any need for her to add anything by way of explaining their serenity and simplicity. Sometimes the parting was represented as taking place between husband and wife, sometimes between groups of women. The reliefs which represented the parting had scarcely ever any expression of at all violent grief; sometimes there was an expression of quite poignant grief, but still with a certain reserve about it. Dr. Mahaffy had been in Athens since she was there, and through his kindness she was about to show a specimen in which a seated woman and apparently a boy were saying farewell, and in which, as Dr. Mahaffy had said, they had just the expression of the physical weariness of grief, and whether it was the boy or the woman who was going to Hades the same observations applied. They turned with relief to similar scenes as shown in mythology, such as the parting of Orpheus and Eurydice, when they were, as it were, lifted into a higher atmosphere. This specimen was not a grave relief; it was probably a relief set up in memory of some dramatic exhibition; they had not the absolute calm of the expression. From these reliefs they gained an idea of the attitude of the Athenian in the presence of death, and they were irresistibly reminded of the words of Socrates, that to a good man no harm can happen in life or in death, and as he said, turning to his judge, "I go my way and you go yours. I go to death and you go to life, but which is the better God alone knows."

TESSERÆ.

Classic Architecture and Furniture.

WHILE English architects were content to put columns that supported nothing, roofs that covered nothing and parapets and balustrades that protected nothing; to put sham attics to hide the construction of ugly roofs, to make us peep through the scroll-work of a frieze or the channels of a triglyph instead of a window, or to make the pedestal of a statue into a chimney-pot, how was it likely to fare with furniture, which became a sort of toy architecture? Was it to be wondered at that all constructive shams were increased tenfold when used as ornament; was it surprising that Grecian stone altars formed our sideboards, Roman temples our cabinets, sarcophagi our sideboards and wine-coolers, or that our harpsichords stood on lyres instead of legs; that constructive truth, in short, was wholly and entirely disregarded, so that some favourite type was reproduced? Was it to be wondered at, moreover, that men broke loose from these dead shams, and getting sick of these classicalities, ran away from constructive truth and symmetrical arrangement altogether—went mad first after rococoism, and then, in our own days, after picturesque naturalism, and that the very revolution of taste produced the wildest contradictory faults?

New and Old Houses.

At no time does the bosom seem so completely exorcised of all the demons which too often infest its recesses than when we contemplate antique and modern mansions—the ruined and the recently erected castle, or abbey or manor house. In the latter case men look at the building with eye askant; they animadvert on the builder's extravagance, criticise his taste, or scoff at his folly; and even the philosopher cannot contemplate tower after tower, as day after day they rise prouder and higher, without peopling its chambers with prognostics of the future evils they shall witness, the unuttered groans with which they shall resound, until fancy converts it into the permanent abode of pain, visited only at shy and fleeting intervals by enjoyment and ease. Or perhaps utter indifference, more mortifying still, casts its careless gaze on the laboured magnificence of the rising fabric. What care we if this tower be like the Eagle Tower at Carnarvon, or that porch be modelled after the Gateway at Raby? what though its bowers be peerless and its halls the rivals of royalty? we are never likely to become its guest, and we pass on our way without so much as wishing the work "good speed." Not so much with the ruin; the most heartless or the rudest wayfarer cannot pass its ivied chasms and windy walls without somewhat arresting him, he knows not why or whence. The veriest booby that ever gaped does gape at its gigantic gloom; the clown, descended perhaps from the vassals of its former knightly or prelatic barons, and as ignorant of his own descent as of them, will talk with reverential awe of its aisles and turrets and prison vaults; while to the more enlightened mind each pillared arch and ivied stone pleads haughtily for glories gone. And why? Not merely from the grandeur of the pile, the fireside spells of its traditions, or the glories of its historical associations; but because man and his mutabilities have done with it for ever, and because its

stricken form addresses the heart as a thing exempt from the meaner contingencies of the world. The sepulchres of ages stand between us and it, and the hollow voice of Time sends over them from his remote recesses a challenge which at once awakens and subdues. The years that have enshrined its stones, if not the reverses it hath suffered, demand and obtain attention; and if chronicles have not stamped their painful illustrations on the structure, fancy busies herself in peopling it with her pictorial creations, and thus renders it more bright, if not less melancholy. The utter vacation from all human vicissitudes, the dead and dreadful desertion, the silence, the solitude, with their retinue of solemn imaginings, conspire to daunt and overpower the heart. It is as if we were to trace ancient stories in dark hieroglyphics, as if we communed with the harrowing but unintelligible whisperings of spirits, till our blood tingles and our hair stands on end at accents we cannot interpret.

Norman Characteristics.

Arches semicircular, occasionally stilted, at first plain, afterwards enriched with chevron and other mouldings. Piers low and massive, cylindrical, square, polygonal or composed of clustered shafts, often ornamented with spiral bands and mouldings. Windows generally narrow and splayed internally only, sometimes double and divided by a shaft. Walls sometimes a series of arcades, a few pierced as windows, the rest left blank. Doorways deeply recessed and richly ornamented with bands of mouldings. Doors often square-headed, the head of the opening filled with carvings. Capitals convex in outline, often grotesquely sculptured with devices of animals and leaves. Abacus square, lower edge moulded. Bases much resembling the Classic orders, the mouldings at first imperfectly formed. Pedestals of piers square. Buttresses plain, with broad faces and small projection. Parapets plain with projecting corbel tables under. Plain mouldings consist of chamfers, round or pointed rolls at edges, divided from plain face by mere notches. Enriched mouldings—the chevron, or zigzag, the billet, square or round, the cable, the lozenge, the chain, nail heads and others. Niches with figures over doorways. Fonts—circular, square, or polygonal, generally rudely and intricately carved, with massive bases or supported on pillars. Roofs of high pitch and open to the frame timbers, chiefly king-post trusses. Towers square and massive, those of late date richly adorned with arcades. Towards the close of the style, during the reign of Henry II., details often of transitional character. Pointed arch with Norman pier, arcades of intersecting semicircular arches. Norman abacus blended with Early English foliage in capitals.

Early Oil Paintings in Venice.

According to Zanetti, the first oil picture known to have been executed in Venice by a Venetian master was painted in 1473 by Bartolommeo Vivarini for the church of SS. Giovanni e Paolo. It does not appear that Antonello da Messina executed many pictures in Venice during his first visit there on his return from Flanders about 1445; and Domenico Veneziano, to whom he communicated his secret about 1451, was soon invited to Florence, where he was afterwards employed. Lanzi (vol. i.) appears to think that Domenico painted several pictures in Venice after his acquaintance with Antonello. Had this been the case, or had Antonello made known his secret at once to others besides Domenico (as Vasari in one place seems to say), oil painting must have been practised in Venice much earlier than 1473. The first oil pictures known to have been executed in Italy by Italian artists, in consequence of Antonello's communication, were those (now no longer existing) by Domenico Veneziano and Andrea del Castagno on the walls of the Portinari Chapel in Santa Maria Nuova at Florence. The execution of those works must have taken a considerable time, the middle period of which may have been about 1460.

The Via Sacra, Rome.

After the fire of the Gauls Rome, we are told, was generally rebuilt in a hasty and irregular manner, without regard even to the old lines of the streets or of the sewers beneath them. The lanes which choked the plains and hollows were tortuous and narrow, with lofty houses obstructing the light and air, while the hills were almost entirely occupied by the temples or by the mansions and gardens of the nobles. The names of a good many of the streets or alleys of the lower city are recorded, but there is hardly a single one that is known to have run over the summit of any of the hills—a significant indication that the great mass of the population was now confined, and indeed continued always to be confined, to the valleys. But indeed in all Rome there was at this time but one street that deserves the name of an avenue and offered a common thoroughfare for men, horses and vehicles. This was the line along which the procession of the triumphs passed, and it was for this and other sacred ceremonies that its width and straight direction were preserved. Entering the city at the Porta Triumphalis, near the south-west extremity of the Capitoline, the victorious general was conducted across the Velabrum into the Circus Maximus, and so, following perhaps exactly the line of the ancient pomærium, along the valley which separates the Palatine from the Cælian. At the spot now marked by the arch of Constantine, his route made another angle to the left, climbed the gentle slope of the Velia, at the top of which he came directly in sight of the Arx and the Capitol. From hence he descended, keeping the right side of the Forum, to the foot of the Capitoline, which he ascended, making another bend to the left, by the Clivus Capitolinus, till he reached the Temple of Jupiter. This road was dignified with the name of the Sacra Via. The Appian Way, which branched off from it, and issued from the city at the Porta Capena, was paved in 312 B.C. and the Flaminian in 220; but it was not till 174 that this care was extended to the streets in the city itself, and to the Clivus Capitolinus. Wherever the accretion of the soil has been removed in the line of the Sacred Way an ancient pavement, consisting of large angular blocks of basaltic lava, has been found still in admirable preservation.

Fresco Secco.

Secco is thus described by Theophilus:—When figures or other objects are drawn on a dry wall the surface should be first saturated with water till it is quite moist. While the wall is in this state the colours are to be applied, all the tints being mixed with lime, and drying as the wall dries, in order that they may adhere. Buon fresco cannot be executed on a large surface without joinings in the plaster. Secco may be executed without joinings, but the colours have not the brilliancy of fresco. The earliest example of buon fresco is supposed to be a work by Pietro d'Orvieto, painted in 1390, in the Campo Santa at Pisa.

Quasi-Transepts.

The modern practice of building quasi-transepts is generally objectionable. They are unsatisfactory in external effect when carried up to the height of the main roof, unless the intersection is crowned by a flèche or turret of some kind. They are expensive in construction, and in order to justify their cost are not unfrequently made the receptacles of deep galleries. A cruciform church, with a central tower or lantern, is of course a legitimate exception and quite free from these objections; but beautiful as this arrangement is architecturally, it may be questioned whether for our parochial churches it is the best model to follow, or so well adapted for the service of the Anglican Church.

GENERAL.

The Design for the rebuilding of the Royal Institution Colquitt Street, Liverpool, by Messrs. Briggs & Wolstenholme, 3 Lord Street, Liverpool, has been awarded the first premium of 50 guineas. The second prize of 20 guineas has been awarded to Mr. H. W. Bedingfield, of 5 Hotel Street, Leicester, The designs will be on exhibition at the Royal Institution until December 15.

Mr. George Dennis, who was vice-president of the Archæological Institute in Rome, died on the 15th inst. in his eighty-fourth year.

The Opening Meeting of the Edinburgh Architectural Association was held on Wednesday under the presidency of Mr. Thomas Ross, who delivered an address on "Plans of Early Scottish Houses," showing how the mansion-houses of the sixteenth and seventeenth centuries were developed from the keep towers and earlier strongholds.

The Site of 31 Walbrook, occupying about 1,800 superficial feet, was yesterday sold at auction for 18,900*l.*, the purchaser being Mr. Delissa Joseph, architect, on behalf of a client.

The Cambridge Engineering Laboratory Syndicate recommend that they be authorised to proceed at the end of the present term with the building of a wing to the Engineering Laboratory at a sum not exceeding 5,000*l.*; that the gift of Mrs. Hopkinson and her family be applied to this purpose, and that the wing be called the Hopkinson Memorial wing. That structural alterations in the existing laboratory at the cost of 500*l.* be carried out, such sum to be provided by the University.

Messrs. J. M. Dent & Co. have opened an exhibition of drawings in black and white and in colours. Amongst the artists represented are J. D. Batten, Aubrey Beardsley, F. D. Bedford, R. Anning Bell, C.E., and H. M. Brock, L. Leslie Brooke, Walter Crane, H. Granville Fell, Laurence Housman, William Hyde, Alfred Parsons, Herbert Railton, Charles Robinson, T. H. Robinson, E. J. Sullivan and Paul Woodroffe. Messrs. J. M. Dent & Co. have in the press a work by Mr. Godfrey Blount, of Pembroke College, Cambridge, entitled "Arbor Vitæ." The book treats of the principles of design as applied to the decorative handicrafts, and appeals to students in that branch of art.

A Monograph on the Crown Theatre, Peckham, has appeared. Mr. Rüntz describes his own excellent work and Mr. Sachs adds illustrations and notes. It is abundantly illustrated and will serve as a memorial of a building which is a model of a suburban theatre.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

ABERAVON.—Dec. 1.—Plans are invited, with estimated cost, for the extension of the covered market. A premium of twenty guineas will be awarded to the architect whose plans shall be selected. Mr. Jas. Roderick, borough surveyor, Aberavon.

BRADFORD.—Jan. 2.—Designs are invited for erection of a central fire-brigade station. Three premiums are offered, viz. 100*l.*, 50*l.* and 30*l.* Mr. George McGuire, town clerk, Bradford.

BURNLEY.—Jan. 14.—The Burnley School Board invite designs for a new higher-grade school and pupil-teachers' centre, to be erected in Ormerod Road, Burnley. Competition is limited to architects having offices within 60 miles of Burnley. Mr. E. Jones, clerk, Town Hall, Burnley.

HARROGATE.—Jan. 2.—Competitive designs are invited for erection of a pump-room, &c., the cost of which must not exceed 8,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* Mr. Samuel Stead, borough surveyor, Municipal Offices, Harrogate.

HULL.—Jan. 1.—Designs are invited in competition for a central public library in Albion Street. Premiums 50*l.*, 30*l.* and 20*l.* Mr. Sidney R. J. Smith, 14 York Buildings, Adelphi, W.C.

CONTRACTS OPEN.

ALNWICK.—Nov. 23.—For erection of a groom's cottage, South Road. Mr. M. Temple Wilson, architect, Alnwick.

AUDENSHAW. — For pulling-down and re-erecting the Hanging Gate inn. Mr. J. H. Burton, architect, 2 Guide Lane, Hooley Hill.

BAILDON.—Nov. 30.—For erection of a country house stabling, lodge, drainage, roadmaking, &c. Messrs. Isitt, Adkin & Hill, architects, Prudential Buildings, Bradford.

BEDFORD.—For erection of two shelters at the Park gymnasium. Mr. John Lund, borough surveyor, Town Hall, Bedford.

BIRMINGHAM.—For pulling-down and removal of Christ Church, New Street. Messrs. Essex, Nicol & Goodman, architects, 8 Newhall Street, Birmingham.

BLACKBURN.—Dec. 3.—For erection of the superstructure of the Victoria wing at the Blackburn and East Lancashire Infirmary. Messrs. Simpson & Duckworth, architects, Richmond Chambers, Blackburn.

BLACKPOOL.—Nov. 30.—For extension of town hall building. Messrs. Potts, Son & Pickup, architects, 29 St. George's Road, Bolton.

BRADFORD.—Nov. 22.—For erection of slab-making shed at Hammerton Street destructor yard. Mr. George McGuire, town clerk, Bradford.

BRIDGEND.—Nov. 24.—For erection of a chapel at Parc Gwyllt Asylum. Messrs. Giles, Gough & Trollope, architects, 23 Craven Street, Charing Cross.

BRIDLINGTON QUAY.—For erection of café, &c. Messrs. Brodrick, Lowther & Walker, architects, York Chambers, Hull.

BUSHEY.—Nov. 23.—For enlargement of the new Bushey Board school, Chalk Hill. Mr. W. H. Syme, 4 High Street, Watford.

CARDIFF.—Nov. 23.—For erection of block of offices on south side of the Exchange, Mountstuart Square. Mr. Edwin Seward, architect, Queen's Chambers, Cardiff.

CHEPSTOW.—Nov. 25—For alterations and repairs to certain cottages at Sudbrook, Portskewett. Mr. Fothergill Evans, clerk, Union Offices, Chepstow.

CHICHESTER.—For erection of a hotel at Selsey, near Chichester. Messrs. Rake & Cogswell, architects, Prudential Buildings, Portsmouth.

CORNWALL.—Nov. 29.—For alterations to the station buildings and erection of a new platform covering at Newquay, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

CORNWALL.—Dec. 2.—For erection of the Coverack Head-land hotel. Mr. Sampson Hill, architect, Green Lane, Redruth.



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DUBLIN.—Dec. 5.—For erection of buildings for an electric-power station, brick chimney, &c., near Sutton railway station, co. Dublin, for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

DULWICH.—Dec. 1.—For additions and alterations to the school premises, East Dulwich Grove. Mr. Arthur J. Gale, architect, 4 Serjeants' Inn, Fleet Street, E.C.

DUNDEE.—For erection of the new buildings for the *Dundee Courier*. Messrs. Niven & Wigglesworth, architects, 34 Mecklenburgh Square, London, W.C.

DURHAM.—Dec. 1.—For alterations, additions and repairs to ninety-two houses at the Felling. Messrs. Oliver & Leeson, architects, Bank Chambers, Mosley Street, Newcastle-on-Tyne.

EDINBURGH.—Nov. 21.—For extension of the offices of the Local Government Board, for the Commissioners of H.M. Works and Public Buildings. Mr. George Morham, 39 George Street, Edinburgh.

ELGIN.—Nov. 22.—For erection of a hotel. Mr. Geo. Sunderland, 51 High Street, Rothes.

FULHAM.—Nov. 22.—For erection of a laundry receiving room at the Western Hospital, Seagrove Road. Messrs. A. & C. Harston, architects, 15 Leadenhall Street, E.C.

GLASGOW.—Nov. 21.—For erection of stable, offices, &c., at Queen's Park. Mr. A. B. M'Donald, city engineer, City Chambers, Clasgow.

HALIFAX.—Nov. 30.—For erection of a pair of semi-detached villa residences at the junction of Bell Hall Terrace and Saville Park. Mr. Medley Hall, architect, 29 Northgate, Halifax.

HARROGATE.—For erection of business premises in James Street. Messrs. Bland & Bown, architects, North Park Road, Harrogate.

HASTINGS.—Nov. 21.—For additions and alterations and sanitary works at Hollington Boys' school. Mr. Arthur Wells, architect, Queen's Chambers, Hastings.

HASTINGS.—Dec. 2.—For erection of coastguard buildings, consisting of quarters for an officer and thirteen men, &c. Director of Works Department, Admiralty, 21 Northumberland Avenue, W.C.

HERTFORD.—Nov. 25.—For erection of additional vagrant wards at workhouse. Mr. Russell Austin, 13 Villiers Street, Hertford.

HUDDERSFIELD.—Nov. 22.—For alterations and additions to Rashcliffe Mills. Messrs. John Kirk & Sons, architects, Huddersfield.

HULL.—For alterations and reconstruction of the Victoria Vaults, Anlaby Road. Mr. John M. Dosser, architect, 2 Manor Street, Hull.

IRELAND.—Nov. 28.—For extension and improvement of the infirmary, steam cooking apparatus and laundry improvements, new sewers and water-closets. Mr. James Perry, county surveyor, Galway.

IRELAND.—Nov. 28.—For building labourers' cottages at Castlecomer. Mr. Thomas Mahony, clerk to the Guardians.

LEEDS.—For erection of offices at 26 Albion Street. Messrs. J. M. Fawcett & Son, architects, 26 Albion Street, Leeds.

LEEDS.—For plastering for seven or twenty-one through houses. Mr. Charles Farrar, contractor, Leeds.

LONDON.—Dec. 5.—For construction of underground public conveniences for both sexes in Broad Street, Golden Square. Mr. T. Hensman Munsey, vestry clerk, Vestry Hall, Piccadilly, W.

LONDONDERRY.—Nov. 21.—For erection of a shop and dwelling-house in Strand Road. Mr. W. E. Pinkerton, architect, 8 Diamond, Londonderry.

LONDONDERRY.—Nov. 25.—For erecting villa at Northland Road. Mr. Edward J. Toye, architect, Derry.

MIDDLESBROUGH.—Nov. 21.—For pulling-down and rebuilding part of Kildale Hall, and for extensive structural alterations to the remainder of the house. Mr. J. Mitchell Bottomley, architect, 28 Albert Road, Middlesbrough.

MIDDLESBROUGH.—Nov. 24.—For reconstruction and repair of Emily Street and the back street between Beaufort and Cook Streets, and alterations to the old town-hall police-station. Mr. Frank Baker, borough engineer, Municipal Buildings, Middlesbrough.

MOSSLEY.—For erection of the new Highland Laddie public-house, Seel Fold. Messrs. John Eaton, Sons & Cantrell, architects, Stamford Street, Ashton-under-Lyne.

MULLION.—Nov. 22.—For erection of two semi-detached villas at Laflowder. Captain Shephard, Tremenhee, Mullion.

OLDHAM.—Nov. 22.—For enlargement of the Oldham post office, for the Commissioners of H.M. Works and Public Buildings. Mr. J. Flew, 11 Popplewell Chambers, Market Street, Bradford.

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SALFORD.—For erection of a school in Grecian Street, Lower Broughton. Mr. H. E. Stelfox, architect, A.R.I.B.A., 100 Mosley Street, Manchester.

SANDBACH.—Nov. 21.—For erection of additional rooms and other works at the Sandbach School and Almshouse Foundation, Globe Pottery, Cobridge. Mr. Alfred Price, architect, Elworth, Sandbach.

SHEFFIELD.—Dec. 3.—For construction and erection of urinals and wall at lower entrance to Weston Park. Mr. Charles F. Wike, city surveyor, Town Hall, Sheffield.

SHOREDITCH.—Nov. 25.—For constructing temporary floorings to the first and second-class swimming-ponds at the baths buildings, Pitfield Street, N. Mr. H. Mansfield Robinson, vestry clerk, Town Hall, Old Street, E.C.

SOPHIA (BULGARIA).—Nov. 21.—For erection of eight public offices, viz., a Ministry of Public Works, Ways and Communications, a Ministry of Commerce and Agriculture, a Ministry of the Interior, a Ministry of Public Instruction, a Ministry for Foreign Affairs and Public Worship, a Ministry of Justice, and an Audit Office. Particulars can be obtained at the Commercial Department of the Foreign Office between the hours of 11 and 5.

STALYBRIDGE.—For erection of the Church inn, Millbrook. Messrs. John Eaton, Sons & Cantrell, architects, Stamford Street, Ashton-under-Lyne.

STOCKPORT.—Nov. 21.—For erection of work cells at the workhouse. Mr. G. H. Brady, architect, 18 Little Underbank, Stockport.

SWANSEA.—Nov. 22.—For erection of several houses at Morfa Terrace, Landore. Mr. Chas. V. Crabb, house agent, Central Chambers, Swansea.

UXBRIDGE.—Nov. 23.—For erection of a building for receiving the dead at the joint hospital, Kingston Lane, Hillingdon East. Mr. Bertram Freeman, 24 New Windsor Street, Uxbridge.

WALES.—Nov. 21.—For alteration of shop-front, &c., at Cefncoed. Mr. R. C. Jenkins, surveyor, Cefncoed.

WALES.—Nov. 21.—For erection of an infants' school at Pontlottyn. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—Nov. 30.—For erection of a school at Rhiwfawr. Mr. W. W. Williams, architect, Island Chambers, 63 Wind Street, Swansea.

WATERFORD.—Nov. 23.—For repair of two labourers cottages, situate one at Ballyquin, the other at Ballylusky, near Mullinavat. Mr. John Mackey, clerk to the Guardians.

WEST HARTLEPOOL.—Dec. 2.—For erection of a block of school buildings providing accommodation for 1,502 children, caretaker's house, &c., upon a plot of ground situate in Lister Street, Osborne Road and Flaxton Street. Mr. E. Percy Hinde, architect, Liverpool.

WESTON.—Nov. 26.—For erection of post and rail fencing to a culvert. Mr. James Jenvey, surveyor, Romsey.

WINDERMERE.—Nov. 23.—For alterations and additions to the Lancaster Bank. Mr. Robert Walker, architect, Public Buildings, Windermere.

LONDON COUNTY COUNCIL CONTRACTS.

ON July 26 last, on the recommendation of the main drainage committee, the London County Council accepted the tender of Messrs. John Penn & Sons, Limited, amounting to 16,900*l.*, for converting four beam engines at the Crossness sewage outfall into triple-expansion engines. In a letter which accompanied their tender, Messrs. Penn & Sons stated that they could not carry out the work under the conditions agreed to between the federated engineering employers and the joint committee of affiliated trade unions at the conclusion of the late engineering dispute, but that they did not anticipate there would be any great difficulty on that account. Subsequently, however, Messrs. Penn & Sons informed the Council's solicitor that they were unable to accept the conditions contained in the form of contract, and upon being asked to state in detail to what conditions they objected and what alterations they desired to have made, they replied by stating they could not then undertake the work. The main drainage committee reported that in these circumstances they could see no other course open but to accept one of the other tenders received on June 28. They passed over the next lowest tender as being one they could not ask the Council to accept, and recommended the acceptance of the next tender, that of Mr. B. Goodfellow, amounting to 20,864*l.*, as they were informed that this tenderer was capable of carrying out the work satisfactorily. The Council have now endorsed this recommendation, and the tender has been let to Mr. Goodfellow.

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Rae & Milne, Maryculter, carpenter.
A. Davidson, Banchory, slater.
G. Merson, Banchory, plasterer.
Thom & Strachan, Aberdeen, plumber.
Garvie & Son, Aberdeen, painter.

For hotel at Culter. Mr. R. G. WILSON, architect, Aberdeen.

Accepted tenders.

R. Buchan, Aberdeen, mason.
R. Thomson & Son, Bourtreebush, Stonehaven, carpenter.
F. Morrison, Aberdeen, slater.
A. Ross, Aberdeen, plasterer.
W. W. Reid, Aberdeen, plumber.
W. Philip, Aberdeen, painter.

BARNSBURY.

For rebuilding the Royal Oak, Offord Road. Messrs. DEAR & WINDER, architects, 9 Southampton Row, Holborn, W.C.

Killby & Gayford	£7,035 0 0
Beer & Gash	6,990 0 0
Dearing & Son	6,975 0 0
A. Bush	6,688 0 0
J. Anley	6,486 0 0
J. Milroy	6,247 0 0
Sheffield Bros.	6,234 0 0

BIRKENHEAD.

For alterations and additions to Argyle Billiard Halls, for the Lancashire and Cheshire Billiard Halls, Limited. Mr. THOMAS W. CUBBON, architect, Birkenhead.

G. WOODS & SON, Bootle (*accepted*) . . £571 10 0

BRIDLINGTON.

For constructing works of sea defence on the north beach.

B. ROBINSON, Hull (*accepted*) . . . £760 0 0

BRIDLINGTON QUAY.

For erection of a pair of semi-detached villas on the east side of Cardigan Road, Hilderthorpe. Mr. SAMUEL DYER, architect, Bridlington Quay.

T. Spink, Bridlington Quay	£1,200 0 0
W. BARNES, Bridlington Quay (*accepted*)	1,190 0 0

For erection of a pair of semi-detached villas in St. John's Avenue. Mr. J. EARNSHAW, architect, Bridlington Quay.

E. Corner	£1,320 0 0
Blackburn & Son	1,314 4 6
S. Booth	1,152 0 0
E. Wilson	1,088 17 5
Sampson & Siddall	1,054 10 9
W. Barnes	969 0 0
T. BLACKBURN, Bridlington Quay (*accepted*)	949 0 0

For additions to Londesborough Houses, Promenade. Mr. SAMUEL DYER, architect.

E. CORNER, New Burlington Road (*accepted*) . £365 0 0

BURTON-ON-TRENT.

For providing a supply of water to the farm buildings, houses and cottages upon the sewage farm at Eggington. Mr. GEORGE T. LYNAM, borough engineer.

TIMMINS & SON, Runcorn (*accepted*) . . £1,701 2 4

CHEPSTOW.

For rebuilding the George Hotel, Chepstow, for Councillor R. Hughes, J.P. Messrs. VEALL & SANT, architects.

A. King & Sons	£3,688 0 0
T. G. Diamond	3,499 0 0
J. Phillips	3,450 0 0
H. Smith	3,275 0 0
J. Linton	3,090 0 0
J. Jenkins	3,077 0 0
W. H. Ingleson	3,072 0 0
W. Symonds & Co.	3,053 0 0
KNOX & WELLS, Cardiff (*accepted*)	2,878 0 0

COLCHESTER.

For erection of new town hall.

Kerridge & Shaw, Cambridge* . . . £37,000 0 0

* Exclusive of the Victoria tower—the ex-mayor's gift (recommended for acceptance).

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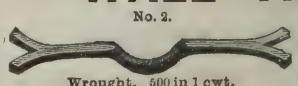
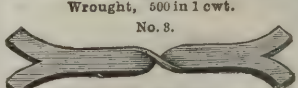
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DOUGLAS.

For erection of new lecture hall, classrooms, &c., for Finch Hill Congregational church. Mr. THOMAS W. CUBBON, architect, Birkenhead.

W. Gradwell	£2,500 0 0
W. J. Faragher	2,458 6 0
R. F. Douglas	2,400 0 0
J. R. Craine	2,152 16 0
W. Kelly	2,111 0 0
J. H. & R. CREER, Douglas (*accepted*)	2,090 3 0

DUDLEY.

For sewering new streets at Scotts Green and a portion of Stourbridge Road. Mr. JOHN GAMMAGE, borough surveyor.

J. Mackay	£440 0 0
J. Davies	419 3 0
H. HUGHES & SONS, Lower Gornal, near Dudley (*accepted*)	350 0 0

EAST HAM.

For erection of premises for Messrs. Melling's Food Company for India, Limited, Upton Park, E. Mr. G. P. SMEDLEY, architect, 110 St. Martin's Lane, Charing Cross, W.C. Quantities by Mr. W. LOCKWOOD, 110 St. Martin's Lane, W.C.

T. J. Messom	£6,193 0 0
J. Outhwaite & Son	5,937 0 0
F. & F. H. Higgs	5,843 0 0
Perry & Co.	5,688 0 0
Miskin & Sons	5,640 0 0
DEARING & SON (*accepted*)	5,401 0 0

EDMONTON.

For supply and erection of engines and dynamos, condenser and pipework and wiring for about 600 lamps, with switchboard, battery, &c., at workhouse.

T. METCALFE, LIMITED, Yorks (*accepted*) £2,485 15 0

EXMOUTH.

For alterations and putting on portion of new roof at The Lawn. Mr. ERNEST E. ELLIS, architect, 20 Morton Road, Exmouth.

A. HAYMAN, Exmouth (*accepted*).

FLEETWOOD.

For construction of an underground convenience, &c. Mr. ROBERT T. HAYES, surveyor.

Moore Bros.	£1,908 15 3
O. Ashworth	1,964 17 3
J. KIRKBRIDE, Fleetwood (*accepted*)	1,603 5 3

HUNSTANTON.

For erection of one of Meldrum Bros. patent refuse destructors and a Cornish boiler.

MELDRUM BROS., Atlantic Works, City Road, Manchester (*accepted*) £760 0 0

IRELAND.

For repairs of several cottages at Rathkeale.

Holy Cross cottage.

M. BRENNAN, Rathkeale (*accepted*) £4 5 0

Rathkeale cottage.

M. BRENNAN, Rathkeale (*accepted*) 4 8 0

Enniscouslo cottage.

J. O'DEA, Rathkeale (*accepted*) 5 5 0

Ballywilliam cottage.

J. O'DEA, Rathkeale (*accepted*) 5 5 0

For erection of one labourer's cottage, Knocksaharin, Candroma, Macroom.

D. DENNIEN, Knockvor, Macroom (*accepted*) £95 0 0

KINGSBRIDGE.

For alterations to reservoir in Fore Street.

H. WINGATE (*accepted*) £59 10 0

LEAMINGTON.

For providing and fixing wrought-iron fencing with several pairs of gates. Mr. W. DE NORMANVILLE, engineer, Town Hall.

W. A. Baker & Co., Limited	£736 10 0
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HILL & SMITH, Ironworks, Brierley Hill (*accepted*)	601 15 4
J. O. Brettell	535 13 0

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For erection of rescue house at Roundhay Park.
J. OLIVER, Leeds (*accepted*) £120 0 0

LIMAVADY.

For erection of labourers' cottages, for Guardians of Limavady Union, viz. two in townland of Drumavally, Bellarena, and two in townland of Carrowmuddle, Myroe.

For each pair of houses.
R. S. HULL, Limavady (*accepted*) . . . £271 14 11

Bellarena cottages.
J. Wray 300 0 0

Myroe cottages.
J. Wray 290 0 0

LIVERPOOL.

For alterations to the Empire Billiard Halls, for the Lancashire and Cheshire Billiard Halls, Limited. Mr. THOMAS W. CUBBON, architect, Birkenhead.
G. WOODS & SON, Bootle (*accepted*) . . . £124 10 0

LONDON SCHOOL BOARD.

For removing three iron buildings and appurtenances from Ennersdale Road, and re-erecting them in Vallance Road.

T. Cruwys	£1,098 0 0
J. Mitson & Co.	984 17 1
J. & W. T. Hunter	975 0 0
Humphreys, Limited	900 0 0
T. J. Hawkins & Co.	895 0 0
W. HARBROW (*accepted*)	875 0 0

For enlargement—boys, 82; girls, 82; infants, 76; total, 240. Providing halls for all departments, Snowsfields.

E. Triggs	£16,761 0 0
F. & H. F. Higgs	15,589 0 0
B. E. Nightingale	15,578 0 0
E. Lawrance & Sons	15,006 0 0
W. Downs	14,770 0 0
T. L. Green	14,395 0 0
Edwards & Medway	13,946 0 0
Lathey Bros.	13,937 0 0
W. JOHNSON & CO, LIMITED (*accepted*)	13,429 0 0

LONDON SCHOOL BOARD—*continued.*

For enlargement—boys, 130; girls, 130; infants, 156; total, 416; new entrance to manual training centre from Grove Street, removing wall in schoolkeeper's yard and providing new fence.

J. G. Cowell	£5,350 0 0
J. N. Try	4,575 0 0
E. Lawrance & Sons	4,549 0 0
Kirk & Randall	4,389 0 0
A. White & Co.	4,187 0 0
Johnson & Co.	4,154 0 0
Staines & Son	3,845 0 0
E. P. Bulled & Co.	3,690 0 0
J. & C. BOWYER (*accepted*)	3,398 0 0

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Gardner & Hazell	+22½ p.c.	+25 p.c.	+25 p.c.
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J. Haydon	—	*+12½ p.c.	*+12½ p.c.
Marchant & Hirst	+25 p.c.	—	—
T. Willson	—	+22½ p.c.	+22½ p.c.

* Accepted.

NEWCASTLE-ON-TYNE.

For rebuilding the North Pier.
SIR J. JACKSON, LIMITED, London (*accepted*) £440,950 12 2

NOTTINGHAM.

For alteration of premises, offices and stabling at Poplar Square. Mr. ROBT. CLARKE, architect, Prudential Buildings, Nottingham.

F. Wallis	£3,161 0 0
T. Fish & Son	3,000 0 0
F. Messom	2,902 0 0
J. H. Williamson	2,898 0 0
H. Vickers	2,870 0 0
A. B. Clarke	2,763 0 0
J. H. VICKERS (*accepted*)	2,747 10 0

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PEEL.

For alterations and additions to National schools, for the Worshipful Company of Clothworkers, London. Mr. THOMAS W. CUBBON, architect, Birkenhead.

R. F. Douglas	£2,215 0 0
W. Kelly	2,080 0 0
D. Anderson	2,066 0 0
F. Crowe	1,823 0 0
CRAINE & RADCLIFFE, Peel (*accepted*)	1,562 6 0

For erection of new higher grade and secondary schools, for the Worshipful Company of Clothworkers. Mr. THOMAS W. CUBBON, architect, Birkenhead.

W. Kelly	£7,040 0 0
Craine & Radcliffe	6,128 7 0
F. Crowe	5,750 0 0
D. & E. ANDERSON, Peel (*accepted*)	5,656 10 6

PETERBOROUGH.

For painting, varnishing and distempering the wards of the workhouse infirmary. Mr. J. G. STALLEBRASS, architect, North Street, Peterborough.

Fellick	£270 0 0
Beach	119 9 0
English	114 17 5
Money	110 0 0
Morey	101 7 2
Harris	98 0 0
Haydon	92 10 0
R. Beech	91 18 6
Rawlinson	87 19 0
BIRD & BARNES, Peterborough (*accepted*)	79 0 0

STOCKWELL.

For erection of a billiard-room, &c., at the Grosvenor Arms, Sidney Road, Stockwell. Mr. A. J. PERRIAM, architect, 43 Cannon Street, E.C.

Antill & Co.	£1,885 0 0
Maxwell Bros.	1,810 0 0
Rhodes	1,689 0 0
Gould & Brand	1,665 0 0
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BRAGG & SONS (*accepted*)	1,544 0 0

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Storey & Preston	£27 15 0
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For work to be executed at 10 Calverley Parade.

J. Austen	£128 0 0
J. W. Boulter	112 12 6
Huggett & Bridger	108 0 0
G. Brooks	105 15 0
J. F. May	100 0 0
Ovenden & Donovan	88 12 6

WEDNESBURY.

For erection of isolation hospital buildings (wood and construction), boundary walling, &c. Mr. E. MARTIN SCOTT, borough engineer.

G. Summerhill	£1,550 0 0
J. Mitson & Co.	1,477 0 0
W. Harbrow	1,410 0 0
T. J. Hawkins & Co.	1,275 0 0
E. HADLEY & SONS, Dudley (*accepted*)	1,083 0 0

MISSING ASSESSMENTS IN THE CITY.

THE improvements and finance committee of the Corporation of London has had laid before it a report which shows that the Corporation is the loser of nearly 5,000*l.* per annum owing to the fact that large and valuable properties in almost every parish in the City have escaped assessment for many years past, while others have been unassessed owing to rebuilding operations. In addition, many warehouses and wharves on the river have never appeared in the rate-books. The loss in a group of seven City wards is estimated at 2,000*l.* a year. In one small parish nearly all the premises have been omitted in the rate-books, and have consequently not been assessed. In the majority of cases the sums unpaid are comparatively small, while in one or two instances the loss amounts to several hundred pounds. The report of the committee will be presented at a meeting of the Court of Common Council on Thursday, and in the meantime steps are being taken to insert the missing premises in the rate-books.

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ELECTRIC NOTES.

THE Arbroath Town Council, as the Gas Corporation, have defined an area of over a mile in the principal business part of the town for the supply of the electric light, under the provisional order for which they have resolved to apply.

PHOSPHORUS is now produced by means of the electrical furnace. The method consists in heating a mixture of phosphate of lime and coke, which are first reduced to a powder. When the mass becomes pasty, the openings of the furnace are sealed except one, through which the vapour passes. The vapour is collected and distilled.

POWERS are to be asked by the Kirkaldy Corporation in the coming session of Parliament for the introduction of electric lighting. The scheme will apply to a large portion of the town, including High Street, and electricity will, in addition, become the traction power in connection with the system of tramways to be inaugurated, for the carrying through of which the necessary powers are also to be sought.

OFFICIAL notification has been given by the Urban District Council of Castleford, in the West Riding of Yorkshire, of their intention to apply to the Board of Trade, under the Electric Lighting Acts, for a provisional order to empower them to produce, store and supply electricity. The Keighley Corporation also notify their intention to apply for electric-lighting powers, and the Mexborough Urban District Council are seeking a similar authorisation. The Mirfield Urban District Council intimate that they intend to apply for power to supply electric light and power within their district.

MUSSELBURGH Town Council held a special meeting last week, at which there was discussed the expediency of establishing an electric-light supply for the burgh. It was decided in the first place to take action to oppose the application of a London syndicate for powers to establish a supply in the burgh. A special committee was then formed to consider the whole question with the assistance of an electrical expert, and to establish whether or not a municipal electric scheme would be a profitable venture.

A MEETING of the Heckmondwike District Council was held on the 14th inst., when a communication was read from the Board of Trade calling attention to the expiration of the Council's provisional order (1891), authorising borrowings for an electric-light installation. The clerk was instructed to reply explaining the Council's position on the question. In reply to a letter from the local Tradesmen's Association, the chairman stated that the Council never intended pledging itself to any scheme of electric lighting, electric traction, or any other venture involving the spending of a large sum of money, without first taking the ratepayers into their confidence.

AT a special meeting of the Durham Urban District Council held in the Mayor's Chamber to take into consideration the desirability of applying to the Board of Trade for a Provisional Order under the Electric Lighting Acts, 1882 to 1890, authorising the local authority for the city of Durham to supply electricity for any public or private purposes within the district of the local authority, the report prepared by Mr. W. C. C. Hawtayne, C.E., of Mansion House Chambers, London, was read, and after some discussion the following resolution was put and carried unanimously:—"That this Council being the local authority for the purpose, under the Electric Lighting Acts, 1882 to 1890, memorialise the Board of Trade for a Provisional Order authorising this Council to supply electricity for any public or private purpose within the district of this Council, and that all the necessary notices of such application be prepared and published as required by the said Acts or any rules made under the same."

THE streets, shops and Promenade of Llandudno were for the first time on the 5th inst. illuminated with the electric-light. There was no public celebration of the event, but a number of the Llandudno Urban District Councillors assembled at the electric works by invitation of Mr. A. H. Preece, the engineer of the scheme, to witness the first "switching on" of the light by Mr. T. T. Marks, C.E., chairman of the Council. There were also present Mr. W. H. Preece, president of the Institution of Civil Engineers, Mr. W. A. Darbishire and others. The plant of the new generating station consists of three Babcock-Wilcox boilers, two of which will be fired from Beaman & Dea's destructors, while the third will be hand-fed with coal or coke; the whole of the boilers may be fired with coal or coke by hand if necessary. The proximity of the electric light and gas departments, each a municipalised undertaking, combines convenience with economy in the matter of fuel. The refuse destructor is one of most modern approved construction. The same may be said of the engine-room, which is at present equipped with two 100-kilowatt dynamos and one 50-kilowatt dynamo, together with a motor generator for regulation and for charging the batteries. The two principal generating sets are each capable of giving an output of 100 kilowatt at 440 to 500 volts. There is also a third generating set,

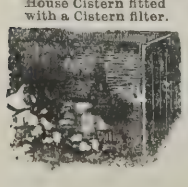
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capable of giving an output of 50 kilowatt at 600 volts. A balancer is provided, each armature capable of carrying a current of 100 amperes, and working at a voltage varying between 200 and 256 volts, so that it can transfer 25 kilowatt from one side of the three-wire system to the other. For the street lighting there are altogether 48 arc lamps erected on cast-iron pillars. The lamps along the front of the Promenade, thirty in number, as well as those of important crossings, are fixed in carriers, protected from the weather by a canopy—an ornamental as well as useful appendage. The remaining eighteen lamps are all fixed along the kerb at the side of the road, suspended from overhanging brackets. The lamps are run in groups of eight in series, and are of the well-known Crompton-Pochin type. Fitted with opalescent globes, they are for single carbons, burning for eighteen hours without re-trimming. Each lamp is provided with an automatic "cut-out," which in the event of the lamp "hanging-up" from any cause immediately "short circuits" it so that the other lamps in that particular circuit are not extinguished. The lamps on the sea-front are fixed about fifty yards apart, those in the town at a slightly greater distance.

AT a special meeting of the Northallerton Urban Council it was decided to grant Mr. J. E. Hutton, electrical engineer, permission to establish works to light the town. Mr. Hutton proposes to form a company, and will put down two lights free of cost. It was also decided to ask the Sewage Purification Company to state when they will hand over their works to the Council.

TRADE NOTES.

THE County Infirmary, Downpatrick, is being warmed and ventilated by means of Shorland's patent Manchester grates.

MESSRS. SANKEY & SON, of Iron Bridge and Essex Wharves, Canning Town, London, E., write us that they have purchased the business of Messrs. A. Gregory & Co, lime, cement, brick and sanitary goods merchants, carried on by them at Plumstead, Woolwich Arsenal, S.E.R., Bexley Heath, and Erith, and the same will be carried on by them in future.

IT is satisfactory to note that the fire protection of the Metropolitan Tabernacle, now being rebuilt, has received adequate attention, the architects, Messrs. Searle & Hayes, having instructed Messrs. Merryweather & Sons to provide one of their high-pressure fire-mains and other fire-extinguishing appliances.

MR. CHATWOOD, of Chatwood's Patent Safe and Lock Company, Limited, is now on his way from Egypt, where he has received instructions for the manufacture and erection upon the premises of the banks at Cairo and Alexandria of steel strong-rooms measuring in each case about 40 feet in length, with internal bullion safes, &c.

BUILDING AND BUILDERS.

A NEW Primitive Methodist chapel is to be built at Daisy Hill, Bradford Fourth, Yorks.

THE foundation-stone of the new church of St. John, at Hessay, near York, was laid on the 9th inst. The cost of erection will be about 850*l.*

A LABOURER named Thomas Halloran, of Rose Hill, Bolton, was killed last week by a fall at the new Victoria Mission Hall, Knowsley Street. He was at work on a scaffold when he missed his footing, and fell 30 feet, dashing his head against a brick.

IN the recent open competition for schemes of sewerage, sewage disposal and water supply for the district of Wivenhoe, Essex, those submitted by Messrs. Sands & Walker, civil engineers, Nottingham, have been selected as the best and unanimously adopted by the Council.

THE Goole School Board have awarded the first prize to the competitive plan of Mr. Tennant, architect, of Pontefract, for the swimming baths which they intend to erect at Alexandra Street schools, and the second to Mr. H. B. Thorp, architect, of Goole.

MR. A. M. TORRANCE, chairman of the fire brigade committee of the London County Council, on Saturday laid the foundation-stones of two new fire stations. One is to be at Mary Ann Street, Woolwich, and the other at High Street, Lewisham.

THE Goole School Board and the Goole Urban Council are at present both undertaking to provide the town with swimming baths, and in consequence of this dilemma the Urban District Council held a special meeting and passed a resolution asking the Education Department to prohibit the School Board from proceeding further with their scheme for providing baths, especially as the Urban Council had agreed to accommodate school children at a halfpenny per head.

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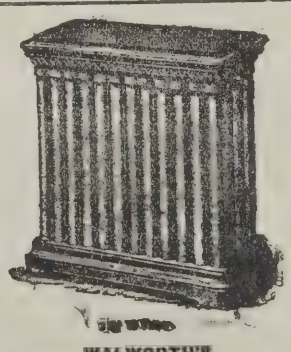
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THE town hall committee of the Colchester Town Council have decided to recommend the Council to accept the tender of Messrs. Kerridge & Shaw, of Cambridge, for 37,000*l.*, for the erection of the new town hall. The cost of the Victoria Tower will be borne by Mr. J. N. Paxman, the ex-mayor.

THE memorial-stones were laid on Tuesday of new Sunday schools in Vine Street, Coventry. They are to be erected at a cost of 1,500*l.*, will be two storeys in height, contain eight classrooms and accommodate 520 pupils.

A WORKING-MAN engaged on some repairs in Serjeants' Inn, London, on Monday fell from the roof on spiked railings beneath, from which he was removed by some passers-by. The man, who was unconscious and evidently terribly injured, was taken to King's College Hospital.

THE strong and influential committee that has been formed to erect a memorial church to the memory of the late Dean Vaughan met on Saturday last at the Church House, when the drawings of Messrs. J. E. K. & J. P. Cutts were approved, and the work is to proceed forthwith. The church is to seat 750 people at a cost of about 10*l.* per sitting, exclusive of the tower and spire shown on the design, and which is to be erected at a future time.

WITH reference to the proposal by the Caledonian Railway Company to construct a bridge across Argyll Street, Glasgow, which will form a continuation of the existing bridge as far as the east side of Hope Street, the Broomielaw ward committee have appointed a special sub-committee to act along with their municipal representatives. A special sub-committee of the Clyde Trust has been appointed to consider the proposal of the Caledonian Railway Company to erect a bridge across the Clyde at Broomielaw.

THE memorial-stone of a new Baptist chapel for Longsight was laid on the 12th inst. The new building, which will accommodate over 500 persons, has a frontage to Slade Lane, and will be an ornament to this rapidly growing suburb. The architect is Mr. Thomas D. Lindley, of Ashton-under-Lyne. The building will be in Gothic style. At the rear of the chapel there will be a lecture-room, which for the present is to be used as a Sunday school, although the site is sufficient for a school, which will be built at a later period. Both the chapel and lecture-room will be supplied with the electric light, and the total cost of the land and buildings, including furnishing, will be 3,700*l.*

THE scheme of the Workington Corporation and iron-masters for a deep-water dock at Workington having fallen through, the Maryport Harbour Commissioners have decided upon a large scheme of dock extension. They propose to incorporate a company under Act of Parliament to buy the harbour estate, and provide additional modern accommodation for increasing the trade of West Cumberland. Particulars will shortly be submitted to the bondholders, and if the negotiations proceed satisfactorily a Bill will be introduced next session. It is claimed that the Commissioners' scheme would give all the dock accommodation required by the West Cumberland iron trade, and that the building of a large dock at Workington would result in neither Workington nor Maryport harbours paying.

A SERIOUS accident occurred last Friday morning in a building in the course of erection at the corner of George Street and Dundas Street, Glasgow. Two bricklayers and a labourer were working on a scaffold, about 16 feet square, and situated fully one storey high, when from some cause unknown one of the supporting cross-beams gave way, and the men fell to the ground, a distance of about 30 feet. Two of them received severe injuries, and had to be conveyed to the Royal Infirmary in an ambulance waggon. The third man was able to walk home. It is an interesting fact that the men had been newly engaged, and had just started work at 10 o'clock when the accident took place. The foreman mason had a narrow escape, as he was standing on the scaffold a minute previously, and had just gone over to work at another part of the building.

THE bricklayers' strike in Hereford has been settled after existing eight months. A delegate from the Operative Bricklayers' Society has been down from London, and terms a little better for the master builders than those previously offered have been agreed upon. Among other things it has been agreed that the walking time to work shall be paid for after the first mile and a half (instead of the first mile); that messrooms shall be provided for men on all jobs where practicable (the last two words being added to the previous condition); that the wages shall be 7½*d.* per hour for skilled labour, superior workmen to be rated by the foreman or employer; that six months' notice shall be given to terminate any of the rules, such notice to expire on November 1, and that the rules as now agreed upon shall remain in force for two years from this date. The local bricklayers refused to sign the agreement, but it was taken up to London, where it was signed by Mr. John Batchelor (the London secretary of the Operative Bricklayers' Society), and

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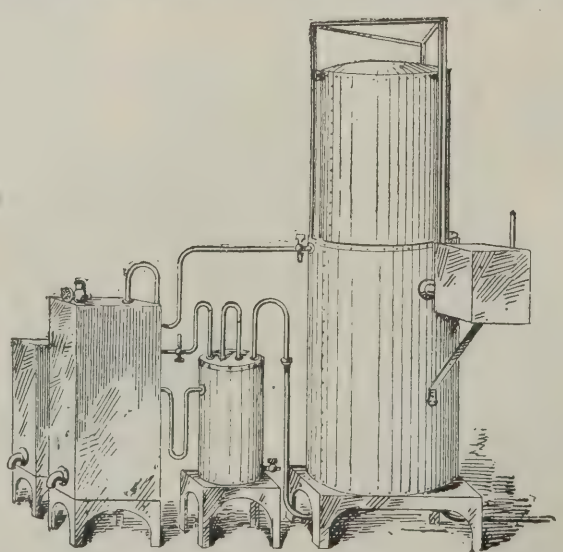
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therefore it becomes binding. The men have also had notice from the Society that they are at liberty to resume work.

At the usual monthly meeting of the Morecambe District Council, Mr. T. Baxter presiding, over forty sets of plans were submitted, these including plans for the erection of a new hotel, to be called the Park Hotel, on the site of the Regent Park Pavilion, which is about to be demolished. Plans for several new streets were submitted and approved. A memorial was presented by the Morecambe technical instruction committee asking the Council to provide a town's institute, to be used as technical schools. The site suggested was near to the place where the new Board schools are to be erected. On the casting vote of the chairman it was decided to purchase 860 yards of land from the Midland Railway Company for 2,050*l.* The census of the township has recently been taken, and shows the present population to be 11,000.

A PROPOSAL is on foot for utilising part of the site of the Brighton Aquarium for the construction of a winter garden. This will involve, says the *Daily News*, various structural alterations, regarding which, according to the terms of the Company's Act of Parliament, the Brighton Town Council have certain rights. In order to facilitate the negotiations, it is contemplated by the syndicate which has the matter in hand to offer the Town Council opportunities for materially improving the marine parade, or at any rate that portion of it which runs the entire length of the Aquarium Company's building, that is to say, from the Old Steyne eastwards to the site of the now vanished Chain Pier. At this latter point the broad esplanade that runs from the eastern boundary of the borough (Kemp Town) is checked by the flight of steps that lead to the beach, and thenceforward to the Steyne becomes much narrower. The proposals now under consideration have as their object the widening of this part of the esplanade, which, instead of following the concave shape of the cliff, would be brought out into practically a straight line, being thus widened by from 15 to 25 feet. Skeleton erections have been placed *in situ*, so as to indicate the important improvement which would thus be effected. A sub-committee of the Council has the matter under consideration. Meanwhile, progress is being made with the new Palace pier opposite the Aquarium (with which undertaking, however, it has no connection). The pier has already been carried out to about 1,600 feet, and, though it will not then be finished, it is hoped that this portion of it will be planked and available for promenading during next spring.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: TOWER AND SOUTH TRANSEPT.—VIEW BEHIND SCREEN.

SAVOY HOTEL, STRAND: NEW FOUNTAIN IN COURTYARD.

HOTEL METROPOLE, FOLKESTONE.

VARIETIES.

THE extensive sawmills worked by Messrs. Oxley Brothers, at Doncaster, have been entirely destroyed by fire.

THE new Nurses' Home and Dispensary attached to the Ormskirk Cottage Hospital, and which have been erected at a cost of between 2,000*l.* and 3,000*l.*, was opened on Saturday afternoon.

THE special plant which has been in use in the construction of the harbour extension works at Dover, now rapidly approaching completion, is to be removed to the Tyne, the Tyne Commissioners having accepted the tender of Sir John Jackson, Limited, to rebuild the North Breakwater at a cost of 440,000*l.*

THE Preston Theatre Royal, which has been reconstructed from designs by Mr. John P. Briggs, of Arundel Street, Strand, and is now a very handsome and commodious theatre, with a stage large enough for the most elaborate spectacle, was opened on the 31st ult.

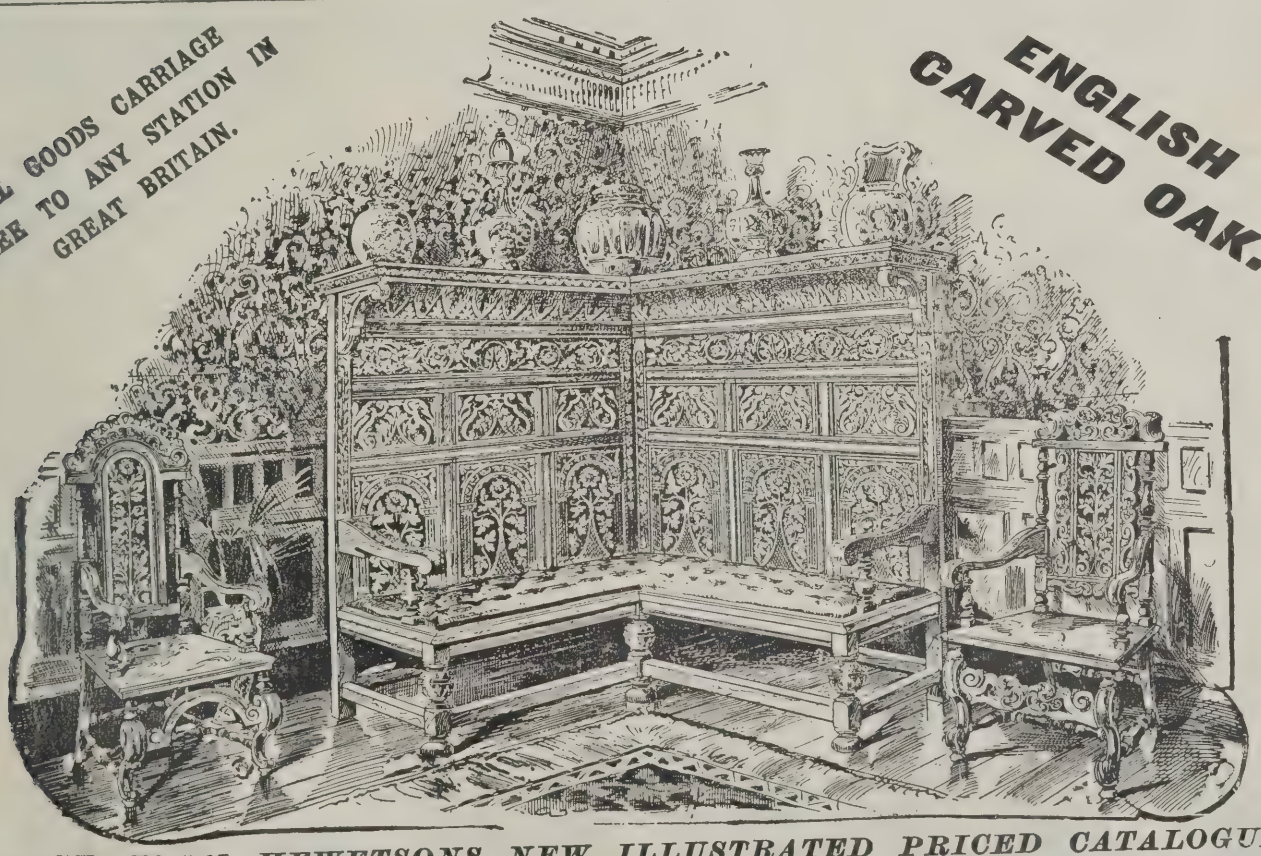
AN adult Sunday school, erected by the Society of Friends at Paddock, Huddersfield, was opened on the 12th inst. The building has been constructed from plans by Mr. J. Berry, architect, Huddersfield, at a cost of about 1,200*l.* The school occupies the site of the original meeting house.

PRINCESS MARY'S Convalescent Home, Bognor, was opened with some ceremony on Wednesday. The building is separated from the sea by a wide, green field. There are twenty-eight beds, the staff comprising three nurses and a matron, while accommodation is provided for one or more nurses from the Shadwell Hospital who may require rest and quiet. The total cost, when completed, will be 7,200*l.*

A HANDSOME hotel has just been opened at the Belfast terminus of the Belfast and Northern Counties Railway. It will be worked in connection with the Northern Counties

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TEMPSFORD HALL, Bedfordshire, has been completely destroyed by fire. The mansion, rebuilt on the site of the old hall, was composed of red brick and Dumfries stone, and was the residence of Major Dugald Stuart, whose father, the late Colonel Stuart, was for many years member for Bedford. Among the contents was the trunk of the first tree cut down in Pennsylvania by William Penn.

IT has been decided to restore the Palace of Versailles, and the not less celebrated Trianon, for the Paris Exhibition of 1900. The Minister of Fine Arts has asked Parliament for a vote of 300,000 francs for the purpose. The famous crystal gallery, where the Kaiser's illustrious grandfather was proclaimed Emperor, will be renovated, the orangerie will be repaired, the façades of the palace towards the park restored, and the Grand and Petit Trianon, which now look neglected and are becoming dilapidated, will also be put into a state of thorough repair.

NORTHWICH has again experienced the devastating effects of the brine-pumping operations, which to a great extent support while (in another sense) undermining the town. An alarming subsidence in the London Road has occurred which, according to latest advices, already measures 180 feet long, 160 feet wide and 12 feet deep, and is "still growing." Buildings are thrown in some cases as much as 4 feet out of the perpendicular, and present an extremely woebegone and uncanny appearance.

A MISSION HALL in connection with St. Aidan's parish, Belfast, has been opened by the Lord Mayor of Belfast. The hall occupies a convenient site at the corner of Tierney Street, on the Donegall Road, and is situated in what may be termed the slum district of Belfast. It has been designed by Mr. T. H. Jackson, architect, and built by Messrs. Courtney. It is of brick, and has a spacious hall on the second floor which will accommodate about 300 persons. The ground floor contains three convenient classrooms and other apartments. The building cost about 1,250*l.*

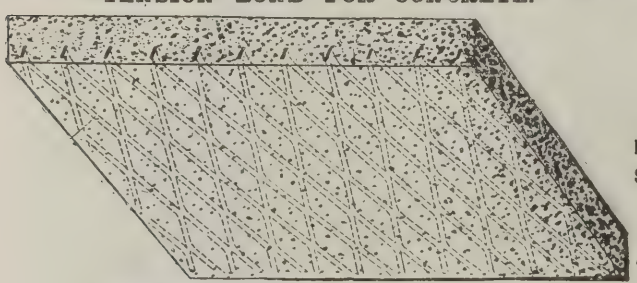
A NEW infants' school in connection with Hunslet Carr Board school, the fifty-sixth school built by the Leeds Board, was formally opened on the 10th inst. Situated in Woodhouse Hill Road, on a site containing 3,649 square yards, the new premises will accommodate 530 children. Both internally and externally they are a credit to Mr. W. S. Braithwaite, the architect to the Board. On three sides of a central hall are classrooms, and on the fourth cloakrooms. One large room provides for 110 children, and in a smaller one 60 babies may be cared for. The total cost, including site, has been 6,200*l.*

AN international conference was held at Dover on Friday last for the purpose of considering what steps can be immediately adopted to obviate the serious inconvenience caused in the outer harbour at Dover, with certain high winds, which render it dangerous for the mail boats to use the Admiralty Pier. The authorities represented included the English railways running to Dover, the Northern of France Railway Company, the Belgium Government, the Dover Harbour Board and the engineers, Messrs. Coode, Son & Matthews. As a result of the conference it is understood that the lengthening of the Admiralty Pier, which forms a part of the National Harbour scheme, will be pushed on with the utmost possible speed. As soon as this is run out far enough to overlap the East Pier, it will intercept the tidal currents. The whole difficulty will thus be overcome, and there will be absolutely calm water in Dover Harbour in the heaviest westerly gales.

THE death of Mr. Alexander Tait, solicitor and town clerk, Grangemouth, took place on the 10th inst. at his residence, Janeville. The deceased gentleman, who had been in delicate health for some time, went to Grangemouth about twenty-seven years ago, and on Grangemouth being formed into a burgh in 1872 was appointed town clerk, which office he filled up to his death, and fulfilled his various duties to the satisfaction of the community. He held a number of other public offices, being registrar to the town, and for a number of years secretary to the Grangemouth branch of the Stirlingshire Liberal Association. He was also for some time clerk and treasurer to the School Board, manager of the Grangemouth Traders' Building Company, Limited, and session clerk to the parish church, &c. He devoted himself zealously to the work of the burgh, and was much respected in the district. He is survived by a widow and a son and daughter.

MR. W. A. DUCAT, representing the Local Government Board, attended at the Blackpool Town Hall on the 10th inst. for the purpose of holding an inquiry as to an application of the Corporation for sanction to a loan of 8,100*l.* for the extension of municipal buildings, including a town hall and offices. The town clerk (Mr. T. Loftos) said that 8,100*l.* was necessary to purchase land which was indispensable to the Corporation, as it was wanted for the extension of the town hall. The land,

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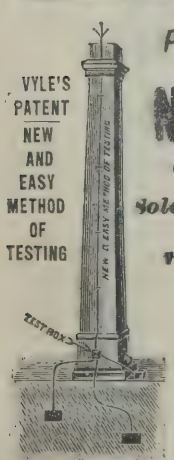
which was situated in Talbot Square and had business property built on it, was in one of the busiest thoroughfares in Blackpool. Originally, when the application was first made the Council could only borrow for thirty years, but by the Blackpool Improvement Act of 1898 they were entitled to a term up to forty years, and the Corporation desired sanction for a loan to cover that period. Figures given by Mr. Heyes (borough treasurer) showed the rapid growth of the town. The census, according to the borough treasurer, in 1891 gave the population as 23,846; at the present day it was said to stand at 42,800, exclusive of the visiting or floating population in the season. The decision of the Local Government Board will be reported in due course.

MR. C. WILLIAM TAGG, vestry clerk of Camberwell, presided over a largely attended meeting of the Superannuation Conference (convened by the Municipal Officers' Association) held at 117 Holborn, E.C., on Monday, November 14. The hon. secretary reported as to the replies received from the associations and societies who had been invited to send delegates and as to promises of financial support, and pointed out that it would be useless for him to continue to act as the hon. secretary unless the officers were prepared to give the movement more financial support, as it was quite impracticable to carry on an active campaign with the small amount subscribed during the last twelve months. The chairman in his remarks dwelt upon the absolute necessity of unity amongst officers, and that they must be prepared to find the necessary funds if they wished the Bill to become law. It was ultimately decided, in addition to asking the associations and societies sending delegates to the conference, to make an appeal to officers throughout the country to subscribe to a "Special Superannuation Conference Fund." At the request of the chairman a special committee was appointed to consider important proposals with regard to the Bill to be submitted in the next session of Parliament. The conference unanimously expressed its continued and unabated confidence in the chairman and hon. secretary for their conduct of the Local Authorities Officers' Superannuation Bill. Subscriptions to the special fund should be sent to the hon. secretary (Mr. C. J. F. Carnell) 117 Holborn, London, E.C.

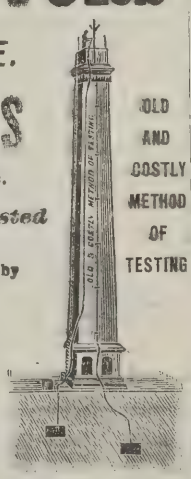
IN the course of some excavations necessary for the putting in of the foundations of a villa to be erected near Hammersmith Bridge, there has been found, some 9 feet below the surface, the paved floor of one of those Roman villas which, in the palmy days of the Roman occupation of Britain, abounded along the Thames Valley. The design of the pavement consists of half-circles, circles and triangles, bordered with what appear to be geometrical patterns or figures. In the area of the circles are depicted leopards and sea-dragons pursuing dolphins; in the centre compartment are dogs chasing foxes. In the spaces between the circles and the triangles are drawings representing the heads of Neptune, Venus, Jupiter, Mars, &c. Another design, in remarkable preservation, is believed to represent Actæon attacked by his hounds. There are also heads of Flora and of Ceres, Silenus mounted on an ass, a fine head of Medusa, and a vine-leaved Bacchus. These tiles are laid upon a bed of what appears to be a kind of concrete, supported upon brickwork, which again in its turn rests upon rammed-down clay, and the whole must have taken an immense time to execute.

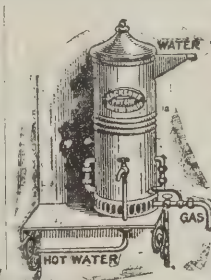
LEEDS architecture has gained materially by the erection of Messrs. William Brown & Co.'s new banking premises in Park Row. These handsome premises have been erected from the designs of Mr. Alfred Waterhouse, R.A., and cover an area of nearly 100 feet by 80 feet. The frontage to Park Row is 80 feet, to Greek Street and Russell Street about 100 feet. From the street level to a height of 26 feet the exterior is of polished grey Dalbeattie granite, relieved with courses and pillars of red granite. Above the granite the structure is faced with glazed buff terra-cotta. There is thus a striking but not disagreeable contrast, and the material having a polished surface the smoke will little affect it. The pavilions rise to a height of 90 feet above the street. The entrance to the bank from Park Row is a handsome feature. Double sets of swing doors give admission to the bank, a large, lofty apartment, lined throughout with faience from the Burmantofts branch of the Leeds Fire Clay Company. The colour scheme of this embellishment is light buff, relieved with brown and blue, whilst the capitals of the pillars supporting the ceiling are picked out in gold. The counter is 70 feet long, sufficient for ten cashiers. Behind it a screen, about 6 feet high, divides what may be termed the public portion from that occupied by the rest of the staff. The managers' rooms are at the rear, and they also display some beautiful faience work. In the basement, covering an area of about 75 feet by 50 feet, are the strong-rooms, where the bullion, bank-books, &c., are stored. These have arches of firebrick, upon which rests solid concrete 4 feet in thickness. The floor is likewise of concrete. The bullion-room is lined throughout with hardened steel plates. One of these six chambers contains the bank ledgers for the past fifty years. A

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self-locking lift conveys the bullion, books, &c., from the bank to the strong rooms beneath when business for the day is over, and back to the bank in the morning. A large, well-lighted luncheon-room and other accommodation is provided for the staff in the basement. On the upper floors of the building are commodious suites of offices, some fifty rooms in all. Strong-rooms are also provided. The entrance to these upper floors is in Greek Street, and they may be reached both by staircases and by a lift. Most of the offices are already let. The whole of the building is of fireproof construction, and ventilation has been adequately provided for.

THE important extension of the Dunfermline Cottage Hospital, which is to be known as the "Moray wing," as the cost of its erection was derived from a grant of 5,000*l.* from the trustees of the late Earl of Moray has just been opened. The additions consist of four new wards, each providing accommodation for three beds, together with bath-rooms and all conveniences. The extension also embraces a new operating room, a doctor's room and a nurse's duty room. The existing wards on the second flat are to be utilised for the accommodation of the nursing staff and servants, so that all the wards are on the ground-floor. The extension is to the east and north of the main building. A long corridor running eastwards leads to the new wards. The operating-room is situated in the north side of the corridor. This room is one of the features of the extension. It is admirably designed and fully equipped in every way. In order to prevent germs lodging about the room, there is not such a thing as a corner in the whole apartment, all the angles being rounded off. The walls are lined with a special cement, and the room can be flushed with water from floor to ceiling. Special attention has been devoted to the lighting of the chamber. The furnishings are of the most complete description. The room is believed to be one of the best of the kind in the country, being particularly well adapted in every respect to the purpose for which it is intended. A brick building, known as the observation block, has been erected to the east of the present laundry, a short distance from the main buildings. The block consists of two wards, with one bed in each. Accommodation for a nurse is also provided. This building is set apart for the treatment of doubtful cases. That is to say, a patient will be taken there if there is the least suspicion of any infectious trouble.

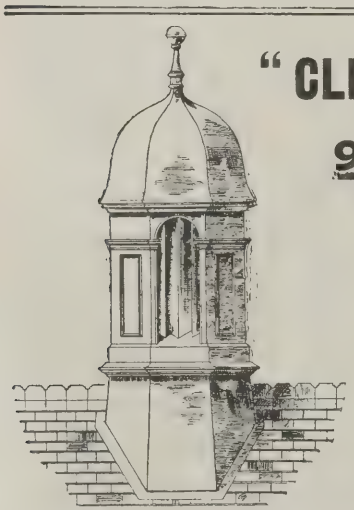
THE Middlesex County Council held a special meeting on Monday to consider further the question of rebuilding Kew Bridge In view of the fact that Surrey agreed to accept Mr. Gibb's tender and seek a fresh Bill, the Middlesex Council now resolved to do the same. Mr. Burt of Highgate expressed his opinion that the plans did not show a bridge of sufficient width to meet the increasing traffic. The chairman (Mr. R. D. M. Littler) concurred, but said that under the terms of the tender it would be open to require the contractor within six months to increase the width. Mr. Burt then gave notice to move at the next meeting that it should be an instruction to the joint committee to increase the width to 50 feet.

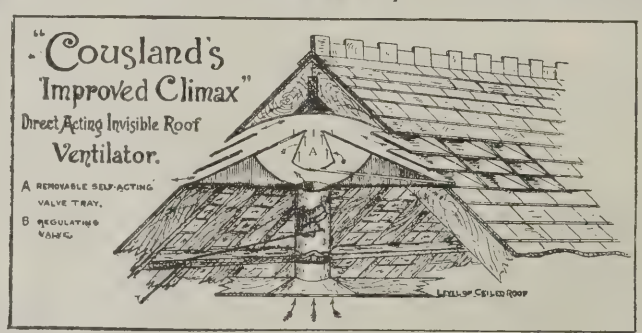
NEW GENERAL POST OFFICE, LIVERPOOL.

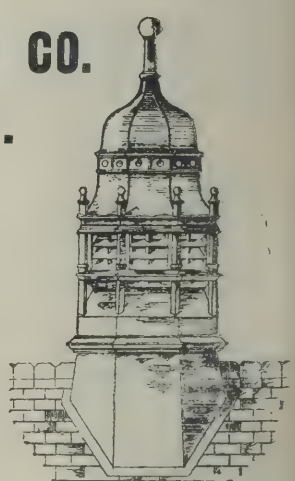
THE new General Post Office which has arisen in Liverpool from designs by Mr. Henry Tanner, chief architect of the Office of Works, and which has occupied about six years in erection, is now rapidly approaching completion, and it is expected that by Easter it will be in occupation and full working order. The architecture is in the Italian Renaissance style, and while symmetry has been sufficiently considered, the elevations have been judiciously broken up to produce an agreeable effect of light and shade. The site, which is central, covers two acres, and cost about 140,000*l.*; that of the building is estimated at 200,000*l.* The front elevation is in Victoria Street. One side flanks Sir Thomas Street, the other faces Stanley Street. Behind these buildings is a large yard for postal van traffic, with openings into Sir Thomas Street, Cumberland Street (a little street leading into Whitechapel), and Stanley Street. The new office is about equi-distant from all the railway stations, and is in the heart of business Liverpool. The length of the Victoria Street frontage is 223 feet, and from the street level up to the roof there is a height of 83 feet. Measured from the basement level the height of the five storeys is 96 feet. The Stanley Street elevation is 260 feet in length. At its Whitechapel end are two openings into the loading yard. The lower part of the yard is open, the upper part next the new building has a glass roof 50 feet by 178 feet.

The elevation to Thomas Street has a length of 25 feet. The whole of the interior is remarkably light, roomy and well fitted. The entire structure is fireproof. Each floor is supported by iron columns, and consists of a steel framework of joists and girders filled with concrete. Thirty hydrants are distributed throughout the building and placed where they may

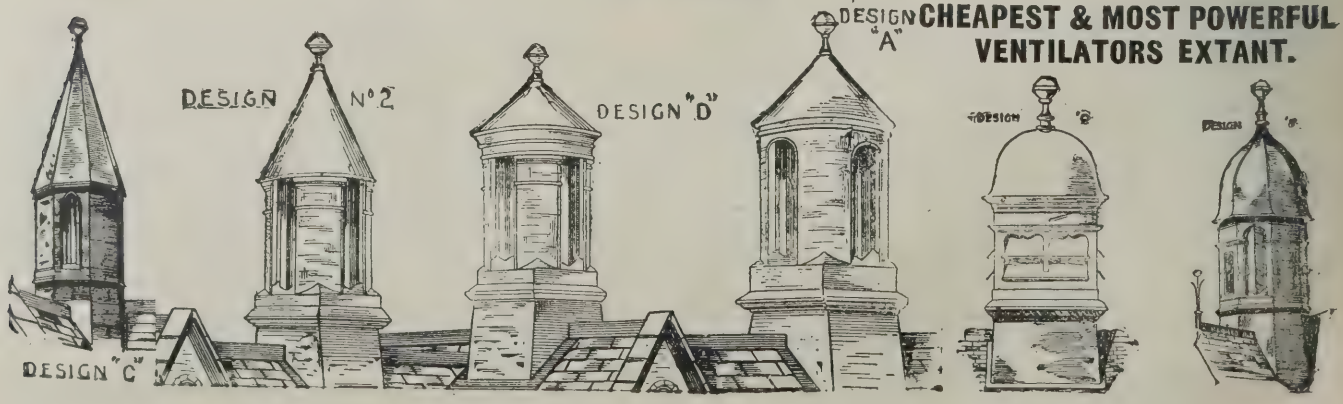
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be readily accessible. There are fireplaces and cooking ranges, but the general scheme of heating is by hot-water apparatus. Gas finds a use only for heating the wax pots, and electricity is the sole artificial illuminant, the Office of Works itself making the installation. Every room has an abundance of ventilators, both Kershaw's and Ellis's having been freely introduced. The windows are all fitted with plate-glass, and "murillo" glass is used in inside glazing. Messrs. Henry Johnson & Sons, of Pembroke Place, plastering, concreting, tiling and granolithic (corridors, &c.). Messrs. Wilby & Sons, 75 Falkner Street, plumbing and painting. The common bricks were supplied by the Ravenhead Brick Company, St. Helens; buff-facing bricks by Ashton Hall Brick and Coal Company; glazed bricks by Dennis, of Ruabon; Messrs. Easton & Anderson supplied the heaters, and Doulton's provided the sanitary appliances. The steel and iron work was done by Messrs. E. C. & J. Keay, Birmingham; and the wood fittings were supplied by Messrs. Brown & Backhouse, Liverpool; Pearson & Brown, Eccles, Manchester; W. Thornton & Sons, Liverpool; Delaney & Shanks, Birkenhead; and A. White & Sons, Liverpool.

APROPOS of the recent difficulties with the electric light in the city of Edinburgh, the following communication has been officially made to the press:—Some inconvenience has lately been experienced by users of electric light in Edinburgh through deficient pressure from five to seven o'clock P.M. This result has been caused primarily by the extraordinary demand for light and the non-delivery of machinery ordered a year ago. Of four large machines which were intended to have been delivered and running in August last, only one has until now been in operation. Of four boilers, also ordered a year ago, and intended to be in operation in August, only two have been fully at work, and when the other two were put on last week certain alterations in connection with smoke flues were found to be necessary. These could not possibly be carried out at the present stage owing to the heavy load, and a temporary expedient, in the shape of an iron chimney, has had to be set up, with a fan for induced draught. This has now been set in motion, and to all appearance it is likely to be fully successful, but a day or two may elapse before the full benefit is obtained. Everything possible has been done by the engineers to lessen the inconvenience, but the work has been of such a nature that an immediate remedy was impracticable.

THE GROWTH OF LONDON.

ON Monday Mr. Robert Vigers delivered his presidential address at the Surveyors' Institution, Savoy Street. There was a large attendance. Speaking as a surveyor of fifty years' standing he had, he said, seen the open spaces taken possession of by the extra two millions of people who had had to be provided for during that time. The population within the administrative county of London had risen from 2,363,374 in 1851 to 4,232,118 in 1891, or about 56 persons to the acre. The number of inhabited houses was 306,064 in 1851 and 548,315 in 1891. The serious problem was how to provide a population increasing at the rate of about half a million in ten years with the proper means of internal communication. Speaking broadly, the bulk of the heavy traffic of London was between the north and south, or the termini of the great railways on each side of the river. The lighter traffic and the ebb and flow of the pedestrian tide was, on the other hand, mainly from east to west. They might wonder what the state of things would be in twenty or thirty years' time, and yet nothing had been done to mitigate the growing inconvenience. The widening of the footpaths had scarcely been considered. The system of the tube railways would probably absorb some of the foot traffic, but their carrying capacity would soon be reached, and wider roads and pavements and new arteries for wheeled traffic would become imperative. What had hitherto been done was mere tinkering, and an enormous expenditure would have to be incurred in further widening streets like Oxford Street, Holborn, the Strand, Fleet Street and Ludgate Hill, which were originally laid out for a population one-tenth the present size. The value of property had enormously risen in the City, and he had purchased for 73,000*l.* property for which the grandfather of the vendors had given 1,500*l.*

THE HOTEL CECIL.

AN ordinary general meeting of this company was held on the 10th inst. at the Hotel Cecil. The report of the directors stated that the directors had gone carefully into the question of the "Strand Front," and having taken into consideration the difficulties which would arise if the property were let on a building lease, they had arrived at the conclusion that it was

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most desirable in the interests of the company to complete the scheme. Satisfactory financial arrangements had accordingly been made, and the building would be completed as expeditiously as possible. Meanwhile the interest on the 200,000*l.* debentures and the interest on the loan of 70,000*l.* (both of which had been specially applied in the acquisition of the property) was being charged with the other expenditure on the Strand front to that account, as part cost of the undertaking.

Colonel Carrington, the chairman, said the directors wished to congratulate them on the decided improvement in the current year's trade. The directors had gone carefully into the question of the Strand front, and it had been much modified by the terms on which the money was to be obtained. But for the arrangement they had made they would have had to hand over the Strand front to a speculative builder. He thought the company should have the advantage of any profit to be made there, and plans were already drawn which would result in a building being put up which would be a source of profit to the hotel. The site was an important one, and it would have been little short of madness to hand it over to a tenant for a period of ninety-nine years. They had decided to erect the Strand front themselves, and shortly the building would be in course of erection.

VALUE OF A HUNTING BOX.

THE president of the Surveyors' Institution, Mr. Robert Vigers, sat on Monday the 14th inst. as arbitrator in the case of Peareth *v.* The Great Central Railway Company, a claim for compensation in respect of 12 acres of land acquired by the railway company in crossing the Thorpe Mandeville estate, near Banbury, Northamptonshire, for the purposes of a connection with the Great Western Railway. It appeared that the Thorpe Mandeville estate comprised about 590 acres and a house, which had been specially arranged for the use of hunting tenants. It had, until the construction of the new line, been some distance from a railway, and had commanded a rental of from 350*l.* to 500*l.* a year, furnished. It was submitted that the value of the agricultural portion of the property was seriously diminished notwithstanding the construction of accommodation works, such as bridges, at an expense to the railway company of over 3,450*l.* Mr. Percival Fox Tuckett (Tuckett & Son), Mr. Howard Martin (Thurgood & Martin) and Mr. Charles Bidwell (Ely) gave evidence in support of the claimant's case, their estimates of the total compensation payable averaging 2,700*l.*, inclusive of an allowance of 25 per cent. for compulsory sale. On behalf of the railway company, Mr. Edward Boyle, Q.C., submitted that 10 per cent. should be the maximum allowance, and that a sum of about 1,500*l.* would amply compensate the claimant. The principal experts for the railway company were Mr. Daniel Watney (past president of the Surveyors' Institution), Mr. J. H. Oakley (Daniel Smith, Son & Oakley), Mr. Alexander Stenning, Mr. H. R. Goddard (Bedford) and Mr. Lightfoot (Dunlop, Lightfoot & Wallis). The award was reserved.

THE HEIGHT OF GLASGOW BUILDINGS.

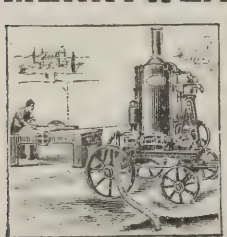
AT a meeting of the buildings regulation committee of Glasgow Corporation on the 10th inst., the draft clauses of the proposed new Bill to regulate the height of buildings in Glasgow, which were adopted by the committee, were again under consideration, and several modifications were made with the object of encouraging the formation of broad streets. It was agreed that while 80 feet to the top of the wall head should be the absolute height limit for buildings, in streets under 40 feet in width buildings should not be erected to a greater height than the width of the street, whilst in streets over 40 feet and under 60 feet in width, the height of the buildings might be the height of the street plus 20 per cent. In streets over 60 feet in width buildings might rise to any height up to 80 feet.

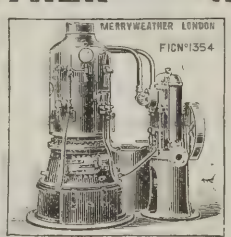
BUILDING BY-LAWS IN BIRMINGHAM.

A MATTER of considerable interest to the building public, says a correspondent of the *Birmingham Post*, has been and is now engaging the attention of the Birmingham and other architectural associations. Difficulties having arisen in connection with the administration of the by-laws in some of the local districts, a sub-committee of the Council of the Birmingham Association has been formed to consider complaints and approach the surveyors and district councils responsible for the framing and administration of by-laws with a view to securing more uniform and reasonable action.

The existing by-laws for the city and surrounding districts reveal inconsistencies which would create surprise if they were fully known. As an instance, a set of plans may be deposited

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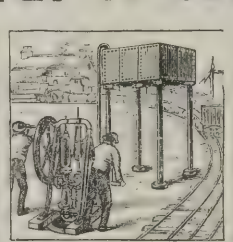

"Estate" Steam Pumping and Driving Engine.

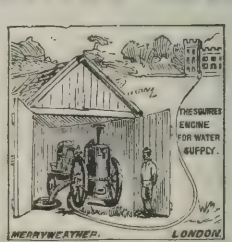


Light Pumping Engine and Boiler.



Water Wheel Pumps.

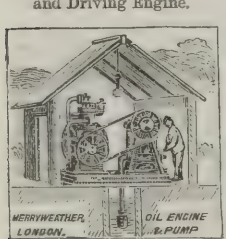

"India" Pattern Pumping Engine.



"Squire" Portable Fire Engine.



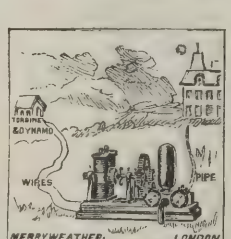
Windmill Pump.



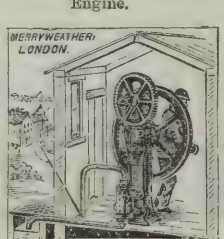
Oil Engine and Pump.



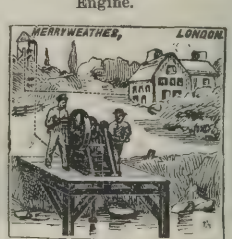
Estate Manual Force Pump.



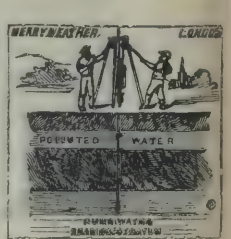
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and passed as in accordance with the by-laws of one district which would be returned as quite incompatible with the regulations of an adjoining district, where the conditions under which the work would be done are precisely similar. It should be understood that all by-laws are based upon what are known as the "Model" by-laws issued in 1875 by the Local Government Board, the authorities in the different districts being allowed to make variations in detail from these "Model" laws, and such variations, combined with local regulations under various Public Health and Administration Acts, and probably tinged with the individual opinion of the local surveyor, combine to bring about this confused state of things. In addition it is held that the by-laws and regulations are not properly and equably administered, and that rules and requirements are attempted to be enforced which are not legally valid or necessary to secure either health or safety to individuals or communities. Moreover, in many cases such requirements add unreasonably to the cost of building.

This is an important point in connection with houses for the working classes, because unnecessary outlay forces up the weekly rent which has to be charged to secure a return on the capital expenditure. There is no desire on the part of those whose complaints have been considered to evade any reasonable regulations framed and administered with the intention of securing health and safety. The difficulty, however, lies in the fact that there is no redress, because should a surveyor, supported by his council, attempt to enforce requirements which are practically unnecessary, and for which no legal by-law or regulation is in force, the Local Government Board, to whom such a question has lately been referred, reply that they cannot interfere on questions of administration.

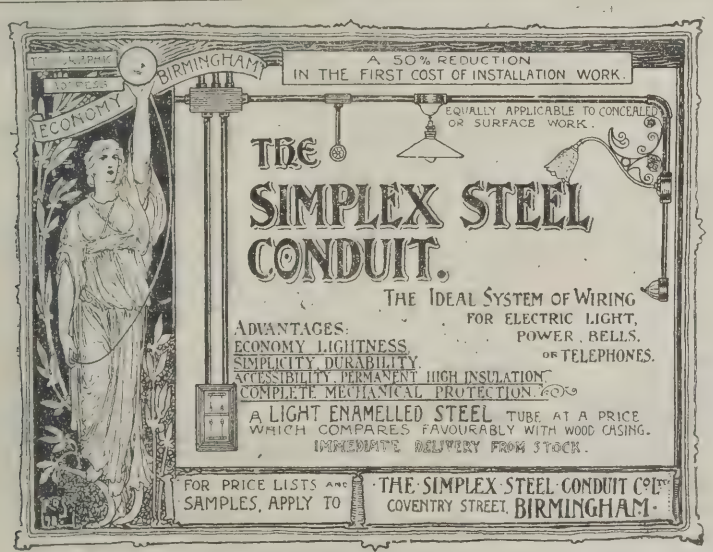
The Architectural Association consider the matter to be one of great and increasing importance, and are anxious to ventilate it before the public whom it so closely concerns, and whose interest it is to see that inconsistencies are abolished and a more uniform state of affairs and administration secured. At a meeting held on the 11th inst. the matter was freely discussed, and an intimation was read from the City Surveyor to the effect that when the proposed revision of the city by-laws was proceeded with the draft would be referred to the Architectural Association for their suggestions. Several letters were also read from the surveyors of local districts which evinced a desire to act in conjunction with the Architectural Association. The committee would welcome any information and suggestions from building proprietors and the public generally.

BIRMINGHAM ASSOCIATION OF MECHANICAL ENGINEERS.

A LARGE number of members of the above Association paid a visit to the Royal Small Arms Factory, Sparkbrook, on the 7th inst. They were received by the superintendent, Colonel Barker, R.A., and Mr. Wiseman, manager. The first place inspected was the stores, where all the finished components of the magazine rifle are stored as they come from the various sections, and are then drawn out to be assembled into the finished arm. From there the party visited the smithery where the stamping or forging of the body, bolt and other components under steam hammers was shown. They then passed into the room where the body was being machined, much interest being taken by the visitors in the many and various intricate operations which this component passes through. The barrel-room was next visited, where the drilling, setting and rifling attracted great attention. The machining of the bolt, magazine and other components was next viewed. The party then proceeded to the assembling-room, where all the parts of the rifle are brought together and fitted. The last room visited was the testing and inspection-room. In this room all components, finished arms, swords, lances, bayonets, &c., are tested in a very rigid and severe manner. Before the party left the superintendent showed some cordite powder and explained the method of loading the cartridge cases. At the conclusion of the visit Mr. J. Cox, the president of the Association, thanked Colonel Barker for his kindness in granting permission to visit the factory, a visit which all had greatly enjoyed. Colonel Barker expressed the pleasure he felt in granting permission and also in meeting the members, and was pleased to hear that they had enjoyed the visit.

EMPLOYMENT OF CONSULTING ENGINEERS BY ARCHITECTS.

AT the meeting of the American Institute of Architects in Washington, Mr. H. G. Bradlee, of Boston, Mass., presented a paper discussing at some length "The General Practice in Regard to the Employment of Electrical, Heating and Sanitary Engineers." After considering the relations of the engineer to the architect, the author referred to the diversity of opinion



"THE BANQUET."

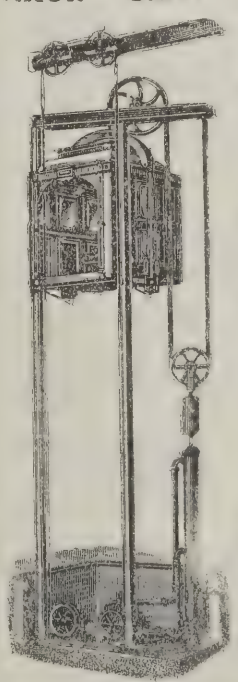
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that exists upon the question of inspection that comes up when an engineer is engaged for some special branch of building engineering, stating that in some cases the engineer is expected to have a man on the ground the greater part of the time, and in others all that is considered necessary is an occasional inspection to see that the work is going ahead properly. On account of the confusion and misunderstanding that often arises because one set of men are being directed by the engineer and another set by the architect, or by the clerk of the works, the author believed it important that the clerk of the works should have general charge of all of the contractors and of all parts of the work. He should be as well acquainted with the engineer's plans as with the architect's, should see that the work is carried forward in such sequence and at such times that one contractor will not interfere with or delay another unnecessarily. In other words, he should be the engineer's representative at the building as well as the architect's. The author believed that the most satisfactory way of engaging engineers was to obtain those individuals or firms who could take charge of the entire mechanical plant, so that the plans of the electrical, heating and plumbing equipments will harmonise.

In discussing the real value of an engineer's services the author said that in too many cases the engineer's work is considered well done if a plant is installed which operates without giving trouble, and which accomplishes the desired results in the matter of lighting, heating, power, &c. The true value of the engineer lies, it was thought, in accomplishing the results in such a way that the annual operating expenses and the fixed charges on the building equipment will be a minimum. To show the importance of this, the author stated that the yearly operating expenses and fixed charges on the mechanical equipment of a modern building are likely to be from 20 to 40 per cent. of the cost of installing the plant.

In speaking of the remuneration of engineers, the author thought that as the work which the engineer is required to perform in relation to the building equipment is almost exactly the same as that which is expected of the architect in relation to the building itself, the engineer should charge on the same basis as the architect, and should receive not less than 5 per cent. on working cost over 10,000 dols., and should receive a reasonable amount in excess of this on work of less than 10,000 dols. value and upon alterations of old work.

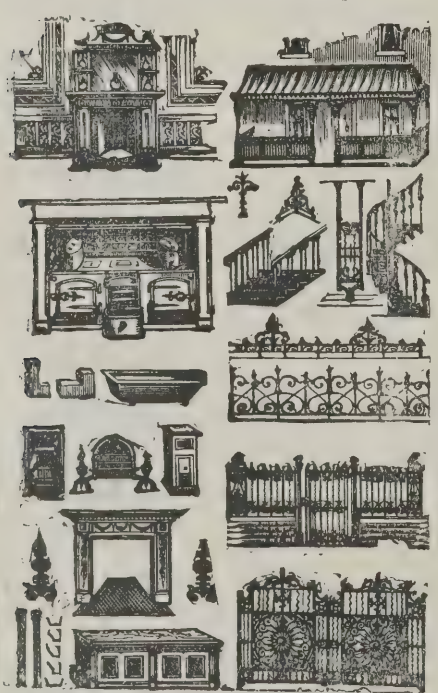
In regard to the amount which the architect should receive on the building equipment and the manner in which he and the engineer should be paid, the author stated that as the engineer should be engaged by the architect, and should be responsible to him in all of the work, he should be paid by the architect, either out of the architect's own commission or out of an additional commission which the architect should receive from the owner. It was then stated that if the architect only received 5 per cent. on the building equipment it would be absurd to expect him to engage an engineer if all of this fee had to be given to him. The author thought that as the architect is held responsible by the owner for the selection of a competent engineer, and in a general way for the work which the engineer designs, as he must furnish the engineer with all necessary information with reference to the details of the building and its requirements, must study the engineer's plans and assure himself that the equipment conforms properly to the building as a whole, and, finally, must make a very large number of changes in the details of the building construction to allow for the proper installation of the flues, pipes, wires and machinery, he should receive an additional amount from the owner to cover the cost of the engineer's services.

The author then called attention to the disinclination of owners to pay 10 per cent. on the cost of the building equipment for professional advice, and he, therefore, made the following comments upon what he thought an owner had to pay if an engineer was not engaged :—

"Without an engineer's services the architect in most cases calls in one or more contractors, explains to them the details of the building and its uses, gives them a general statement of the results which he wishes to accomplish in the matter of lighting, heating, ventilation, &c., and asks them to submit plans and estimates for doing the work. The contractor draws the necessary plans and brief specifications, and hands in a proposal for doing the work in accordance with these. In some cases each contractor draws up his own plans for doing the work, and in others only one set of plans and specifications are prepared, and competitive figures are obtained on these.

"The owner thinks that he has avoided the engineer's commission, but as a matter of fact he is paying for the engineering work as a part of the contract price. This fact is sometimes admitted, but it is claimed that the cost of having the plans drawn up in this way is very much less than it would be if they were prepared by an engineeer, and at first sight this might appear to be the case. The contractor's plans and specifications are usually not as complete as the engineer's, and he is not, of course, expected to make any inspection of the work during construction. The amount of work which he does is

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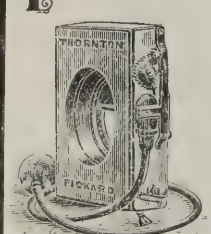
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therefore less, and his charge should be decreased in proportion. On looking into the matter more carefully, however, the saving will be found to be largely imaginary. It is true that the contractor does less work than the engineer in planning the equipment for a building, but when this part of the work is placed in contractors' hands it is very often duplicated by having several sets of plans drawn for the same building by different contractors. In this way a large amount of unnecessary work is performed which must be paid for by the owners of the buildings. The contractor must add to each proposal a percentage amount sufficient to cover the average cost of the engineering services. And I am informed by one of the leading steam contractors of Boston that the actual outlay for engineering work in his office, the drawing of plans, specifications, &c., averages each year nearly 5 per cent. on the total of his contract work.

"It is clear, therefore, that the owner is deceiving himself when he attempts to save expense by refusing to have an engineer employed, because whichever way the work is done he must pay practically the same amount for the design of the building equipment. He must either pay 5 per cent. to the architect and approximately 5 per cent. to the contractor, or he must pay 10 per cent. to the architect—5 for his own services and 5 for those of the engineer."

The author believed that the employment of an engineer should be discretionary with the architect, but pointed to the embarrassment an architect might be put to in advising a client to retain the services of an engineer, the client not understanding the situation and thinking that, as he has already agreed to pay the architect a commission for doing the work, in most cases concluding either that the architect is incompetent or that he is trying to shirk a duty which legitimately belongs to him. The client therefore tells the architect that if he needs any assistance on any part of the work he must obtain it, and must pay the cost out of his own commission; or he may tell him that he will engage an engineer, and that as the architect does not consider himself competent to design the engineering equipment, he will, of course, not receive any commission on this part of the work.

The author believes that the situation would be entirely changed if the matter were taken up in a broader and more general manner, and that the architects of the country might issue a statement through the American Institute which would have authority, and which would in a general way define the more important relations of owners, architects and engineers. He suggested changing the schedule of minimum rates of the American Institute of Architects so that the first paragraph should read:—

"For full professional services (including supervision), when no additional expert services are required, 5 per cent. on the cost of the work.

"For full professional services (including supervision), when experts or engineers are employed by the architects to design and supervise the installation of certain parts of the work, 5 per cent. on the total cost of the work and an additional charge to cover the cost of the engineer's services."

The author also suggests the form of an additional paragraph with reference to the practice of engaging engineers, and explaining the need of their services, to which a client could be referred by an architect if a misunderstanding as to the architect's position arose.

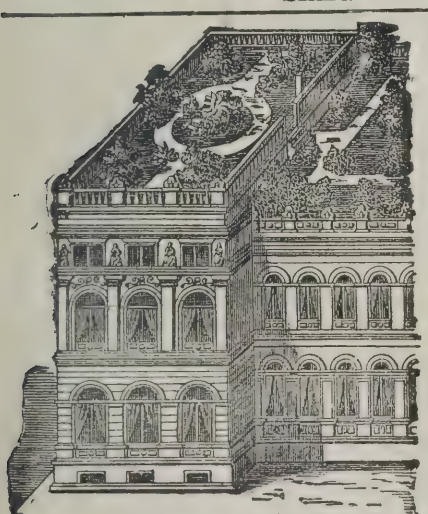
PROTECTING PILE-HEADS IN DRIVING.

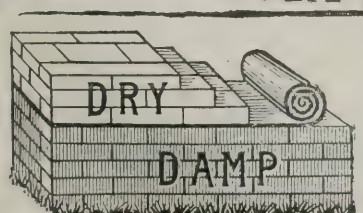
THE following report on pile-rings and method of protecting pile-heads in driving has been prepared by a committee of the American Association of Railway Superintendents of Bridges and Buildings:—

1. We find that the best way to protect the pile-head is to use a 1-inch by 3-inch ring, made out of the best iron that can be obtained at the place where used. We recommend, where a railroad company have a steam-hammer in their shops, that they make their pile-rings out of hammered iron from old car-axles. The cost of a 1-inch by 3-inch 14-inch diameter ring is 1.75 dol., while the same size ring made out of best bar iron costs 2 dols. A pile-ring made out of hammered iron will last to drive 75 oak piles, and at least 300 cedar piles. The rings made out of best bar iron usually last to drive 50 oak piles and 200 cedar piles; in fact, one of your committee had 50 pile-rings made out of old car-axles four years ago, and since that time has driven 250 oak and 6,000 cedar piles without any renewal of pile-rings. A pile-driver should carry on the tool-car 60 pile-rings—10 pile-rings 15-inch, 30 14-inch, 10 13½-inch and 10 13-inch in diameter.

The 14-inch diameter are the ones most used, 14 inches being the width of caps used by most roads. It is not necessary to have the pile-head larger in diameter than the cap is wide.

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2. In fitting the pile-ring, the pile should be neatly sawed off square; the pile should be neatly chamfered down at least 5 inches from the end, so the ring will just catch on and let the pile-hammer do the rest. This is a little hard on rings, but in this way you are sure to get a good fit of the ring and the pile-head is best protected.

The face of the pile-hammer should be concaved to the depth of 1½ inch in the centre, and run out to nothing 2 inches from outside of the hammer; this will drive the fibre of the wood down slightly over the edge of the ring and make a neat fit of the hammer, and if the piles are kept exactly under the hammer there is very little danger in fracturing the pile. The best weight of a pile-hammer is 3,300 lbs. The height of the blow should not exceed 12 feet in driving cedar piles, or 20 feet in driving oak piles. It will be found that short quick blows will drive the pile as quickly as long blows, and are less liable to injure the pile. The pile should be neatly prepared before driving it; the knots should be neatly trimmed off, and the pile sharpened to a 4-inch square point for hard driving, the point to be made as near straight with the pile as possible. Piles should never be over-driven. When a pile does not go over 1 inch at a fall of 10 feet with a 3,300-pound hammer, the blow should be shortened to 6 feet, and the pile carefully driven until it stops going or does not go over ¼ of an inch at a blow. The driving of piles for railway traffic, and for all kinds of structures, requires a great amount of judgment to do good work. The use of the iron cap for driving piles in trestles that are in use is not very practicable, as you cannot drive the piles up so close to the stringer with them as you can without them. It is too much extra work to move the stringers so as to use the iron cap and follower, but for driving piles for foundations and dock work, or any place where there is no obstruction, we think Wm. T. Casgrain's patent cap and follower an excellent device. It is especially adapted in driving foundation-piles, as that class of piles are generally short, not over 25 feet in length, and with the patent cap they will not need any toggles to keep them right, and they are good protection to pile-heads, as the piles in foundations should be driven home until they stop and the hammer bounces on them. In driving piles through shell-rock or soapstone or hard-pan, where piles require shoeing, the best way is to use old arch-bar iron, welding four pieces together and drawing the end to a point and flaring the four pieces out to fit the four sides of the pile. Have some holes punched in the strap to fasten the points on the pile with boat spikes; this kind of a point will go through hard substances where the round cast-iron point will not work. These kinds of points have been used by some of your committee to drive through concrete around piers to great advantage, and any one having occasion to drive piles through hard substances too hard for piles should not neglect to shoe them with points made out of old flat iron. A little practice will soon teach one how to make them.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

22882. Alfred Julius Boult, for "Improvements in or relating to the manufacture of artificial stone, marble and the like."

22914. Andrew Miller, for "Improvements in and relating to safety fittings for the roofs of buildings."

22968. Walter Guiteau Jones, for "Improvements in or relating to shoring for buildings and other structures."

22980. Matthias Koenen, for "An improved construction of flat arches or vaults."

22967. Friedrich Schroeter, for "A new or improved cement for attaching surfacing material, tiles, glass, plates, or the like to building surfaces and so forth."

23062. Georges Nouvelle, for "A new or improved machine for manufacturing bricks."

23152. Albert Hendrik van der Vijgh, Hendrik van der Vijgh and Gerhard van der Vijgh, for "Improvements in the manufacture of artificial stone."

23262. Herbert Antonio Henry Moore, for "Patent Cornish stone."

23341. Adolphl Elle, for "Improvements in and relating to ceilings and the like."

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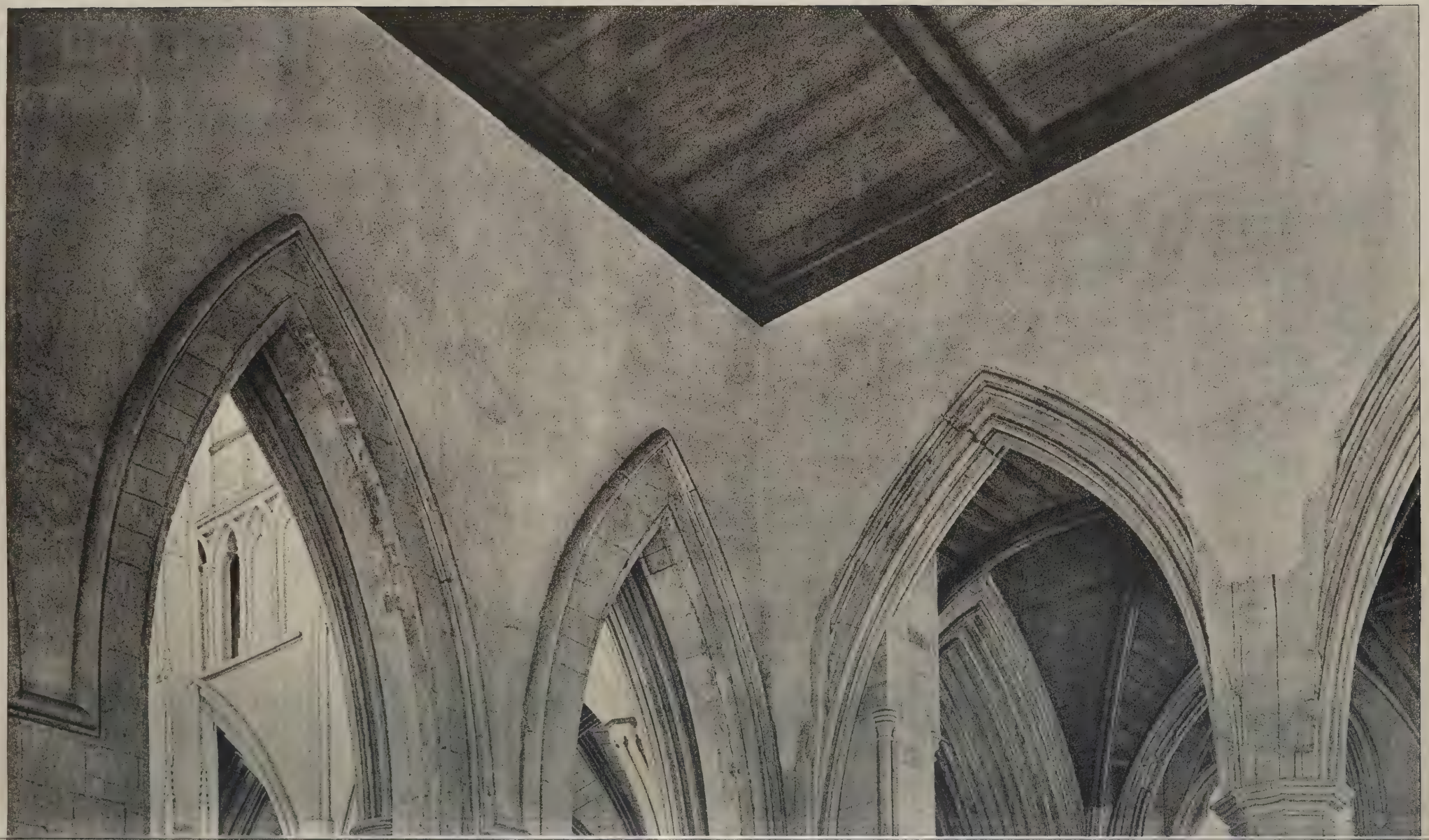


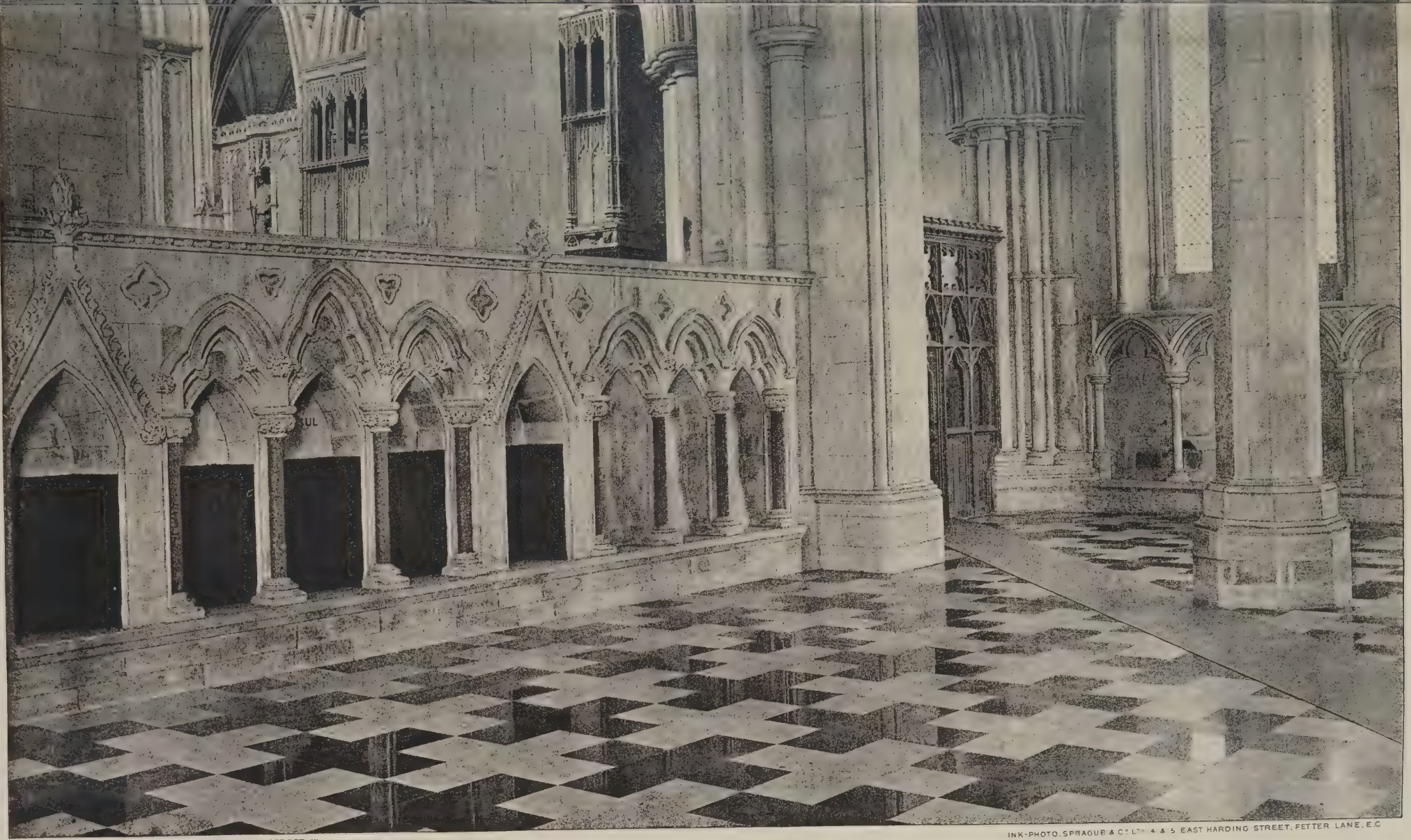


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CATHEDRAL SERIES, No. 175.—ST. ALBAN'S: TOWER AND SOUTH TRANSEPT.

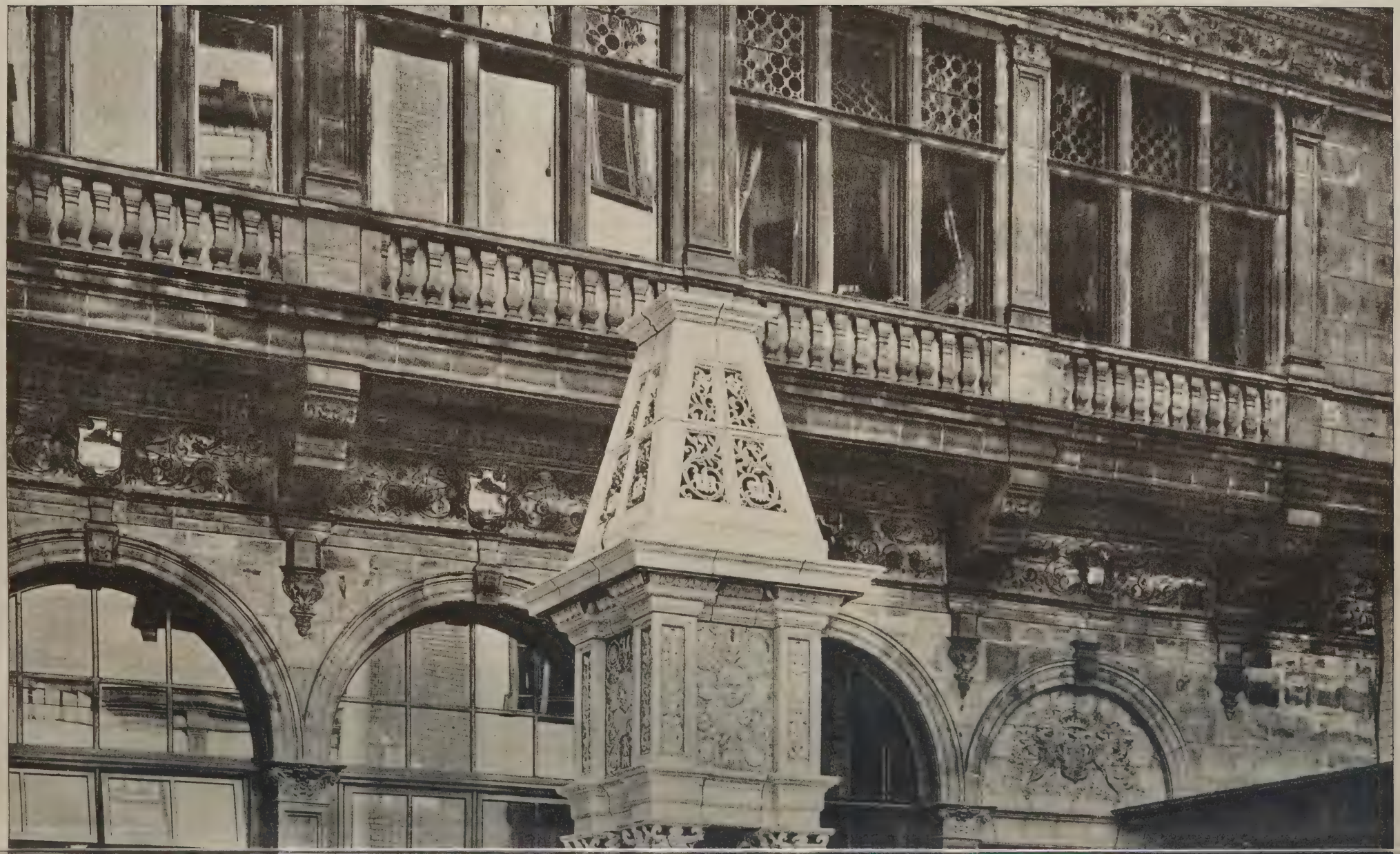




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CATHEDRAL SERIES, No. 176.—ST. ALBAN'S: VIEW BEHIND SCREEN.





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SAVOY HOTEL, STRAND: NEW FOUNTAIN IN COURTYARD.

T. E. COLLCUTT, Architect.



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...E, FOLKESTONE.

...R, Architect.

The Architect.

THE WEEK.

THE late Sir JOHN FOWLER was as typical a Yorkshireman as could be found among the Westminster engineers. Energy, combativeness and common sense were expressed by his features. He had not the refinement of ROBERT STEPHENSON, who was often a very dandified person, the mystery of BRUNEL, or the seriousness of HAWKSHAW, of whom it might be said, as of THURLOW, that nobody looked wiser; but promoters of companies felt that he was capable to hold his own in a parliamentary committee-room with any or all of them. JOHN FOWLER never professed to care much for theory; he was essentially the man of practice who preferred experiments to formula. When he settled down in Queen's Place there was no question of his future. Directors and parliamentary agents believed in him. It was therefore advantageous to become one of his assistants, and a remarkable number of prosperous engineers served under him. It used to be said at one time in Westminster offices that assistants were very glad to work with him gratuitously, the chances awaiting them being sufficient reward. It was also said that as he declined to take pupils but allowed his assistant engineers to do so, a very good income was derived in that way. JOHN FOWLER endeavoured to advance his men, and an humble assistant if he were clever was more prized by him than a swell who was merely ornamental. The late MARR JOHNSTON, who was for a long time his manager, was originally one of his office boys. JOHN FOWLER was always ready to acknowledge without reservation the assistance he received, and his honesty in that respect was deserving of a more general imitation in Westminster. He was connected with such a variety of works he could say without exaggeration "the earth is full of my labours," and he deserved all the honours and rewards he received. He has left very few survivors of the old school that made England supreme in engineering.

AMONG the extra business transacted at the Convention of the American Institute of Architects was the selection of a competitor for the Cornell Travelling Fellowship. The decision of the judges gave the coveted reward to Mr. HERBERT DOLE, engaged in the office of Mr. FLAGG, architect, New York. The subject proposed was, "A Grand Stairway for a Metropolitan Library." The conditions of the fellowship differ from those usually adopted for studentships. The winner will spend the winter and spring studying planning and composition in Cornell University. In June of next year he will depart for Europe and spend four months travelling and sketching in the northern part. On his return he will spend a year in Cornell, where his attention will be concentrated on advanced design. He will next take a second trip to Europe, and will spend four months, if not a longer period, in studying the architecture of the South, and especially in Italy. The conditions are not apparently so agreeable for the student as those followed by English and French students, for the greater part of the period has to be occupied in severe study under the eyes of a professor of architecture. It is, however, possible that more efficient results will be derived from the American system.

THE report of the American Institute of Architects on building laws says that during the past year several changes have been introduced in local building laws, and it is not practicable to prepare the synopsis which was contemplated. In Boston the height of mercantile buildings has been further restricted to 100 feet, in place of 125, and a doubtful innovation has been made in setting the live load to be provided for on school-house floors at 80 lbs. per square foot in place of 150 lbs. As there is a movement in Boston in favour of utilising school houses for public meetings, it is difficult to see why they should not be subjected to the same rules of construction as other public buildings. Many cities and towns have during the year adopted codes on plumbing, and the controversy between the advocates of ventilation and non-ventilation of traps has raged fiercely, the former, apparently, having generally prevailed with the legislative authority. In general, the changes which have been made in building regulations throughout the country tend this year, at last, to favour incombustible materials in all classes of buildings. In Boston, for example, all school houses and all tenement houses and apartment houses of every sort must be of fireproof construction throughout, and there are indications that this example will be widely followed; while the proportion of fireproof private dwellings has increased enormously within the past ten years in the Eastern States. There is reason to believe that this tendency will increase, and it is certain to create a demand for improved and especially cheaper methods of building fireproof floors, roofs and stairs.

THE report of the Birmingham Architectural Association is more encouraging than similar documents. There was an increase of attendance at the meetings, the new rooms are found to be satisfactory, and the influence of the Association has been exerted to secure fair competitions. The Council have determined to abolish the present system of numerous small prizes, and henceforth to offer a travelling studentship prize for the best set of measured drawings, and a design for a subject to be selected by the Council.

As excellent work is performed every year by the Commons Preservation Society, it must be regretted that the organisation did not exist many years ago. Among other matters engaging attention the Society is now advising local authorities and private individuals in upwards of fifty cases of encroachments upon common land, open spaces, roadside wastes and obstructions of rights of way in different parts of the country. Amongst other matters which have occupied the attention of the committee are the excessive removal of turf and loam from Banstead and Walton Commons; the enclosure by the Admiralty of a portion of Hayling Beach Common, Hayling Island; an action which has been recently commenced by the Lord of the Manor of Martin, Hants, against men for shooting on Martin Down, an open space over 900 acres in extent; the illegal action of two district councils in sanctioning the enclosure of roadside waste under their protection; the action of the landowner in obstructing the only access to the well-known Roche Rocks in Cornwall; and questions relating to the preservation of Honor Oak Hill, S.E.; Hungerford Common; Wootton Common, Norfolk; and Holne Common, Dartmoor.

THE address which was delivered by Professor BILES at the opening of the session of the Glasgow University Engineering Society suggests how much success in naval architecture depends on costly experiments. Among other requirements for a designer of war vessels, especially it is necessary to have a tank in which it is possible to test the buoyancy and stability of any vessels which it is proposed to construct. The experimental tank, first made by the elder FROUDE at Torquay, was in practical working order more than twenty-five years ago. During that time a new tank has been made in the vicinity of the Royal Dockyard of Portsmouth, and to this has been transferred the work of the tank which it displaced. During the whole of these twenty-five years this tank has been almost exclusively used for experiments connected with warships. There is one other tank in Scotland—that of Messrs. DENNY, of Dumbarton—which has been in working order for fifteen years or more. It has given to the owners a certainty in the production of predicted results which can scarcely be excelled. Other tanks have been made in different parts of the world, and in all cases they are used for special routine work of ship designing. A tank is almost completed at Washington for the United States Government. This tank is much larger than any previously made, and will be more complete in every kind of apparatus. It will be open, not merely to the designing of navy ships, but to the private shipbuilders of the United States. One of those experimental tanks costs from 15,000*l.* to 25,000*l.*, and the outlay is more than returned in economy of parts and in security.

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THE CHRONOLOGY OF NOYON CATHEDRAL.

THE difficulty of reconciling entries in chronicles about Mediæval cathedrals and churches with the characteristics of the buildings has been encountered by many archæologists in England as in other countries. In that way the history of architecture often becomes as uncertain as the varieties of political and social history. Efforts are occasionally made to lay down some principles to guide inquiries, but there can be no general rules on the subject. To err is human, and an annalist in one country or at one time may fall into mistakes from which he would be safe under different conditions. The clerics who were charged with the keeping of records were to be excused if they occasionally were negligent in their duty, especially when building operations were to be noticed. On such occasions an abbey, monastery or other religious house would become topsy-turvied. A place of refuge was invaded by workmen who were likely to be irreverent or at least disagreeable visitors. The ordinary routine of daily life to which clergy and monks were habituated, and which was considered as necessary for their souls' welfare, could not be followed out with the old systematic observance while labourers were making noise. No doubt building was admitted to be a necessity, but none the less was it likely to be regarded as an evil which, by disturbing the peace of a community, was not unlikely to be followed by a more lax discipline. For that reason we can understand why, when new works are mentioned, not a word is said which will help inquirers to identify them.

The treatise which, from its interest in explaining the difference between records in stone and those on parchment, may be considered the classic of the subject, relates to Notre-Dame de Noyon, and was prepared for the French Government by M. VITET, the academician. He was one of the organisers of the Commission on Historic Buildings, and in various ways he aided in making his countrymen take an interest in their Mediæval remains. The question arose, Had Mediæval buildings always a right to be considered historical? If so, then the churches would become illustrations of the annals. But was there a correspondence of that kind? QUATREMÈRE DE QUINCY had refused to admit that Gothic possessed any claim to be considered an art; it was merely, he said, a compilation of heterogeneous elements put together by the aid of an ignorant and disorganised fancy, and which was expressive of no other idea than one of disorder. How could work of which the claim to be taken as art was based on false pretences have any historical value? Was it even worth the attention of the chroniclers?

Noyon Cathedral was as good an example as could be found to employ for such a test. It has not the beauty of many others of the French cathedrals, and it was not associated with important events. Then it cannot be considered as pure in style, for it presents many architectural anomalies; in fact, there is much which is puzzling about the building. On that account, however, any reference to it in chronicles or ancient documents would become more valuable.

As regards histories few cathedrals could be considered as more fortunate. In 1633 Dean LEVASSEUR published a big quarto of fourteen hundred pages which he derived from manuscripts then existing, and which in other hands would be most precious as evidence. A few years earlier a similar work appeared which, although relating ostensibly to Tournai, treated of Noyon, for the two dioceses were presided over by the same bishop. In the sixteenth century ANTOINE DE MOUCHY also compiled a work on Noyon. Besides these works there exist in the Bibliothèque Nationale many collections relating to the city, and some private libraries possess similar materials. It is, however, a remarkable fact that after toiling patiently and enthusiastically among all the documents he could discover, M. VITET was forced to admit he was unable to add to his knowledge of the building. There was much about elections, congregations, hospitals, privileges, revenues, outbreaks, fires, &c., but from the absence of notes concerning builders' works it might be supposed the cathedral never required an addition or an alteration.

The circumstantial relations which he came across often amazed M. VITET. A little trouble in the cloister, a lawsuit which related to the revenues, an attempt to encroach on the privileges of the Chapter were narrated with as much detail as if the peace of the world depended on them, but about the walls of the old building there was general indifference. M. VITET found it would be infinitely easier to write a history of the city from the time of JULIUS CÆSAR than to ascertain the date of one of the restorations of the cathedral. The manuscripts being worthless as evidence he was compelled to have recourse to Dean LEVASSEUR'S portly volume, which it is to be supposed was based on information derived from manuscripts by writers who cared for building.

As happens elsewhere, the cathedral of Noyon stands on the site of an earlier church, and it may be more than one. In 470 the Huns attacked the district. His church having been destroyed by them, St. MÉDARD, the bishop, withdrew to the Roman *Castrum Noviomense*, and afterwards set up his chair in the town. There is, however, no fragment to be found of so remote a period in the existing cathedral. But Dean LEVASSEUR was convinced that the choir formed part of the saint's cathedral. As to the nave and towers he considered they were erected by CHARLEMAGNE two hundred years afterwards. According to SIGEBERT'S chronicle, the great monarch was crowned at Noyon, and it was to be expected he would be generous to the building where the ceremony took place. This theory was confirmed in LEVASSEUR'S opinion by a picture of assumed antiquity in which CHARLEMAGNE appeared holding in one hand the symbolic globe and in the other a model of the nave and towers. LOUIS XI., when visiting the cathedral in 1468, admired the picture, and asked the Chapter to give him a copy or "un pourtraict de ce pourtraict," which was granted. The Dean could not neglect the tradition that about the year 1000, in Noyon as elsewhere in Europe, much was done to implore mercy by an offering of builders' work to Heaven, but he assumes it was only restoration. He was satisfied the choir was to be credited to St. MÉDARD, as the nave and towers were to CHARLEMAGNE.

M. VITET was unable to understand the want of precision which marked the Dean's historical efforts. He must have had documents relating to the successive bishops of the see, and although the Mediæval scribes were indifferent to building, yet they often mention works in order to enhance the merit of the prelate in whose episcopacy they were undertaken. There were occasional lapses in the annals owing to the fires which arose at Noyon, and for some of which the English armies were responsible; but, after making every allowance, the Dean cannot be held guiltless of inaccuracy and incompleteness.

To a skilled archæologist the least certainty can be turned to account, and as there can be no doubt of the recurrence of fires, M. VITET utilises them in the absence of other evidence. In 1131, for example, Pope INNOCENT II. had arrived in France in order to crown LOUIS VI. The pope and king visited a count who lived near Noyon. Immediately the bishop rushed in announcing the destruction of his cathedral, and implored the pope to obtain aid for him to rebuild it. INNOCENT'S letter to the other bishops of the district is known. All the contemporary chronicles speak of the destruction as an exceptional visitation. It is therefore not going too far to conclude that in 1131 the old cathedral was annihilated, and that no part of the existing building belongs to an earlier period. There were also fires in 1152, 1238 and 1293, but apparently they were less terrible in their effects than that of 1131.

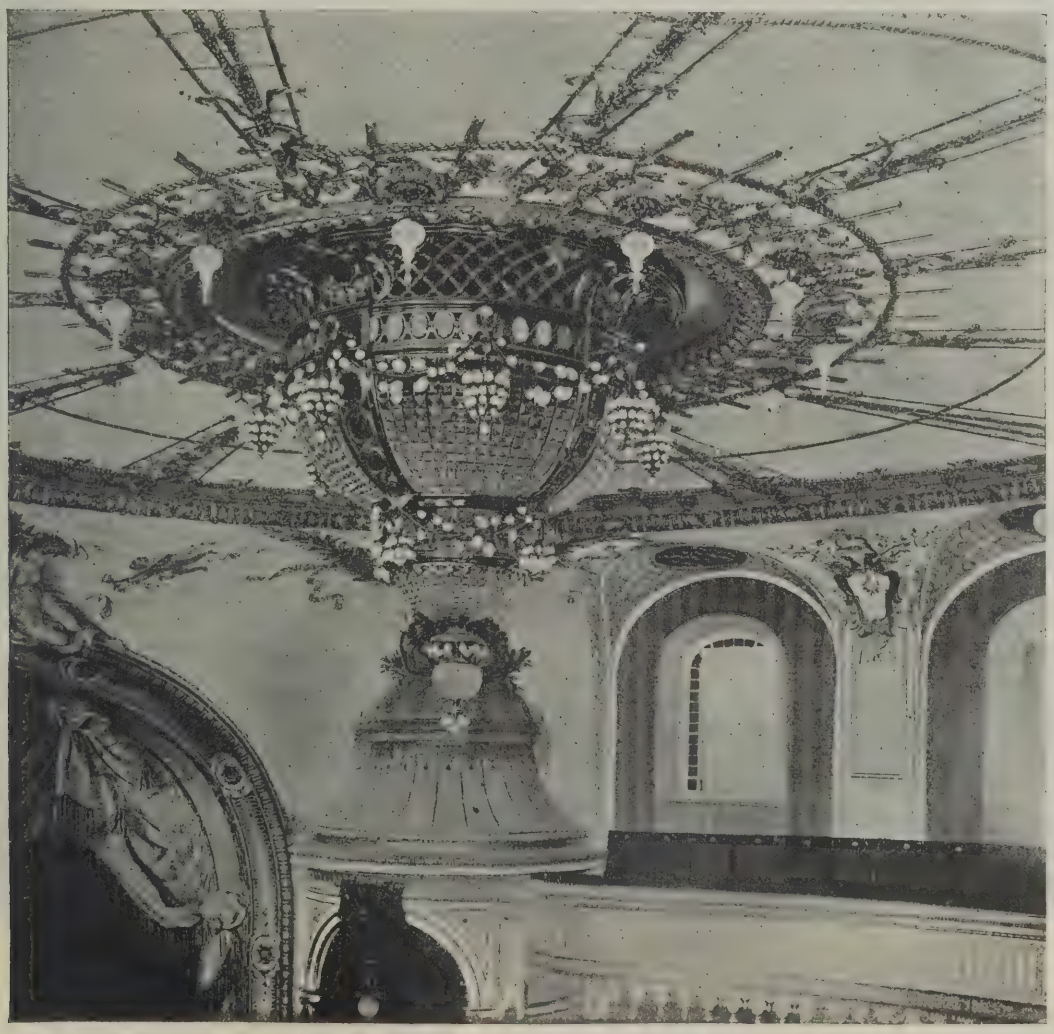
Although there was papal intervention in behalf of Noyon, it does not appear that the rebuilding of the cathedral was commenced immediately. As far as can be ascertained there was no earnest effort made to erect a new church prior to 1148. There is also a record that the altars were confirmed or rededicated in 1158, which would suggest progress with the building about that time which would be sufficient to allow of its use by worshippers. M. VITET concluded that the building could not be considered as complete until about 1228.

If we assume the latter date to be correct, how can we account for the employment of the round arch in the building? The cathedral of Senlis, which was undertaken about the same time, exhibits a fundamental difference, for the pointed arch is used throughout. In the diocese of

Senlis there is another contemporary church, St. Leu d'Esserant, which presents many analogies to Noyon Cathedral; but neither in the nave nor choir is a round arch to be found, one alone exists in the west front. What makes the difference more remarkable is that the cathedral of Noyon in all other respects exhibits the Gothic spirit, and is comparable with the cathedral of Senlis. How is so remarkable a difference to be explained?

In the absence of documentary evidence M. VITET was obliged to seek for a cause in the social conditions of the time. Up to the close of the twelfth century he believed the designing of the churches was entirely in the hands of the clergy and monks. Then came a sort of artistic revolution. Laymen arose who were identified with the new style in which the pointed arch was the characteristic feature. ROBERT DE LUZARCHES, THOMAS DE CORMONT, HUGUES LIBERGIER, ROBERT DE COUCY, PIERRE DE MONTEREAU, JEAN DE CHELLES, ERWIN OF STEINBACH are examples of the masters of works who superseded the clerics. In many places it became a battle between the round arch and the pointed arch; sometimes the newer style was quietly accepted. But in a place like Noyon, where there was a prince-bishop in authority, the new idea could hardly expect to become omnipotent at once. There was a compromise. The round arch was employed, but in such a way as not to appear in opposition or hostility to details which express the new influence. The bishop was one of the great vassals of the crown, and an independent seigneur at the same time; his will would, therefore, be respected by laymen, and he would doubtless make concessions in return. In the plan of the cathedral there is, as M. VITET points out, a mixture of the archaic and the novel which is surprising. Chapels are grouped as in the thirteenth century, but they are semicircular on plan instead of polygonal. Square and circular piers alternate as if combining two styles.

M. VITET, as we have seen, was compelled to depend on the masonry for evidence of the history of the cathedral. We cannot deny its insufficiency. But the question arises whether it is not preferable to be without written chronicles than to possess those which are indefinite or contradictory. By M. VITET's system the history of a cathedral corresponds with geological history. We cannot be precise about years when events took place, but we can determine the succession of phenomena, and in the case of a building the newer parts are not supposed to have preceded the more ancient. It is better to be in that position than to depend on chance references in documents which are so indeterminate as to appear to have been inscribed during sleep by the annalist.



SUNLIGHT MUNICIPAL THEATRE, BROMBERG.

MODERN OPERA HOUSES AND THEATRES.*

IT would be interesting to have the reflections and criticism of so eminent an actress as the late Lady MARTIN upon the immense volumes of Mr. SACHS, or rather upon the system they uphold. That lady could recall the ambition of MACREADY to introduce more artistic spectacular effects than were attempted before he became a lessee of a theatre. But we are disposed to doubt whether she looked back on them with satisfaction. In her provincial journeys she was not exacting about the mounting of the plays in which she appeared, and HELEN FAUCIT might be pardoned if she were confident that she could hold an audience spell-bound in a barn. It would be vain to deny that her performances sometimes suffered from the meanness of the surroundings and the incapacity of the actors and actresses who were supposed to support her. Respect for Miss FAUCIT alone occasionally kept tragedies from becoming farces. One instance is likely to be long

* *Modern Opera Houses and Theatres.* Examples selected from playhouses recently erected in Europe. By Edwin O. Sachs, architect. Volume III., including three supplements, with 20 plates and 860 illustrations. (London: B. T. Batsford.)

notorious, for it was recorded by THOMAS DE QUINCEY. He was not a playgoer, and was easily pleased. He was present in Edinburgh at one of the special performances of the "Antigone" of SOPHOCLES in which Miss FAUCIT appeared. But, unversed as he was in whatever belonged to the stage, he could not fail to notice the mismanagement of the scenery. He also says, "The dress of the chorus was as bad as bad could be, and the corypheus himself seemed no better than a railway labourer, fresh from tunnelling or boring, and wearing a blouse to hide his working dress." DE QUINCEY, strange to say, anticipated the necessity of illuminating effects like those now obtainable in all large theatres as indispensable for the adequate presentation of the ancient Greek tragedies on a modern stage. He wrote :—

The great hindrances to a perfect restoration of a Greek tragedy lie in peculiarities of our theatres that cannot be removed, because bound up with their purposes. I suppose that Salisbury Plain would seem too vast a theatre; but at least a cathedral would be required in dimensions—York Minster or Cologne. Lamplight gives to us some advantages which the ancients had not. But much art would be required to train and organise the lights and the masses of superincumbent gloom, that should be such as to allow no calculation of the dimensions overhead. Aboriginal night should brood over the scene and the sweeping movements of the scenic groups; bodily expression should be given to the obscure feeling of that dark power which moved in ancient tragedy; and we should be made to know why it is that, with the one exception of the "Persæ," founded on the second Persian invasion, in which Æschylus, the author, was personally a combatant, and therefore a contemporary, not one of the thirty-four Greek tragedies surviving but recedes into the dusky shades of the heroic, or even fabulous, times.

Similar effects of light and shade to those desired by DE QUINCEY are realised in continental theatres, and without them some of WAGNER'S operas could not be properly presented. The immense size of the new stages would also be adapted to enable a spectator to realise how far the old Greek tragedies are removed from ordinary life. When, therefore, it is said that the modern spirit tends to nullify the skill shown by players of the old school in simple theatres, it is well to remember that an impressiveness is to be gained which formerly was not possible. Nothing can be entirely perfect, so we must set one advantage against another and make the best of the latest developments.

For in no class of work is construction more influential than in connection with the drama. Pageants and spectacles can now be created and transformed as if by a touch of a magic wand, for the modern PROSPERO in the guise of a stage manager can, while seated in a comfortable arm-chair,



PROSCENIUM, MUNICIPAL THEATRE, BROMBERG.

do what appears to be as difficult as shaking "the strong bas'd promontory" or plucking up pines and cedars by the roots. The new stage machinery does not always, it is true, inspire scenes which impress, although they may surprise, an audience, but so much power, let us hope, will one day enable a dramatist to rise to the height of the Greeks or of the author of "King Lear," and suggest that man with all his weakness is not to be conquered by the elements or by inanimate nature. Because the Elizabethan men were ignorant of stages which were worked by hydraulic or electric machinery, it does not follow that other varieties should never be employed. In a literary sense, it would therefore not be retrograding to ask, with Mr. SACHS, "Why should we not take a leading position in stage equipment, banish the dangerous, unhealthy, unpractical

and expensive wooden stages of 1750, and make room for something far better now that we are approaching the twentieth century?"

We have endeavoured, in our notices of the volumes which have appeared, to suggest the extent of the information which Mr. SACHS has given about the revolution in theatrical construction and stage equipment which is in progress. The third volume presents the subject under a more comprehensive view. It treats of the planning of the various parts of theatres, the provision for service which is needed, the construction of the buildings, lighting, warming, ventilation, water-supply, telegraphy. We have also several copies of the regulations which are in force in various countries to secure the safety of audiences, the shortest of the series being those of Amsterdam.

The latest developments of construction and arrangement have to be mainly exemplified by foreign examples.



EXTERIOR, MUNICIPAL THEATRE, BROMBERG.

But Mr. SACHS suggests that under similar conditions of patronage the English buildings would be no less advanced in all details. According to him "the lower standard of theatre construction in the British Isles, as compared with that of continental countries, must be accounted for to a considerable extent by the conditions of theatrical enterprise and the circumstances under which the drama is presented. . . . It is useless to expect the home of the play to occupy a high position as a public monument in a country where there is scarcely any recognition of the existence of dramatic art by the State, and where its official and pecuniary assistance by the municipal authority is still a question under academic discussion." In a like spirit he writes about municipal theatres. Mr. SACHS does not recommend an immediate application of the rates to support opera and drama, as he says:—"In a country where the most elementary necessities of common welfare, such as the establishment of hospitals, still remain to a very great extent dependent on the voluntary effort and support of individual citizens, would it not seem somewhat anomalous if the whole machinery of the public authority and its funds were at once utilised in the interests of dramatic art, without there at least having first been some serious attempt on the part of those who are desirous of obtaining the patronage and financial support of the official body to organise the institution, and raise the major portion of the funds considered necessary?" These lines will show that Mr. SACHS is no advocate of an indiscriminate adoption of foreign ways.

A theatre supported by the State or the municipality would have, however, one advantage, if no more. It would allow of the production of old dramas which an ordinary lessee of a theatre dare not attempt. The archæology of the drama would in that way be manifested, and the progress of the art would become more clear. Since PHELPS abandoned Sadler's Wells hardly a dozen of SHAKESPEARE'S plays keep a hold on the stage. Anyone who is eager to see more must go to Germany. The works of SHAKESPEARE'S contemporaries are unknown to the ordinary playgoer. The French are less conservative than we are, but the subsidies to the Français and the Odéon enable a student to become acquainted with many pieces which are of importance in the history of literature. We ought to be no less careful to have revealed those plays in which the actors held the mirror up to nature, and which become in consequence historical evidence. If the authorities of towns are desirous to distinguish themselves by showing

respect for the past, they can hardly do better than by aiding in the revelation of the power seen in old dramas—a power which cannot be apparent from reading only. As an example of a municipal theatre we give views of one in Bromberg from Mr. SACHS's book. The building, which was completed in October 1896, cost 23,000*l.*, and has seating capacity for 777 people.

Examples of large and small theatres abound in Mr. SACHS's volumes, for over three hundred sets of plans were placed at his disposal. Moreover, many authorities have given him advice and enabled him to utilise their experience. The work is, therefore, not only more complete than any which preceded it, but is also of a more cosmopolitan character. By placing several plans on a sheet it becomes apparent that the theatre or auditorium in modern times monopolises less of a site than formerly. Approaches, offices, foyers, accommodation for performers now assume an importance which theatre builders of the old school would consider unnecessary. In all such things new ideas have their influence, and Mr. SACHS recognises their importance to the fullest. The very latest arrangements are exemplified.

Then there is the important subject of construction. From the conditions of tenure English theatres were too often made as unsubstantial as if they were to recall the poetic pageants of the "Tempest." There is one example which was, it is said, erected without any view to performances. A site which was supposed to be necessary for the extension of an adjoining structure had to be covered with a building in order to increase its value, and a theatre was selected because it was assumed to be the showiest of all structures, and one which could be erected expeditiously. The scheme did not succeed, but the theatre remains, and people fill it without any misgiving. It must be owned that not the least accident has occurred, and is never likely to arise. We lately came across the following naïve announcement which appeared some ninety years ago:—"In a short time will be published an 'Essay on Theatres, and on the Propriety of Vaulting them with Brick or Stone,' illustrated with a plan and section for a new theatre. The object of this essay is to revive the knowledge exemplified in the construction of the vaults of ancient cathedrals, and to show that a theatre built on similar principles would be of considerable benefit to the proprietor, both in reducing the expense of the erection and the rate of insurance, and at the same time secure the audience against the dreadful hazards to which they are liable from the present mode in which these edifices are built."

He must have been a visionary who could think of the possibility of erecting theatres in the style of cathedrals, but at the beginning of the century that style would impart safety. In our time much can be done without having recourse to vaulting, and the examples in Mr. SACHS's book derive much of their interest from the skill shown in the construction. Not on one ground only are the massive volumes on "Modern Opera Houses and Theatres" to be admired. They are an encyclopædia of the subject from which nothing essential is omitted. Mr. SACHS's task in undertaking the treatise might be called herculean: he has acquitted himself like a strong man and there is no sign of weakness to the close.

EDINBURGH ARCHITECTURAL ASSOCIATION.

THE opening meeting of the Edinburgh Architectural Association for the season was held on the 16th inst. in the Royal Institution. Mr. Thomas Ross, architect, the president, occupied the chair and devoted his presidential address to the subject of "The development of house-planning in Scotland from the fourteenth to the seventeenth centuries." In the course of a few introductory remarks it was shown that previous to the fourteenth century there was little remaining in Scotland to indicate in what kind of houses the people dwelt, the inference to be drawn being that such dwellings were of a slight and fragile kind. But from the fourteenth century onwards there was a vast body of evidence of a most interesting and instructive kind and of an architectural value which had not received the attention it merited. In all parts of the country there were keeps, towers and castles, as they were differently called, which, by their fancifulness of detail, by the excellence of their masonry and ingenuity of construction, excited our admiration, and many of them were duly appreciated by those to whom they belonged. But, on the other hand, it excited one's astonishment to see the indifference with which many a stately tower was regarded and allowed to fall into ruin. The general characteristics of a Scottish keep of the simplest kind, and the various methods to enlarge such a building, were explained by plans. It was shown that the original idea was one room on each floor, so as to leave the tower open on all sides, and that any addition proceeded by way of a single-chambered tower on one side, and the same thing if required on the other side, always so placed as to leave the original tower open and free on some part of its four sides. The singular plan of Borthwick, unique in Scotland, where both the additional towers are on one side, was described. In considerable detail and with the aid of diagrams the gradual growth of the mansion house from the keep was traced, and how the limited space of the latter, which was principally given up to the common hall, failed to satisfy the proprietors during the sixteenth and seventeenth centuries. In this connection Elcho Castle, near Perth, was shown to be a most typical example—a connecting link between the old and the new—absolutely unaltered and in good preservation. Melgund, in Forfarshire, was cited as another instance of such a house. It, at the same time, exhibits a curious harking back to old ideas in having a keep built at one end, so that at first sight it appears to be a building of two periods, while in reality it is all of one period. Drochil Castle, Peeblesshire, which is erroneously supposed never to have been inhabited, was shown to be a most exceptional plan for a Scottish nobleman to adopt for his house at the end of the sixteenth century. Here, perhaps for the first time in Scotland, a complete departure was made from the old style of planning by the introduction of a central corridor, of great width, from end to end of the house, and from which rooms opened on either hand and on every floor. The country, however, was not ripe for such a sweeping change, and probably not till last century was the plan ever repeated. Maclellan's house, Kirkcudbright, and Kelly in Fife were illustrated as most interesting examples of Scottish houses of a moderate size. The remarkable ruin at Barns, near Longniddry, presented a very pointed example of the desire for a more spacious style of house than was common. Built about the same time as Drochil, but never finished, it was strongly fortified, and it had many features in its plan which brought it into touch with modern ideas. The culinary arrangements of these old buildings, as exhibited in the many curious kitchens which still remain, were fully described and illustrated with plans.

HISTORIC SOCIETY OF LANCASHIRE AND CHESHIRE.

AT the second meeting of the session of this Society, Mr. John Hargreaves presided over a good attendance of members and friends. The paper of the evening, on the "Gatehouses and Gateways of Lancashire and Cheshire," was read by Mr. J. A. Waite, who commenced by giving a brief history of gatehouses and gateways from very early right down to the latter part of the seventeenth century, when gatehouses and gateways as a defensive feature ceased to be built. The paper was fully illustrated by a large number of selected views of the gateways of our ancient towns, castles, abbeys, and the gatehouses and gateways of the ancient halls and manor-houses now remaining in the two counties, with a short description of each. The seven chosen examples received a full detailed description of this defensive feature, taken in the following order:—Martholme, near Whalley; Borwick Hall, near Carnforth; Agecroft Hall, near Manchester; and Newbold Hall, near Rochdale, as representing Lancashire; and Brereton Hall, near Sandbach; Ridley Hall, near Peckforton; and Hollingworth Hall, near Staleybridge, as Cheshire examples. At the close a discussion took place, in which Mr. E. W. Cox, Mr. J. Bromley, Mr. W. F. Price and Mr. W. E. Gregson took part, and a vote of thanks proposed by Mr. E. W. Cox and seconded by Mr. J. Bromley was accorded.

HAWICK ARCHÆOLOGICAL SOCIETY.

AT a meeting of this Society on the 15th inst. a motion was passed expressing regret at the loss sustained by Jedburgh through the recent fire, in which the museum was destroyed. A communication from Hawick School Board was received, the Board being desirous of securing the whole of Buccleuch Memorial Buildings, in which the Society's museum is situated, for purposes of secondary education. The Society appointed a committee to confer with a committee of the School Board. Papers were read by Mr. Robert Murray, on "Nanny Cumming"; Mr. John W. Kennedy, on "St. Mary's Steeple"; and Rev. Mr. Johnman, on "Shetland Brochs and the Dwarfie Stone." Mr. Johnman described his recent visit to Orkney and Shetland, with special reference to the brochs, those rugged and robust unhammered rural towers

which claimed to be the patriarchs of native architecture. He specified Clikimin Broch and the Broch of Mousa, both near Lerwick, the latter being probably the most perfect broch in existence. It is situated on the island of Mousa and is 45 feet high, built of dry undressed stone. The circular wall is 15 feet thick and there are three irregular vaulted chambers. Some hold that these brochs, of which there are over 400 in Scotland, are of Scandinavian origin, others date them as far back as the ice age. The Dwarfie Stone of Hoy, referred to by Sir Walter Scott in connection with Norna of the Fitful Head, is a mass of sandstone 30 feet long, 15 broad and 5 feet high. It has been scooped out in the remote past and was supposed to be the residence of a dwarf and his wife. Mr. Kennedy's paper dealt with the popular belief that the steeple of St. Mary's parish church belonged to the burgh. He showed that although the town had repaired the steeple and put in the bell, the steeple belonged to the heritors, and had always been treated as part of the church.

GLASGOW ARCHÆOLOGICAL SOCIETY.

THE annual general meeting of the Glasgow Archæological Society was held on the 17th inst. in the rooms of the Society, 207 Bath Street, Mr. David Murray, LL.D., presiding. Mr. W. G. Black, joint hon. secretary, read the report, which stated that there were twenty-one members admitted during the past year, and that the Council hoped to issue this session the Society's report on the investigations on the line of the Antonine Wall. The financial report showed that the total revenue for the year amounted to 167*l.*, and that the total funds at the credit of the Society now amounted to 730*l.* The reports were adopted. The election of office-bearers then took place, Archbishop Eyre, D.D., LL.D., being elected president of the Society in succession to Dr. Murray. In the absence of the president, Dr. Eyre's introductory address was read by Mr. Dalrymple-Duncan. The subject of the address was, "The Preservation of Scottish Ecclesiastical Monuments." They might well, the Archbishop said, plead for the preservation of the old ecclesiastical monuments remaining in Scotland. Their Society had been established for the encouragement of research into the monuments of the past and of care for their preservation. Members of that and kindred societies were interested in the preservation of such remains, and should look upon themselves as the natural guardians of these treasures. In travelling through the length and breadth of the country they could not fail to meet with much to study and admire in her old ecclesiastical buildings, and not to admire only, but they looked on them as precious relics of the past, and as "special ornaments of the land and glory of the realm." In confining his remarks to the larger churches and ruins still remaining, he said he did so because they formed the only source to which they could look in this country for the improvement of the art of architecture, and as models to copy for Pointed or Gothic work. They had good but simple examples of early work at Jedburgh, Kelso, Dunfermline Leuchars, Kirkwell, St. Andrews, Glasgow, Whithorn, Elgin, Brechin, Dunblane, Dornoch, Holyrood, Arbroath, Dryburgh, Paisley, Dundrennan, Manuel, Kilwinning, Restennet, Crossraguel, Coldingham, Lindores, Fearn, Pluscardine, Cambuskenneth, Deir, Saduel, Ardchattan and Oronsay. He then called special attention to the Scottish ecclesiastical ornaments that remained from the years 1060 to 1560, a period of 500 years, confining himself to the cathedrals, abbeys and priories. The cathedrals of Scotland were thirteen in number, and of these Glasgow and Kirkwall were the only two remaining in a more or less complete condition. Of the other eleven, five were now in use in a modified condition—namely, Brechin, Dornoch, Dunblane, Dunkeld and Lismore. Six were only ruins, though Whithorn was used as a parish church until 1822. They had been ruthlessly dealt with in the past. It was their place and their privilege, however, to protect them from further injury, for they called for their care on account of their archæological interest and the relation they bore to the art and architecture of the nineteenth century; and as a means of stimulating interest in the existing ruins, he suggested that the members of the Society and antiquarians in general should spend their holiday in making a round of the Benedictine houses. A cordial vote of thanks was passed to the Archbishop for his address.

The Competition for the Diamond Jubilee Permanent Memorial, Singapore, has been determined. The following are the awards:—First prize of 200*l.* awarded to Messrs. Francis Sills & W. A. Francken, of Norfolk Street, Strand, London; second prize of 100*l.* awarded to Mr. William A. Tunstall, of Colombo; the plans (design A) of Messrs. Swan & Maclaren, of Singapore, were highly commended, and the plans of Messrs. Sevenoaks & D. G. Lavelle, of Bangalore, India, commended.

TESSERÆ.

Spanish Architecture.

THE epochs of architecture in Spain may be divided into six: Romanesque and Early Gothic, which flourished principally in the northern provinces during the dominion of the Moors, and of which examples are to be seen in the Huelgas cloisters and south porch of cathedral. The florid Gothic, which received much of its inspiration from German sources, and which is rich in fine examples throughout the country, and nowhere perhaps more so than at Burgos, as seen in the Miraflores plates, the spires and Constable's chapel, San Lesmes and others which, though full of blameable features, are remarkable for the band of excellent architectural sculptors who worked them out; and the Renaissance or Plateresque, which partakes more of a Gothic character than its analogous style in France, England and Germany, and is overloaded with ornament, presenting many bad features, yet still exerting the same influence as its predecessors by means of the variety and vigour of its sculpture. Then came the style of Herrera or purified Italian, which answers rather to the modified Grecian style in England of some years back, and is large, massive, bald, totally devoid of ornament, and very uninteresting. Then the Churrigueresque, which may be seen in almost every church in Spain, and is simply abominable. Besides these is the Moorish style, which completely a genus, *per se*, is full of beauties and delight, and deserves the close study of all artists who require grace and ornament and poetic feeling.

Early English Characteristics.

Arches pointed, generally lancet, often richly moulded. Triforium arches and arcades open, with trefoiled heads. Piers slender, composed of a central circular shaft, surrounded by several smaller ones almost or quite detached, generally with horizontal bands. In small buildings the plain multangular and circular pier is used. Capitals concave in outline, moulded or carved with representations of conventional foliage, delicately executed and arranged vertically. The abacus always undercut. Detached shafts often of Purbeck marble. Base, a deep hollow between two rounds. Windows at first long, narrow and deeply splayed internally, the glass being within a few inches of the face of the wall: later in the style, less acute, divided by mullions, enriched with foliated circles in the head, often of three or more lights, the centre light being carried highest. Doorways often deeply recessed and enriched with slender shafts and elaborate mouldings. Shafts detached. Buttress projection about equal to breadth, with but one set off, or without any. Buttresses at angles always in pairs. Fonts of various shapes, often ornamented with foliage in high relief or the tooth ornament, the stem surrounded by detached shafts. Mouldings bold and deeply undercut, consisting chiefly of pointed and filleted bowtells or rounds separated by deep hollows. Great depth of moulded surfaces generally arranged in rectangular planes. Hollows of irregular curves and sometimes filled with the tooth ornament or foliage. Roofs of high pitch, collar-beamed, timbers plain and open. Early in the style, finials plain bunches of leaves; towards the close, beautifully carved finials and crockets were introduced. Carved foliage of conventional character. Flat surfaces often richly diapered. Spires broached.

Architectural Ornament.

To use the same ornament for every variety of building, as is done in Italian architecture, is to play the same accompaniment to every style of music. It is a fallacy to suppose that increase or decrease of size changes the fundamental character. The world is our legitimate storehouse for ornament; but it should be carefully chosen from that animal, flower, leaf or shell which most nearly approaches to the character we wish our building to express, and then even it will be necessary to re-design it so as to suit it exactly to our purpose, not for character of form alone, but for the development of light and shade, as is the principle in Grecian art, and to suit our atmosphere we adopt the principle of Gothic ornament in light and shade.

Figureheads.

The war of the utilitarian spirit against "useless" adornment has never been carried through more thoroughly, or with such complete success, as in the matter of naval decoration. In the first half of the seventeenth century it was considered essential to the prestige of a war-fleet that every ship should have a magnificent figurehead and a poop designed with as much regard to architectural effect as the façade of a prince's mansion. Artists were employed in the great arsenals whose sole occupation was the invention of the most elaborate ornaments, which they carved in massive wood to adorn the great ships, so that they might bear to the remotest lands not only the power of the famous sovereigns in Europe, but something also of their splendour and their pride. These decorations had reached such excesses of extravagance that a reaction against them set in in England, which was immediately followed by the French.

NOTES AND COMMENTS.

The Society of Architects acted in the public interest when a deputation was sent on Tuesday to the Lord Chancellor with a petition praying that a Parliamentary Committee might be appointed to inquire into the present law regarding "ancient lights," with a view to saving the large amount of money expended in determining the rights of owners in respect of such lights. No doubt the present system is advantageous to architects and surveyors, but there are occasions when broader views should be taken. It was explained to Lord Halsbury that the Society desired the appointment of a Building Act tribunal of the London County Council to deal, before the commencement of building operations, with applications made by building owners to define the limits within which they are entitled to build, having regard to the adjacent properties, and of a similar tribunal for other parts of the country. The Lord Chancellor, after discussing the subject, informed the deputation that he would give the matter his careful consideration. The deputation was introduced by the Earl of Hardwicke and comprised the following members:—Mr. Walter Emden (president), Mr. Silvanus Trevail and Lieutenant-Colonel F. S. Leslie, R.E. (vice-presidents), Mr. Ellis Marsland (hon. secretary) and Mr. M. Morse Hewitt.

An interesting competition is about to be held in Paris. The Municipal Council have offered prizes which will be given to the owners and architects of the most attractive houses erected during 1898. As a consequence it is found that unusual care is taken with façades. Carving is largely introduced and in some cases there is an excess of it. Particulars of the buildings which will be submitted in the competition are to be sent in between December 1 and 15. If the municipality can by a moderate outlay on prizes secure originality and beauty in the new buildings few will care to grumble over the expense. The County Council of London and the authorities of provincial towns would be acting wisely if they obtained powers to lay out money on similar rewards.

M. de Morgan, who directed some of the explorations in Egypt undertaken by the French Government, is now engaged on similar work at Susa in Persia. The interest of the place was demonstrated by M. and Mme. Dieulafoy, who were able to discover the remarkable frieze of "The Archers," which is now in the Louvre with other treasures. Apparently at Susa, as at Hissarlik, there are strata which mark the sites of different settlements. It was in an upper level the frieze was found. M. de Morgan's operations have reached a lower stratum, which is supposed to contain the remains of Susa. He has met with a series of galleries that must have formed a part of the citadel, which was the legendary Memnonium. Remains of two large brick edifices were also found, many of the bricks being marked with the names of kings. Among the discoveries were an obelisk bearing an inscription of fifteen lines, fragments of a bronze table and a stile on which a battle scene was represented.

The Workmen's Compensation Act of last year was no doubt passed with the best intentions, but it cannot be said to have improved the relations between employers and employed. It is not therefore to be wondered at if, when a case under the Act is brought into Court, much ingenuity should be exercised to limit the conditions in the interest of the defendant, and to prevent the establishment of a precedent that would be unfavourable to masters. If that may appear too harsh conduct towards a man who met with an accident, it should be remembered that, unless a firm stand is made, the Act would soon become ruinous to employers. On Saturday last a case was heard before the Court of Appeal in which the question to be decided was whether the limit of 30 feet in height for a building as prescribed in the Act was not to be taken as meaning the height when the building was finished. At the time when a brick fell on the plaintiff's head while engaged on a building in the Clerkenwell Road the greatest height reached was 26 feet. His counsel contended that the words of the Act related to the height when the building was complete; for, supposing a building exceeding 30 feet in height was being demolished, would the Act cease to apply the moment the building ceased to be more than 30 feet in height? Their lordships held that the words of the Act could not be plainer, for section 7 said "on, in, or about any building which exceeds 30 feet in height, and is either being constructed or repaired by means of a scaffolding." The Court could not amend the clause by adding "or which may hereafter exceed 30 feet in height." It was therefore decided to dismiss the appeal, which signified judgment in favour of the defendant, Mr. Holloway, builder.

M. Jacobsen, the Danish brewer, has from time to time enriched Copenhagen with works of art. Sculpture appears to be his favourite among the arts, and there could be no objection raised to his competence when he was appointed director of the national sculpture collection. He held office for a year, but that time, brief as it was, was enough to transform the character of the sculpture galleries. M. Jacobsen resolved that casts should be obtained to represent the progress of the art from the time of the Egyptians and Assyrians to the present day. Copenhagen has therefore at present the most comprehensive collection of casts which can be found in Europe, with the exception of those in London, Paris and Berlin. As all the State is able to contribute towards the collection is 165*l.* yearly, without M. Jacobsen's generosity the countrymen of Thorvalsden and Jerichau would be a long time before having the advantage of possessing a comprehensive collection of ancient and modern sculpture.

The people of Liverpool do not seem to be disposed to erect a new cathedral, or to repair St. Peter's parish church, which is used as a pro-cathedral. In the latter an effort was made to make it reasonably secure, but as is not unusual when the work was commenced, it was discovered that what was required would be more costly than had been contemplated. The resources are now exhausted. The bishop, rector and churchwardens say it seems a pity that the work should have to be abandoned for lack of funds and at the risk of having the church closed, now, when not only is the expensive scaffolding in situation, but the contractors have got together an intelligent gang of skilled workmen who thoroughly understand the work. A report has been received from Mr. Shallcross, who attributes the dilapidation to the soft and friable nature of the stone used in building the church, which, moreover, has not been laid on the natural and quarry bed, and in consequence is unable to resist the action of the weather. Another cause is the quantity of iron used for cramps and dowels, which, becoming rusty, cause the stone to burst in many places. According to Mr. Shallcross the octagonal portion of the tower is in so decayed a condition as to constitute a danger to the congregation as well as to the general public in passing near the building, by reason of pieces of stone falling away. Mr. Goldstraw, surveyor to the Corporation, gives the ominous warning that "if the repairs which are now being carried on should be suspended or delayed, there would be a degree of risk to the congregation and the public which ought not to be incurred." The building was completed in 1704, and from its age should have a hold on the citizens. One cause for the apparent indifference is that the site should be used for a new cathedral, and it seems to be waste to expend money on a building which will have to be removed.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: REMAINS OF CLOISTERS.

ROMAN CATHOLIC CHURCH OF ST. JOHN THE BAPTIST, NORWICH: NAVE, LOOKING WEST.

CLARIDGE'S HOTEL, BROOK STREET, W.

54 MOUNT STREET, W. (LORD WINDSOR'S NEW HOUSE).

SUMMER HOLIDAYS AMONG FRENCH CATHEDRALS.

By the Author of "Ecclesiologia Germanica," &c.

(*Continued from page* 332.)

III.

Some Cathedrals and Churches of Normandy.

THE cathedral of Coutances, reached from Bayeux by a pleasant railway ride *viâ* St. Lo, is perhaps one of the most beautiful churches of the First Pointed age, the only additions in a later style being the chapels or oratories north and south of the nave aisles, and which, separated from each other by screens having a fenestral form, are pure Middle Pointed. Unfortunately the building is so confined that no good general view can be obtained. It consists of nave with western steeples, aisles and flanking chapels; transepts, central lantern which under certain conditions of light bears a resemblance to the great rood tower at Lincoln, and apsidal choir with double aisles, round which is a fringe of chapels, the lady chapel projecting considerably beyond the rest. Externally the central lantern and western spires form a group which, even in the unfinished state of the centre lantern, forms a group unrivalled on this side of the Alps for gracefulness.



Coutances: St. Pierre and the Cathedral, from the S.E.

A somewhat peculiar and, it must be confessed, awkward appearance is imparted to the western spires by the huge buttresses projecting from the north-west and south-west sides of their towers, which in their upper stage, like the central lantern, are octagonal, with a pinnacled turret joined by a small flying buttress to each semi-cardinal side. A low octagonal pyramidal capping surmounts the great central lantern, of which a fine view, including the transepts and choir, can be had from the episcopal gardens. From each tower projects a deep porch; the northern one is especially fine. In the tympanum of its inner door at the time of our visit were some headless figures which restoration, at that time in progress on this side of the nave, have, it is to be feared, swept away beyond recall, when one remembers how recklessly such works are too often conducted in France. Six bays of traceried windows, the perfection of Early Decorated, and of three compartments, each varying in design, light the nave aisles, to which statues of kings and queens niched in the buttresses give additional richness, as do the traceried parapets, but on the south side of the nave a falling off in elaboration is apparent.

Owing to the almost total absence of colour, especially in the nave, the impression of Coutances Cathedral on entering is cold, but the eye soon learns to dwell contentedly on the grand Doric simplicity of the First Pointed piers and arches. The organ oft, supported on four Corinthian columns coupled, is the first object that attracts attention on descending the several steps leading from the porches to the interior of the church. Unfortunately this piece of furniture conceals the fine inner west door of First Pointed work. The nave piers are all attached; above the arches runs a low arcade composed of five quatrefoiled circlets, forming the balustrade of a triforium gallery; the triforium is closed and takes the form of two arcades under a wide arch equal to the bay below; between the sub-arches is a richly-moulded circlet, and within these sub-arcuations the wall is relieved by two narrow uncusped arcades. The lancet lights composing the clerestory are extremely simple, being without shafts or mouldings, but having in front a low trefoiled arcade on short pillars. Full of study is the moulded string-course, as, indeed, is all the detail here. Looking across the church, in whose vault we desiderate the ridge rib so dear to the English eye—indeed, it is rarely met with in France—most picturesque views are afforded by the side chapels, each separated from the other by a light open traceried screen—an unglazed window in fact. All these chapels are richly arcaded, each having below the traceried screen a constructional reredos of trefoiled arcades. The most easterly chapel on the south has on its east, west and south sides two tiers of figures under canopies; all are much mutilated, but a Crucifixion on the east side has been restored. Many of the reredoses retain traces of colour. The work on the interior of the great tower is most rich. Immediately above the great arches, where it becomes octagonal, occurs a low balustrade (to borrow a non-Gothic word) of trefoils, then a lofty double arcade, of which there is a pair to each of the eight sides; then an elaborately carved string-course; next, another low balustrade; after this a blind arcade, then lofty coupled lancets, and lastly the vaulting. In the choir, owing to the omission of the triforium, the arcade assumes very stilted proportions, the piers in the apse being circular, and placed back to back in couples, giving a very substantial but at the same time élancé character to this part of the cathedral. The chorus cantorum is very spacious, but the fittings do not call for attention, while the high altar and its surroundings are in First Empire taste. The choir has two aisles on either side of it, the outer one being separated from the radiating chapels by a series of arches on short cylindrical piers with foliaged capitals. Above this series of arches is a low triforium of unpierced arcades, surmounted by a clerestory of coupled lancets within a round-headed containing arch.* In the first chapel on the south there is polychromatic ornament, the walls and shafts being painted chocolate brown and vivid green; on the western wall some restored mural painting may be observed. In the second bay of this aisle a door leads out into the narrow lane on the south side of the cathedral, and the ensemble presented to the visitor who enters for the first time by this door is one of great richness and solemnity, owing to the painted

* Such an arrangement of the division between the aisles may be seen on a much more grandiose scale at Bourges and Le Mans.

glass which fills all the windows in this part of the cathedral. All in the chapels is modern and generally good; in the great clerestory windows of the choir and apse, and in the transept triplets, the original glazing remains, remarkable not only as being the earliest specimen of vitreous decoration in Normandy, but for the manner in which the shadows are produced by cross hatching with a brown pigment. Some of the tinctures are truly superb. The windows in the southern range of chapels round the choir are sometimes composed of two lancets and a trefoil, indicating a more advanced form of First Pointed. The second chapel—St. Martha's—has a good stained window not too archaic, as has the next chapel, St. John Baptist's; here both the windows are tripled lancets, the centre light figured, the sides simple patterned. The fifth chapel has a rather too antiquated First Pointed stained window. All these chapels except the first are apsidal. The lady chapel, long and apsidally terminated, is most delicately polychromed, as becomes that dedicated to the Blessed Virgin, cream colour being the prevailing tint of the walls, and light blue of the glass. Nothing worthy of note occurs in the northern chapels of the choir; all have good modern First Pointed glass, of which I especially noted an exquisite diaper in the two-light window of the first chapel in this aisle from the west. The chorus cantorum extends, as at Bayeux, across the lantern. From the nave into

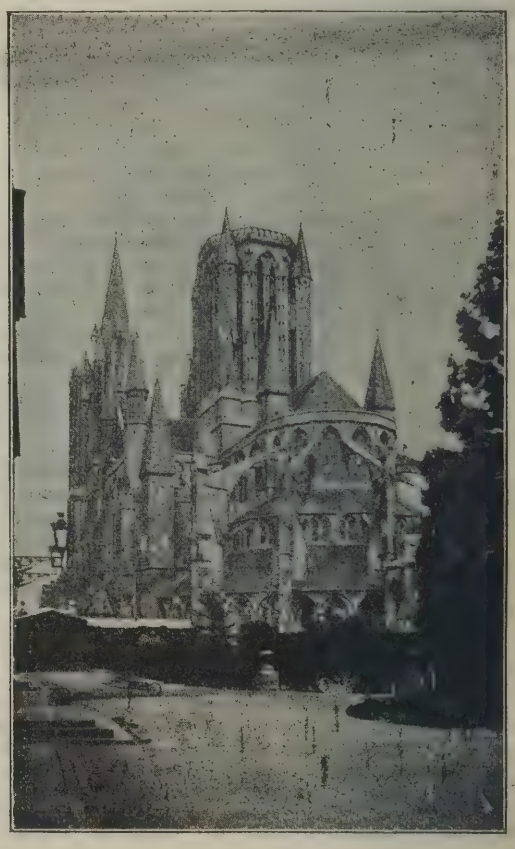


Coutances Cathedral: Nave looking East.

the transepts is a descent of four steps, and one more from the transepts to the choir aisles. The ritual in this cathedral is carried out with much dignity and decorum, and we remember that especially rich crimson copes were worn at the First Vespers of St. James by the officiating clergy.

Besides the cathedral, Coutances contains two large churches, poor architecturally, but not wholly uninteresting. That of St. Nicholas is situated in a small *place* on the east side of the hilly street leading to the cathedral; it is cruciform, with a poor Renaissance central lantern copied, perhaps, from that of the mother church, and a low western pack-saddle roofed belfry which does not reach the apex of the nave roof. Internally this church, which apparently is a seventeenth-century building built in imitation of a thirteenth-century one, greatly surprised us by its extreme length. The choir, a tolerable copy of First Pointed work, has a series of rather wide arches on circular columns of a rich, dark, granite-looking material, with foliaged caps. In the apse are five narrow arches and a low delicate triforium gallery, like that in the cathedral and a First Pointed and very simple clerestory. The lancets in the choir aisles are exaggerated things, something like those produced in churches at home built during the early years of our Queen's reign, but all filled with Renaissance glass. The choir itself, with its grilles and stalls, is most imposing owing to its great length. The nave piers are without caps, the arches dying off into them; above them is a low arcade carried round into the transepts. The high Renaissance western gate to the choir, and the pulpit on two Corinthian columns, with a sounding-board like one of the Wren pulpits, are picturesque instrumenta. Here we noticed pews with doors—a feature once very common in Normandy, but now fast disappearing, we regret to say.

The other church of Coutances—St. Pierre—stands down the hill south of the cathedral, which occupies the highest ground in the centre of the city, and thus forms a conspicuous object for miles round, and even out at sea. This is a really noble specimen of a Late Flamboyant church, merging into Renaissance, cruciform in plan, with a western steeple and bulky octagonal lantern at the crossing. Seen from the railway this church forms with the cathedral an imposing architectural group. Internally it has a lofty arcade of round arches on piers without caps or bases, and an elaborate string-



Coutances Cathedral: East End from Episcopal Gardens.

course below the triforium arcade. The most richly decorated part of the interior is the great central lantern—a really noble specimen of Renaissance work, some of whose details have quite a Romanesque air. It is curious to note here, as at St. Nicholas, how much the cathedral must have influenced the architects of these two churches. Here again were the pews with doors, which, taken in conjunction with the plain round columns, reminded us of a Dutch interior. Some of the windows contain Flamboyant tracery; in others it has entirely disappeared, the broad lancet being divided into two acutely pointed and unfoliated lights, as at Oxford Cathedral before it passed into the hands of Scott for Perpendicularisation. The choir, enclosed by high grilles and a western gate, the former erected on the wainscot, does not extend into the lantern, nor does a lady chapel project from the circumambient aisle. A great deal of Renaissance glass, chiefly modern, fills the choir windows. Before a small statue of St. Anne in the north transept was a galaxy of lights amid flowers in pots, the occasion of our visit

being the festival of that saint. The way in which the organ gallery was suspended at the west end, without any visible support, was noteworthy.

Returning from Coutances to Caen, we journeyed through Lisieux, St. Pierre sur Dives and Argentan to Seez. Many of the village churches passed on either side of the line were, we noticed, equipped with saddleback-roofed towers, and in case of detention or overmuch leisure would doubtless prove of considerable ecclesiological interest.

This peculiar type of steeple seems a favourite one for village churches in that district of Normandy which lies between Lisieux and Cherbourg, but especially in the Cotentin, and it is likewise employed in other parts of the country, notably in the Ile de France and the villages between Etampes and Orleans, but it seems never to have been used on a very large scale in towns. Since the English Gothic revival the "saddleback" has been employed by architects in town churches with much success, as, for instance, by Mr. Butterfield in St. Matthias, Stoke Newington, and Mr. Champneys in St. Luke's, Kentish Town, where it is exhibited, as forming the chancel of those churches, with extremely grand effect. When funds are not forthcoming for a spire, such a termination will frequently be found both economical and effective, and at the same time out of the ordinary.

We were much pleased with the cathedral of the comparatively unknown Norman city of Seez, though not a little chagrined to find the choir and its aisles in process of reconstruction, and for that purpose cut off from the rest of the building, for Seez, while presenting many features of great beauty, has the reputation of being the worst constructed of all the French cathedrals. During the present century vast sums have been expended upon this edifice, which, owing to its defective foundations, has had at different times to be taken down and rebuilt. Hence the far-reaching buttresses of the western steeples, which, taken in conjunction with the disproportionately large but finely detailed portal, impart an air of such peculiarity to this part of the building.

The nave of Seez Cathedral, in the Lancet style of the early part of the thirteenth century, is only one of the many noble works which were rising all over the North of Europe during this Augustan age of her ecclesiastical architecture, an age which, comprised between 1190 and 1250, saw the construction of some of the noblest Gothic buildings the world can show—Amiens, Auxerre, Bayeux, Beauvais, Beverley, Bourges, Châlons-sur-Marne, Chartres, Coutances, Notre-Dame at Dijon, Laon, Le Mans, Lincoln, Lisieux, Loches, Paris, Rheims, Rievaulx, Rouen, Salisbury, Semur, Soissons, Tours, Troyes, Wells, Westminster, Worcester, York—and the great German group so strangely behind the rest of European buildings, yet so worthy of admiration in many respects—Bamberg, Gelnhausen, Herford, Limburg on Lahn, Münster, Naumburg, Neuss, Paderborn and the great Rhenish series. What an age of religious and artistic activity are all these noble buildings, each characteristically beautiful, the evidence!

The transepts and choir of Seez Cathedral are Middle Pointed, and although reconstruction has robbed these portions of a great deal of interest, they abound in exquisite detail, the rose window lighting the principal face of either transept being an unusually graceful example of Geometrical tracery, and there is much that is of great beauty in the inner and outer portals of the north transept. The small doors in the basement of the steeples likewise present much delicate foliaged ornament, as do the caps of the slender shafts in the great western portal—a truly noble specimen of its school, though, as we said above, not well proportioned to the upper stages.

Although the dead wall filling up the eastern arches of the crossing and transept materially impaired the general view of Seez Cathedral internally at the time of our visit, there was much to admire in the portion westward. The nave piers are immense cylindrical ones with finely-foliaged caps, the vaulting shaft being continued right down each, not corbelled off, as in some thirteenth-century examples. Tripled lancets light both aisles and clerestory. Seez being one of the very few French cathedrals in which the old basilican arrangement is retained, the high altar—in Revived Italian—stands under the crossing, being surrounded by a fine marble pavement. The two easternmost bays of the nave are screened off for the "chorus" by a marble balustrade. We could not admire the parcloses—a tall mass of wood painted in imitation of white marble, but enriched in the centre of each compartment by a carved subject within a medallion. The same type of enclosure to the choir exists, though in a richer form, at Chartres.

Seez is a very quiet old place, more like an overgrown village than a cathedral city, but not without its charms, that of solitude and repose being paramount; but, if we except a very rich modern Romanesque chapel attached to the Petit Seminaire, is devoid of architectural interest after the cathedral. A delay of several hours at Dreux, owing to the awkward timing of the trains to Chartres, enabled us to visit its fine chiefly Flamboyant church, and another object of considerable ecclesiological interest—the mortuary chapel of the Orleans family within the precincts of the château, a singular structure in the semblance of a Roman temple erected by Louis Philippe before his elevation to the throne of France in 1830.

It consists of a central round vaulted chamber of Classical architecture, and constituting the original building, but which externally was metamorphosed into a Gothic edifice. From this circular nucleus have sprouted four arms connected together, and with the original Classical shell, by a circular aisle which encompasses the latter. This aisle and its transeptal appendages are both internally and externally in the "Gothic of once upon a time," or that familiarised to us by the illustrations in the romances of the last century. Anomalous though the work be as a whole, there is much internally that is of extreme beauty. The royal tombs exhibit exquisitely sculptured statuary; the painted glass from Sèvres is good, and the place, apart from its artistic character, must always command attention on account of the ill-starred historical associations with which it is invested.

At seven o'clock, after an hour's railway journey from Dreux, the gigantic cathedral of Chartres appeared on the horizon, towering grandly above the city which rises amid the golden cornfields of La Beauce.

(To be continued.)

SOCIETY OF ARCHITECTS.

THE opening meeting of the session of the Society of Architects was held last night, when the president, Mr. Walter Emden, delivered the following address:—

I have to again thank you for having placed me in the presidential chair of your Society for the coming year. I can assure the members of the Society that their Council will give its best attention to the forwarding of the interests and work of the Society.

The work which this Society has always set itself to do is that of being of practical assistance to its members and the profession in general. Any subject which will benefit the profession or the public, and which lies within the scope of the work of a professional Society, will always receive earnest consideration and attention.

Work of the Society.

The way in which this Society has dealt with the question of registration of architects is a proof of its determination to persevere with its work in the face of many difficulties, and I feel sure this Council will not be found less persevering or less ready to labour for the accomplishment of any other of the Society's aims.

During the past year, as was told us in the report, the Society has made some progress with this question of registration, and, indeed, slow as the process of education in this direction may seem, there is no doubt an Act will eventually be passed for the protection of the public by the procuring of properly qualified architects.

Voluntary examination may be all very well in its way, but there should be in all professions where the lives and pockets of the public are so much at its mercy as they are in building operations, no volunteering about the qualification, but an absolute certainty that the qualification has been obtained by the necssary examinations being passed.

The Council has instituted, and trust it will grow during the course of this coming year, a bureau for the employment of clerks, so that those requiring clerks and clerks requiring appointments can have an easy channel of communication, and with the advantage that those requiring appointments by passing through the books of the Society will show that some inquiry as to their capabilities has been made.

It is also proposed (and the last Council has already given a large amount of consideration to the subject) to establish under the Society's control a system of tests. In this presen

age, when invention has been making such vast strides, and every year sees large numbers of improvements and patents of all kinds added to the list, it seems to us a very useful purpose will be served if some thorough and independent tests were from time to time obtainable with regard to their value and serviceability. While it would encourage the inventor, were his invention or were the improvement of proved service, it would at the same time prove a considerable source of benefit to the public by their having confidence in its use.

The great difficulty in dealing with improvements is sifting out the good from the bad, and the usual process through which the public have to go is an extremely expensive one. They have, indeed, to buy their experience. They purchase and use what may and often indeed proves afterwards to have little or no value, and by such expensive experiences are discouraged from taking any further risk, and thus leave much which might in their work or business prove a valuable economy untouched.

Set out in the Society's Journal of September are some of the ways in which such a system of tests could be of service to the public, to the professional man and to the inventor.

The tests, however, would not be limited to new inventions. There are constantly new materials coming into the market which have their special attractions in price or manufacture, and which at the same time, being untried, want of experience prevents being freely used.

Rights of Light and Air.

Another practical work, and that of the first importance, which is being undertaken by the Society is that of bringing about some change in the law which, without affecting the rights of property, shall prevent the vast waste of time and money which there is every year in negotiating and litigating over questions of light and air.

Every architect and surveyor knows well the annoyance which his client and he also is put to when proposing to erect buildings in any town. It is no exaggeration to say that in some cases a building which may greatly improve the surrounding property by its being erected is attacked on all sides by questions of light and air, and that a crop of ten or a dozen cases may be raised against it, often many of them of the most trivial nature, and it must be an especially lucky building owner who commences and completes his building without any such claim being made.

Almost all of these cases arise from the uncertainty as to what does or does not really affect the rights of an adjoining owner, and what can legally be held to materially affect it, and beyond this I am afraid it is only truth to say that the desire of gain largely affects the claims made. Not only professional costs, but the larger gains contained in the question of whether, rather than have his building stayed by an injunction and risk the large amounts necessary to fight an action on nothing more than trivial rights or even imaginary ones, the building owner will not pay a sum of money or blackmail.

If we look for an instant at what has to be faced by a building owner, it will be seen at once that it must often enough curtail building enterprise, as does the state of uncertainty seriously impede those who legitimately wish to rebuild or improve their premises.

Everyone seems to think that a building owner is fair game for compensation.

It is only natural that each surveyor should desire to look first at his client's interest and desire to do well for him, and necessarily in dealing with the business in hand they do not trust the other side to look after their clients, and the state of uncertainty as to what are or what are not a client's exact right under the law as it stands all tend to prevent a settlement and produce a lawsuit.

The same affects the solicitors when they come on the scene, and consequently not only do the professional costs get piled up by the law's uncertainty, and one man will get through where another is stopped, but a lawsuit becomes almost inevitable.

In order therefore to protect the interests of a client an injunction is obtained, and I fail to see that the architect or solicitors can be blamed if in their client's interests they obtain an injunction where the case may be of a trivial character if they think their client is likely to obtain a monetary benefit by so doing, which may even be larger than the real value of the damage.

These cases, too, depend so much on technicalities, while the necessity to bring home to judge and jury the facts as they are is so great that models and numberless plans have to be prepared, and experts at expensive rates called in order to prove fully the views of each side to those who have to try and decide the case.

What wonder is it, then, that these cases become enormously expensive, and thousands of pounds are every year more or less wasted in costs on them? This very expense is the opportunity of the man with rights great or small to obtain from the building owner a sum of money—rightly or as a blackmail matters not—it is paid: as at all events it leaves the building owner better off than to try the case with its attendant risks and costs.

I venture to think that no inquiry into this subject could be made without disclosing not only the great number of these actions, but their wasteful cost.

I am sure, in the eyes of every honourable professional man, it is necessary to avoid this useless waste of money, and he would desire to prevent the class of case being set up which so often assumes the aspect of blackmail.

The Council of this Society has set itself to work to make a determined effort in the direction of preventing this useless waste, which affects not only the public, but the honour of professional men.

There is no doubt the question is a difficult one to deal with when first approached, because it is not desirable that people's vested interests and rights of property should be interfered with; but it seems to me that the object which we have in view can be obtained without any such interference, and yet justly and effectively prevent the waste which has been and is a growing evil in England.

In Scotland the Court of the Dean of Guilds deals with these questions, and the canny Scot is saved the annoyance and expense; and conservative as we may be in England, there can surely be no reason why we should not adopt some similar or suitable means to accomplish the same end here. The Building Act tribunal, in dealing with Building Act cases in London, has shown that there can be no difficulty in appointing a technical court to deal with these matters; and the payment of its cost would be the merest fraction of the costs to which building owners are now put.

The secret of this wasteful and improper system lies, like all other wasteful systems, in the uncertainty of the extent and value of the rights affected, and until these can be decided before commencing to build by an independent decision from a court to which it is compulsory to go as in Scotland instead of stopping the building in the middle, the waste and impropriety of the present system will grow and scandalise our ability as businesslike and honourable men.

The suggestion which I would make, and which I think this Society should adopt, is that a technical court under the London County Council in London should be established, and every building owner should be compelled to deposit a full set of the plans of any new building or material alteration of a building with the central authority paying some such fee to cover the expense of dealing with them as may be deemed necessary, and that the authority, should then require the owner to give notice to all the adjoining owners who may be affected, so that if after examining the plans they think there is interference with their rights of light and air or other easements, then the tribunal, after seeing that all interested had had notice, should proceed to hear the objectors and the building owner, and, after hearing, decide as to what height, &c., the building can be carried without interference with the lights and easements of the objectors.

The fact that such a decision is given before building operations are commenced, and before the building owner is pledged to his contract with his builder, would of itself be a substantial boon, apart from the great saving of time and money, and apart also from the saving made by its being an absolute preventive of blackmailing by factious and petty cases being raised and the fighting of expensive actions.

I fail to see that anyone could suffer injury by this course, and the good arising from it must undoubtedly prove a valuable incentive to the public and professional men alike in the numerous building operations which in this great city are constantly necessary.

There is no doubt that, when cases are carried on, men's feelings and men's judgments get involved and warped, and cases are carried in consequence to such lengths that thousands are spent on small and petty matters, which in themselves, taken at the very largest valuation, would not represent more than a very small portion of the costs which are incurred.

I in no way wish to pledge myself or the Society to the details or the exact methods by which this beneficial change should be brought about, but I suggest what must appeal to all as advisable, and simple means, such as an extension of the powers of the Building Act tribunal in London, by which to accomplish it. The fees charged could be made to cover all the expense of the court and its attendant officers, and would then be moderate enough to prove a mere drop in the ocean compared to the present wasteful process. Future discussion on this subject may devise better means, but any way it is in my opinion, and I trust it is the opinion of all those to whom I speak, necessary that the settlement of this subject should not be longer delayed and that the remedy should be applied at an early date.

The Society have presented a petition to the Lord Chancellor, and I have also laid before the London County Council a notice of motion for the Building Act committee to consider

this important question, and I hope for the hearty and substantial support of the whole of the Society.

The only difficulty is that the question does not appeal directly to the great body of the public, who, though they may suffer in certain ways, only suffer occasionally and for the most part indirectly; but those who build and have built will I am sure feel the force and necessity for the remedy which we advocate, and I trust they will use also their endeavours to bring it about.

I trust, too, that the efforts of leading men in the professions of both architect and surveyor, as well as those of the legal profession, will not be wanting in the necessary effort to bring about a reform so greatly needed and which will once and for all sweep on one side the exaggeration of claims of a petty and improper character, with all the attendant waste of clients' money which comes in its train.

The Local Authorities.

I would like to say a word or two on this subject, more particularly as applied to London. There is in London much overlapping of authorities, and a multiplication of applications totally unnecessary for the protection of the public, and indeed tending rather to befog it and to leave loopholes.

A valuable reform might be made in this direction, and perhaps when we have the new Municipalities Bill of the Government this might find a place.

A simple reform could be made by extending in the Council's hands their powers as a court of appeal, with power also for the making of rules and regulations, but place entirely (except as to the necessary inspecting officers to check the local authority) the administration of such rules and regulations and the passing of plans in the hands of the district or local authorities. Let the district surveyor also be the surveyor of the local authority: let there be but one surveyor, with a competent staff in each division of the county of London, and only one administrative authority, the local or divisional one, to pass the plans of buildings, both as to structure and sanitation, and indeed for all purposes.

Appeals from the decisions of the local authority could then well and properly lie with the London County Council as the central and head authority. Now, not only have plans to be passed through several authorities, but there is the absurdity of the London County Council having appeals against itself, a course which, in my opinion, good as has undoubtedly been its work, is calculated in the long run to lower its authority and prevent that public confidence which there should be in its decisions.

The State of Sanitary Work.

There is another subject, vast in its proportions and far-reaching in its effects upon the health of the public, which requires urgent attention.

No one can fail to know that in the smaller towns and in the provinces very little inspection goes on, and houses are drained and allowed to keep or use appliances of a most dangerous class—a fact which not only keeps up but spreads disease to an extent which many will hardly believe. Every year brings its crop of cases of typhoid and other diseases caught in country houses and country towns of the smaller class.

The remedy lies in the law enforcing a strict uniformity of requirements adapted to town and country buildings, with a regular and full inspection and with power to enforce requirements.

We are told to leave the town and go to the country for health, but I venture to say that the health statistics will show London and other large cities, taken as a whole, have a less death rate than many a country town and many a country district.

It cannot be said the large towns are perfect; indeed, they are far from it, and must so continue while the apparatus and system approved in one district are disapproved in the next (merely across the road), and while this uncertainty and confusion exist this imperfect state will not decrease but will probably increase.

The remedy is simple: let the battle of systems be fought out before some competent and independent authority appointed by the Local Government Board, and then let us have uniformity.

There is no reason by so doing to discourage improvement but rather to encourage it, as the same authority could and, in my opinion, should have power to examine at the instance of any sanitary authority any suggested improvement and to certify it as suitable for use.

Of course, the system for London, or in large towns, cannot be the same as for a country district; but there are equally good systems of drainage for country houses as for London houses; all that is necessary is that their use shall be defined and enforced.

We cannot but hope that this important question will not be left until some terrible epidemic brings it home to those who at present neglect and sleep over it.

London Improvements.

There is still one subject more I would like to call attention to; it has been claiming some attention lately, and is of serious importance to the good working of this vast city.

Sir J. Wolfe Barry, in his address to the Society of Arts, suggested great improvements in the thoroughfares of London. I do not question the need for the great and growing necessity for widening main thoroughfares, but I fear that, before the authorities have the courage or possibly the inclination to spend such vast sums as the proposals he makes will cost, the necessity will become unbearable. No doubt, with our present knowledge, we could lay out a city on much better lines than those on which London at present exists (though there is much to be said for the picturesque and quaint appearance of many of our streets), but it is and would be too costly to try the means suggested, and the disturbance of trade centres and existing business premises would affect in a very detrimental manner the occupiers and the ratability of the district through which the improvements were carried.

It seems, therefore, that we must meet the growing want and present pressure by some less costly method. No doubt we must press on the widening of some of the various great thoroughfares where feasible; no one will suggest that, where the cost is such as the community can reasonably bear, there should not be further and well considered improvements, but it is clear these will not meet the pressure. The increasing traffic caused by those who work in and whose business brings them in increasing thousands to this great city must be met, and we must therefore examine into other means for meeting the difficulty within the power of the ratepayers' pockets.

It is no doubt a fair question to ask: "Are we, because great new streets are too costly, to sit still?"

It is some years since I first suggested subways for London to prevent the great inconvenience to traffic and business by the constant upheaval of the road surface for the laying and repairing of pipes, wires and drains.

My suggestion went so far as to propose that the whole width of the roadway should be a subway, which could be well used for and would amply accommodate not only all the pipes and wires, but would also leave good broad ways for pedestrians and, if it should be necessary, for bicyclists too.

The advantage of subways in saving the road surface is great. The benefit to companies for water, gas or electricity, in the facility for examining, testing and attending to their pipes and wires, must be evident, and would, in my opinion, prove such a saving as to make the rent to the authorities well worth paying. Thus not only could a very much increased traffic be covered by the same roadway, with its subway under, but an outlay of much less capital would be required, with considerable prospect of some return by rents. There would be much less disturbance to business; there would be no goodwills of business, or leaseholders' or freeholders' interests to pay for indeed, the land would be obtained without cost, while the cost of the subways being almost entirely that of building, the expenditure would give employment to the great numbers of workers who live in this city, and who spend their earnings in it, and thus those who had to find the cost would obtain some return benefit from its expenditure. I must conclude, however, and content myself with what has been already said, in the hope that some of these great and pressing questions of reform which are before us may commend themselves to those whose duty it is to take note of public opinion and public necessities.

ARTS AND CRAFTS.*

(*Concluded from last week.*)

THE key to human development is found in evolution, and the key to architecture also is found in the gradual evolution from arts and crafts unconsciously. It is the unconsciously produced record of mental development. It is a kind of spiritual skeleton. A cathedral with its innumerable cells and vaults, its pillars, spires and pinnacles bears the same relation to the complex organism which produced it that a sponge bears to its secreting cause. It, like the sponge, is the symbol, the formula, the evidence of vanished life. Our judgment, therefore, of the cathedral as a thing in itself, merely as the production of the conscious art of one man, is as valueless as a criticism of a sponge would be, made by a man who had never seen the living animal.

Just as the sponge is built up under the stimulus of the life of it by the labours of countless silica secreting cells—each cell the descendant of a long line—so the cathedral is made by a number of stone-laying organisms under the stimulus of the collective life, religion, enthusiasm, ordered by the directing mind of the master, who is himself but the servant of a greater

* A paper read at the last meeting of the Architectural Association by Mr. H. Wilson.

power. All the separately-acquired skill, all the individual art and craft, all the personal life of each individual is fused into the general mass, and is there given new importance by sharing in that mass. The building is enriched by the work of the individual item, and that work is in turn ennobled by being part of the building. The harmonious aggregate of the personal arts becomes the impersonal, the human, the racial art of architecture. What is true of the great things is true also of the lesser. The lower order of buildings, to use the common distinction, were produced by humbler organisations, and because they were the simple direct and logical outcome of special social needs, were beautiful in structure with the beauty that one feels in a leaf, a plant, a shell. The work was beautiful not so much because beauty was sought, but because the work was the natural expression of the lives of men in harmony with their surroundings. Its value to us is in the unconscious evidence it gives of the minds of those who produced it. For what is most precious in our own work is not what we consciously seek for, nor what it is our will to express, but what we unconsciously reveal of ourselves, our race, our society, our condition.

Now it must be evident that if architecture is thus a natural, social, racial art, if it be produced not by the will of single individuals, but is the expression in masonry of the working of time-spirit, then it must be clear that what we are doing to-day cannot be called architecture simply because what passes for such is produced under quite different and quite artificial conditions. It may be interesting—to the sociologist; it may at times be beautiful; it is not, properly speaking, architecture. Modern building, when it is beautiful, s always the work of artists who by hazard have made bricks and mortar their medium of expression. They would have done notable work in any material; but, in judging of the building of a nation, we must take the mass of it, and not the sporadic works of men who were artists first and builders afterwards. Judged by the mass of brick and mortar raised to-day, there is little to be proud of in the art that produces such works as—any building each of you particularly dislike.

This brings us down to our own day. The fact is that Renaissance is notable presumably for architect's architecture. It is the work of architects who design as distinguished from those who did not. But though it and the architecture of design was so produced, the men who did it were real craftsmen in the completed sense of the word. Look through any biography of the Mediæval masters and you will find that they were almost without exception trained first as goldsmiths, painters, sculptors, workers in wood, ivory and mosaic. They were employed chiefly as designers, architects when they had attained eminence in the crafts. The hard training of work in material had filled them with ideas and enlarged and rounded their ideals. Having mastered one or more arts before they touched design as a separate thing, their work had a sculptural completeness impossible of attainment in any other way. But we must not forget that much, if not all, of this completeness came from the unifying labours of the creative craftsmen associated in the guilds, then in the very height of their power. Though the skeleton designs were prepared by the master sculptor, and the proportion settled before the building was begun, the designs were overgrown, veiled and clothed by the individual creation of the special workman to whom each portion of the building was assigned. Those workmen trained under and elected into the guilds put into their work unhindered, though directed by the designer, all that their skill enabled them to express of ideas and the tradition of their guild, and for many years we do not perceive the necessarily mechanical methods to which the designer, considered as the user of a separate faculty, was necessarily reduced.

But these mechanical or scientific methods are there, becoming more and more evident as time goes on until the building is turned into a mere sitting for a variety of the delicate and beautiful works of men who, without ceasing to be artists, are daily less associated in the vital design of the building. Their work ceases to have those organic relations to the whole which we find even in eighteenth-century buildings in England. The art of design is in the process of evolution into artifice; the designer becomes more and more specialised into a constructing draughtsman, the maker of graphic specifications for buildings instead of the actual maker of buildings. Little by little he loses hold of the guilds, and then makes the artists become specialists each in his own department; the guilds dissolve, and as the importance of the design increases their powers decrease, and that great tide of life, of whose existence they were the evidence, finally ebbs away, leaving as the last product of the Renaissance—the final flower of all that cultivation—the modern architect, high and dry as the arid peaks of individual effort, cut off from any possibility of doing as he might wish, condemned to more than Sisyphean labour of producing something out of nothing, while deprived of means to do it. That is the position in which we found ourselves but a little while ago.

It is manifestly illogical to blame the architect for being the result of a perfectly natural process of evolution; it is equally illogical to expect from a man the work of a multitude, or to get from a molecule the momentum of a mass.

It is all very well to show why a thing is wrong, but it is important for us to know what we ourselves are to do—and this, though difficult, is not impossible. In the first place, as architecture is built up by the harmonious co-operation of the natural aptitudes of many individuals, it is necessary for each to follow his own particular bent and to devote himself to that work to which he feels most drawn, and in the vast field of building there is ample room for the effective working of every talent and the display of every power. And, inasmuch as all the crafts are necessary to architecture, there need be no strife for precedence, for we all, as in life, are interdependent. Just as there are diversities of gifts but the same spirit, so there are diversities of crafts with the same art working in all, embracing all, inspiring all. The lead worker who does a fine font, the silversmith who creates a chalice, the modeller, the plasterer, the mason, the waller and the sculptor, the carpenter, the joiner and the carver are all necessary and all equal in so far as each does the work to the best of his ability. There is neither greater nor less in the kingdom of art—all are the servants of their own souls, as they are the servants of God—and that is the art of the whole matter.

I do not mean by suggesting that each man should take up a craft, to advise the dilettanteism which dallies for an hour or two in the evening over some easy bit of work, done at a loose end, without reference to any actual building, although even that is not to be despised if it leads to a truer perception of the nature of building. I mean this, that each should determine to be—as the old men were—a craftsman first and an architect afterwards, for it is futile to talk of directing the handicrafts if we are not in some degree craftsmen ourselves.

Moreover, the value of the craft study lies not alone in the manual and mental training we derive from it, but in this, that the very processes of work suggest other designs, the original pencil sketch is modified or abandoned as the thing we make takes form. When we have done the work and placed it in some corner of the studio, the actual faculty which was held somewhat in abeyance by the ardour of work reasserts itself, we see defects of design and remedy them. As the light fades or changes the work takes on new aspects, and becomes the starting-point of an entirely new and living set of ideas. It is a source of fruitful suggestion while it remains there, whereas when the original sketch, drawing or design has been handed to a tradesman, not only do we lose the full power of modifying work in progress, not only do we lose the suggestiveness of process, but the work when done is neither our own nor the workman's; it is an illegitimate birth, and bears the marks of it on its face for all who have eyes to see. What is true of the lesser art is true of the greater; unless you live with your buildings, unless your craftsman's knowledge is hourly used to support up your artistic inspiration and organise the work of other craftsmen associated with you, not all the drawings in the world will produce a building fit to be called a piece of architecture. And that, in spite of the hopeful enthusiasm and the passionate earnestness which characterises the rising generation. Now, having tried to tell you what might be our aim, let us consider how our object is to be accomplished.

This, again, though difficult, is not altogether impossible; we must first consider what our actual position is to-day; we, as the descendants, in point of time, from the scholar architects of the Renaissance, find ourselves in an age in which labour is organised, not to produce the finest kind of work, but to regulate the hours of labour and the rate of wages. The trades' unions take the place of the guild. Separated thus from the very means by which fine building was done, architects are themselves organised into a profession, and, instead of being actually concerned in the work of building, produce briefs and diagrams from which erections are raised. Almost from necessity the methods of the counting-house have to be employed in the simulation of art. The man whose energy and intellectual labour supplies the directing power and lays down the lines of work is, also from necessity, very rarely present while that work is carried on. The specification, the contract drawings and details are the modern substitute for co-operative design carried out under the eye of the master builder. How to begin to evolve living art out of this muddle of dead systems seems almost hopeless, but I believe that a beginning—and that a very hopeful one—has already been made. This beginning is to be seen in the revival of interest in individual craftsmanship, and in the result of that revival, the School of Art and Handicraft in Regent Street, which you all know so well. I see beginnings of better things in the increasing numbers of men who are forsaking the easel for the furnace, the drawing-board for the banker, the office stool for the forge and the workshop. For many, perhaps most, architects this is impossible, but it is possible for everybody to co-operate with the men who are trying to improve the standard of work by doing work themselves.

This co-operation might take many forms. The decorative

work required in any building, instead of being handed over to the commercial firms, might be entrusted to the various men now working who have made those crafts their own. The design would naturally be left to the craftsman, after the general scheme of the building had been explained. The amount of work which the architect would be spared is incalculable, and his building would gain in distinction.

The droves of young sculptors who now haunt the studios in search of work might win their spurs in architectural sculpture, which is practically a lost art; while the still more numerous painters might be given commissions for wall decoration, instead of handing that work over to the wealthy and overbusy firms. And so on, round the whole crafts. In a very short time we shall have a large number of craftsmen who will be fit to erect buildings by themselves, without the aid of the professional architect. With a little judicious training and reining in, we should at least get interesting work to look at.

This, however, does not by any means exhaust the ways in which the new architecture might develop. Those who do not feel called to the crafts could take up the engineering side of building—for the vast work of providing for our daily extending commerce must obviously go on. The necessity for careful, honest engineering work, the still greater need for efficient and continual supervision, seems to me to offer numberless opportunities of congenial and remunerative work to capable men; and then work, the less acknowledged as when well and simply done, is just as valuable to society as the beautiful craftsmanship which appeals to every passer-by. We cannot all be craftsmen, but there is room for all if we only make room for ourselves.

I think, moreover, that those architects who are favoured by fortune with a plenitude of building work have it in their power to create almost at once a school of associated craftsmen, who might do for the buildings of to-day what the associated craftsmen of North Italy, led by such men as Orcagna, Niccola Pisano, Lorenzo Maetani, Mino da Fiesole did for the buildings of their day. All the elements are here. When we have sculptors like Alfred Gilbert, Thornycroft Bates, Stirling Lee, painters galore, metalworkers like Alexander Fisher, Nelson Dawson, their pupils and followers, what more could we desire? Our happiness is always next door, awaiting us. There is no need to search the world for it, and it is the true happiness in which lies the full activity of every faculty in the opportunity of the complete and rounded development of the whole man. But it is essential that our architects should abate somewhat of the professional dignity which encloses them and give the craftsmen freer play; then in time we may see a new Architectural Association on the ruins of the old, but it will only be done when we have for ever got rid of the architect.

Lieutenant-Colonel Prendergast, who proposed a vote of thanks, thought that the idea of the transposition of the workman into the position occupied by the architect was ridiculous. The workman, as known to us, was unable to take up that position in work where unity of design was required. The trades unions had in some measure taken the place of the ancient guilds, but even these unions could not agree among themselves. Thus it was important and necessary to have a directing mind when building.

Mr. Halsey Ricardo, who seconded the vote, said there were greater facilities now in the way of building materials than there were fifty years ago, but still the work of to-day showed a disregard of those facilities. The Romans had unintelligent slave labour, and they made them break stones and mix ingredients. We could now do the same as they did with machines. How useful concrete would have been to the Romans. The introduction of steel, too, was important, although we made little use of it. But how the Romans would have danced with rage if they had known of its usefulness, and yet had to construct without it. Insincerity showed want of life, but all the conveniences and facilities at the command of the builder of to-day should certainly make our work sincere.

Mr. C. Whall thought the paper too deep for audible delivery. He said that at the bottom of all these art controversies there arose the question, Were they to be men or machines? He thought they would become craftsmen and not machines if encouragement was given to the movement which was on foot to establish the crafts among us. Technical education was engaging the London County Council, and the effort to promote it was received in the most earnest and enthusiastic spirit. The results as yet were a great comedown from the work of the Middle Ages, but there was hope that it might grow and perhaps in time become a rival.

Mr. H. T. Hare pleaded that an architect's life was too short to enable him thoroughly to master all the various arts and crafts allied to architecture. A general knowledge was all he could hope to attain, and sometimes it was only a superficial knowledge. A body of craftsmen could not take the place of the architect; a guiding and master mind was necessary to carry out the arrangement of the building. If left in the hands of craftsmen each man would be likely to strive to secure his own way without proper subordination to the others.

Mr. Thomas Blashill said he was a little surprised at the line the lecture had taken. He came to hear something outside his own profession, but in the latter part of the paper it unexpectedly drifted into architecture, which was another thing, and did not properly come within the title of the lecture. They had heard such views for over forty years in London lecture-rooms, and they had become hardened and deaf to the cry by this time. Such views showed a tone of dissatisfaction with everything that was done, and he hoped few would be affected by it. It was not a hopeful road to advocate trades, and if they were to follow such advice and sacrifice their careers by taking up a trade they would be just as dissatisfied with everybody and everything. He thought a man was just as likely to succeed as an architect as an artist or sculptor might succeed in his profession.

Mr. D. J. Fyfe and Mr. H. B. Cresswell supported the vote, which, being put by the chairman, was carried unanimously.

Mr. Wilson replied, and said it was his aim to explain what was his own ideal. He had no wish to deny what was valuable in architects' work, but on looking back they would find that architecture was most successful when craftsmen or specialists combined to produce a building according to a plan in which there was a recognition of their specialties. We might have now wider aims, but the need for co-operation in architecture was as strong as ever.

Views were shown on the screen by the aid of the aerial graphoscope.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute was held on Monday evening last, Mr. H. L. Florence, vice-president, in the chair.

Mr. Francis Bond read a paper

On the Comparative Value of Documentary and Architectural Evidence in Establishing the Chronology of the English Cathedrals.

Mr. Bond opened his subject by a reference to his own researches at Waltham Abbey Church, which had led him to the conclusion that no portion of the work was of the early date assigned to it by Professor Freeman and other authorities, viz. the eleventh century; it had nothing in common with either English or Norman work of that period. Wells Cathedral was another example of what the lecturer termed archæological aberration. Some authorities dated the nave after the west front, though the nave was far more archaic in character; Professor Willis dated the west front after the nave, but put both a whole generation too late. Many instances of similar error might be cited, pointing to some flaw in the methods of research. The cause was to be traced to the wrong estimate of the comparative value of documentary and architectural evidence. Documentary evidence consisted of the references, direct or indirect, to the history of the building, in annalists, monastic chroniclers, fabric rolls, registers, wills, &c.; architectural evidence was to be sought in the stones and mortar. Discussing Professor Willis's opinion in favour of documentary evidence, the lecturer observed that few of the statements as to building operations in the cathedrals were made by contemporaries; frequently the authors lived generations or even centuries later. The ascription of the choir, transepts and nave of Wells, as well as the west front, to Bishop Jocelin was based on a statement of Bishop Godwin, who lived in the sixteenth century, which was itself based on an anonymous MS. written in the fifteenth century. Contemporary evidence could not always be trusted. Monastic and Mediæval chroniclers had likes and dislikes, and sometimes deliberately misrepresented and falsified their history—Matthew Paris's own admission was a case in point. Any good work, any fine building, erected by the unpopular, may have been attributed to the popular abbot or bishop. In this connection the lecturer referred to Bishop Aquablanca's work at Hereford Cathedral, which had been ascribed to Bishop Swinfield, and disproved the statement of Swapham and Abbot John, monastic chroniclers of Peterborough, that Abbot Benedict built the whole nave from the central tower to the west front. The chroniclers were not architects—their language lacked precision and definiteness; and it was dangerous to build theories on their curt and nebulous statements. They were often unintentionally misleading. The lecturer referred to a possible instance in the record in Simeon's "Continuator" of Flambard's work at Durham. Again, the chroniclers' statements had been applied to the wrong building—an instance at Ripon Minster was cited. There were huge gaps in the chronicles; some of the biggest works were not mentioned at all. It did not follow because there was no record of work by a particular bishop or abbot that therefore he did nothing. New evidence may be forthcoming, and the prelate who had been credited with no work might turn out to have been building busily all the time. As examples of the danger

of building theories on negative evidence, the lecturer showed how such theories had been upset in the cases of Wells and Worcester Cathedrals. Dates of consecration were not always of value; there were dozens of examples which had no reference to the completion of a cathedral or of any important part of it. Neither was it safe to infer that, because services commenced in a certain year, the building or any particular portion of it was completed; inferences of the kind were proved incorrect at Durham and Peterborough. The evidence, however, of contemporary fabric rolls, charter registers, &c., was of the utmost value if it could be properly read and understood. But the Latin of those documents was not easy to read; the abbreviations had proved a fertile source of error. MSS. had been carelessly copied or carelessly printed; in some cases terms had been altogether misunderstood. Striking instances of error from one or other of these causes were referred to in connection with Lincoln, Exeter and Hereford. Examples were further quoted showing that implicit confidence could not always be placed in mural inscriptions. Concerning architectural evidence, the comparative rather than the historical method of investigation, the lecturer considered that nowadays this class of evidence, subject to certain minor reservations, might safely be relied on. Allowance must be made for the progressive tendencies of the monks of the eleventh and twelfth centuries, for the conservatism of those of the thirteenth. The monks of Peterborough and Norwich retained their Romanesque minsters almost unaltered to the last. The canons of Lincoln, York, Lichfield and Exeter swept away almost every trace of Norman work. The abbey church of St. Germer, near Beauvais, Oxford Cathedral and Wimborne Minster furnished further examples of conservatism. Builders of the first half of the fourteenth century showed reverence for old work and refused to impair the effect of good old design, but they put their own trade-mark on the detail. Various instances were given, and some examples of "architectural forgery" referred to, as at Rochester, Durham Galilee, and notably the gateway of College Green, Bristol, and the church of Ottery St. Mary—buildings deliberately designed in the spirit of a bygone style. The detail, however, prevents the student misinterpreting the evidence of the architecture. It was possible to be misled by the precocity and cleverness of a Mediæval designer. Here and there a great original genius sprang forth, such as Suger's architect at St. Denis, who gave the world fully developed and harmonised Gothic construction in 1140, two generations before the choir of Lincoln Minster was produced. St. Urbain, Troyes, represented the full and final consummation of Gothic architecture, which was not reached elsewhere for more than a generation. Gloucester Cathedral afforded another instance of precocious genius. In conclusion, the lecturer expressed his conviction as to the general trustworthiness of architectural evidence, and quoted in support the authority of Mr. Barr Ferree and Mr. Edmund Sharpe. The architectural should be studied before the documentary evidence, and if the former conflict with the latter, then the latter should go to the wall.

The paper was illustrated by the aid of about fifty lantern slides.

A letter was read from the Bishop of London, who was unable to attend. Referring to Mr. Bond's paper, his Lordship said:—"Its main contention is that documentary evidence needs criticism in every case, and it is obvious that internal evidence supplied by architecture is one element in this criticism. The strength of this internal evidence grows by the continued application of the comparative method. It is much stronger now than it was thirty years ago. But I do not think that its results destroy the credibility of documentary evidence, but only teach us to interpret more accurately the exact meaning of the words and discriminate between an exact and an approximate statement."

The Chairman remarked that the letter of the Bishop of London did not cast much light on the subject, and was no more than an example of judicious hedging.

Mr. W. H. St. John Hope, who proposed a vote of thanks, did not quite agree with Mr. Bond in falling foul of what their predecessors had done. The researches of Professor Willis had led them to understand many things which materially helped the more recent investigations. A great point when making researches and testing documentary evidence was to see the original text, as faults in the copying or translation often arose and put a different meaning on things. Historians were sometimes unreliable, and when following them one was liable to fall into the same errors. There were three points especially that had to be dealt with in working out the histories of these churches—(1) the manner in which these buildings were constructed; (2) the question of the lengthening of churches and why it was done, sometimes for lady chapels, but often for the building of shrines, as in Canterbury, where the shrine of St. Thomas is still called Trinity Chapel, but in chronicles is known as the shrine of St. Thomas; (3) the reason of the pause that was made in building about the time of the Black Death in 1349.

Mr. William White seconded the vote of thanks. He said he had found that antiquarians and historians rather set aside the architectural evidence for the documentary, and he thought the reason was that very few of the antiquarians had sufficient knowledge to deduct the architectural evidence from the buildings. The architectural evidence was often so strong that it was hard to know why there should be any doubt as to the date.

Mr. H. H. Statham said he agreed entirely with what Mr. Bond had said, but it was necessary to understand that the documentary evidence was the basis of their chronological knowledge of these cathedrals. Architectural and documentary evidence combined helped them to check the dates.

Mr. E. W. Hudson supported the vote, to which Mr. Bond briefly returned thanks.

GENERAL.

Mr. E. J. Gregory, R.A., was on Monday elected president of the Royal Institute of Painters in Water-Colours.

Mr. James Murray, who was architect for the Buckingham Palace Hotel and various buildings in London, died on Sunday last in his seventy-fifth year.

A Bust recently purchased by the Russian ambassador at Madrid—the Christ with blue eyes—is pronounced by some experts to be the work either of Donatello or Michel Angelo.

M. Puvis de Chavannes left a great collection of his drawings as to which his will contained no provision. The family has resolved to distribute them among various public galleries, including those of the Luxembourg, the Hôtel de Ville and the towns of Amiens, Marseilles, Poitiers and Lyons.

Mr. Ernest Wilson has been appointed professor of electrical engineering in King's College, London, in succession to the late Dr. John Hopkinson.

An Ordinary Meeting of the Institution of Civil Engineers will be held on Tuesday next, November 29, at 8 P.M., when a paper will be read, with a view to discussion, on "The Effect of Subsidence due to Coal-Workings upon Bridges and other Structures" by Stanley Robert Kay, Assoc.M.Inst.C.E.

Subscriptions are sought on behalf of the family of the late Mr. Gleeson White, who was connected with various publications relating to art.

The Three Hundredth Anniversary of the birth of Vandyke is to be celebrated in Antwerp with becoming pomp. An exhibition of the painter's work will be held on a scale that will be comparable to that of the recent Rembrandt Exhibition in Antwerp.

Mr. G. T. Moore, assistant architect to the Dublin Corporation, has resigned, and a successor will soon be appointed.

An Art Exhibition, promoted by the Cheltenham and County Fine Art Society, will be opened in the Gallery, High Street, Cheltenham, early in February. All works from London and a distance must be delivered not later than January 14, 1899.

A General Meeting of the Society of Oil Painters Piccadilly, was held on Wednesday, when Sir Charles Reid P.R.S.A., and Mr. Ernest A. Waterlow, P.R.W.S., A.R.A., were elected honorary members; and Mr. Byam Shaw, R.I., Mr. Cecil W. Rea, Mr. Mortimer Menpes, R.I., Mr. Chas. I'Anson and Mr. Alfred Hartley were elected members.

St. John's Church, Smallwood, Cheshire, is being furnished with a new reredos of oak from designs prepared by Mr. R. B. Preston, architect, Manchester. The reredos will be a memorial of the thirty-seven years' connection with the parish of the late Rev. Edleston R. Williams, during the last thirty-five of which he was the vicar of Smallwood.

The Edinburgh Architectural Society met on the evening of the 16th inst., Mr. W. N. Cumming, the president, in the chair, when Mr. J. A. Morris, of Ayr, read a paper on architecture before a very large attendance. Mr. Morris dealt with his subject as an art in opposition to a profession, dwelling on the influences of our own day, which, he says, give great promise for the future.

The Papers to be read at the meetings of the Edinburgh Architectural Association during the present session are "A Sketch of Work in Galloway," by Mr. E. Forbes; "Explorations in Palestine and Jerusalem," by Mr. A. C. Dickie; "Some Words about Edinburgh Architecture," by Mr. T. A. Croall; "The Architectural Antiquities of Leith," by Mr. James Campbell Irons; "Plasterwork," by Mr. H. O. Tarbolton.

Great Activity now prevails at Assouan. All the workmen's dwellings, hospitals, hotels and other buildings necessary for Messrs. John Aird & Co.'s enormous staff have been finished. At the present time more than 2,000 natives are employed in blasting operations, and about 250 Italians are busy quarrying and dressing the building material.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

ABERAVON.—Dec. 1.—Plans are invited, with estimated cost, for the extension of the covered market. A premium of twenty guineas will be awarded to the architect whose plans shall be selected. Mr. Jas. Roderick, borough surveyor, Aberavon.

BRADFORD.—Jan. 2.—Designs are invited for erection of a central fire-brigade station. Three premiums are offered, viz. 100*l.*, 50*l.* and 30*l.* Mr. George McGuire, town clerk, Bradford.

BURNLEY.—Jan. 14.—The Burnley School Board invite designs for a new higher-grade school and pupil-teachers' centre, to be erected in Ormerod Road, Burnley. Competition is limited to architects having offices within 60 miles of Burnley. Mr. E. Jones, clerk, Town Hall, Burnley.

HARROGATE.—Jan. 2.—Competitive designs are invited for erection of a pump-room, &c., the cost of which must not exceed 8,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* Mr. Samuel Stead, borough surveyor, Municipal Offices, Harrogate.

HULL.—Jan. 1.—Designs are invited in competition for a central public library in Albion Street. Premiums 50*l.*, 30*l.* and 20*l.* Mr. Sidney R. J. Smith, 14 York Buildings, Adelphi, W.C.

CONTRACTS OPEN.

ABERDEEN.—Nov. 29.—For additions to the manse of Alford and new water supply. Messrs. Jenkins & Marr, architects, 16 Bridge Street, Aberdeen.

ABERDEEN.—Nov. 30.—For additions to the Marine Hotel, Collieston, Slains. Messrs. D. & J. B. M'Millan, architects, 211 Union Street, Aberdeen.

BAILDON.—Nov. 30.—For erection of a country house, stabling, lodge, drainage, roadmaking, &c. Messrs. Isitt, Adkin & Hill, architects, Prudential Buildings, Bradford.

BARNSLEY.—Dec. 12.—For erection of a tall chimney, and engine, dynamo and boiler house, storage-rooms and offices in Beckett Square. Mr. J. Henry Taylor, surveyor, St. Mary's Place, Barnsley.

BARNSTAPLE.—Nov. 30.—For alterations and additions at the workhouse. Mr. W. C. Oliver, architect, Barnstaple.

BATLEY.—Nov. 28.—For erection of Hoffman's patent kiln and long chimney at White Lee. Mr. John H. Brearley, architect, Hanover Street, Batley.

BELFAST.—For erection of cottage residence, Andersonstown. Mr. W. J. Moore, architect, Whitehall Buildings, Ann Street, Belfast.

BLACKBURN.—Dec. 3.—For erection of the superstructure of the Victoria wing at the Blackburn and East Lancashire Infirmary. Messrs. Simpson & Duckworth, architects, Richmond Chambers, Blackburn.

BLACKPOOL.—Nov. 30.—For extension of town hall building. Messrs. Potts, Son & Pickup, architects, 29 St. George's Road, Bolton.

BRADFORD.—For erection of warehouse and printing works in Sunbridge Road. Mr. W. J. Morley, architect, 269 Swan Arcade, Bradford.

BRADFORD.—Dec. 2.—For erection of an engine-house at Midland Mills. Messrs. Samuel Jackson & Son, architects, Tanfield Chambers, Bradford.

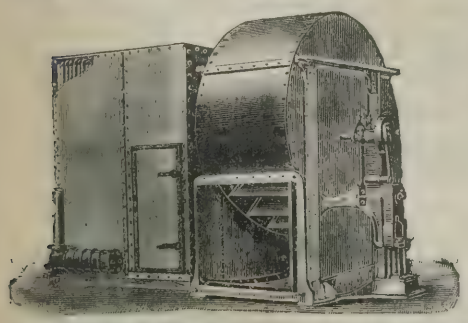
BRISTOL.—Nov. 26.—For erection of workshops, &c., Atlas Engine Works, St. George's. Mr. Henry Williams, architect, 24 Clare Street, Bristol.

CARLISLE.—For pulling down and rebuilding the Fish and Dolphin, St. Cuthbert's Lane. Mr. Joseph Graham, architect, Bank Street, Carlisle.

CARNARVON.—Nov. 28.—For erection of a drying-shed. Mr. Rowland Lloyd Jones, architect, 14 Market Street, Carnarvon.

CASTLEFORD.—Nov. 28.—For erection of maltkiln. Mr. Arthur Hartley, architect, Carlton Chambers, Castleford.

CORNWALL.—Nov. 29.—For alterations to the station buildings and erection of a new platform covering at Newquay, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.



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CORNWALL.—Dec. 2.—For erection of the Coverack Headland hotel. Mr. Sampson Hill, architect, Green Lane, Redruth.

CORNWALL.—Dec. 10.—For erection of church schools and cottage at Troon, Camborne. Mr. Horace W. Collins, architect, Penryn Street, Redruth.

COVENTRY.—Dec. 13.—For construction of five sub-stations for the Electric Light Committee. Mr. J. E. Swindlehurst, city engineer, St. Mary's Hall, Coventry.

COWLING.—Nov. 30.—For erection of four cottages. Mr. James Hartley, architect, Exchange Buildings, Skipton.

CROYDON.—Dec. 7.—For erection of a new ward pavilion and additions to administrative block and corridor at the Borough Hospital. Mr. E. Mawdesley, town clerk, Town Hall, Croydon.

DONCASTER.—For erection of three houses, butcher's shop, slaughter-house, pining pens, stabling, &c. Mr. I. R. Dodds, surveyor, 19 Baxter Gate, Doncaster.

DORKING.—Dec. 1.—For erection of workhouse infirmary, adjoining the present workhouse. Mr. H. Percy Adams, 28 Woburn Place, Russell Square, W.C.

DORKING.—Dec. 8.—For erection of labour shed. Messrs. Bargman & Benison, architects, 76 South Street, Dorking.

DUBLIN.—Dec. 5.—For erection of buildings for an electric-power station, brick chimney, &c., near Sutton railway station, co. Dublin, for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

DULWICH.—Dec. 1.—For additions and alterations to the school premises, East Dulwich Grove. Mr. Arthur J. Gale, architect, 4 Serjeants' Inn, Fleet Street, E.C.

DURHAM.—Dec. 1.—For alterations, additions and repairs to ninety-two houses at the Felling. Messrs. Oliver & Leeson, architects, Bank Chambers, Mosley Street, Newcastle-on-Tyne.

DURHAM.—Dec. 1.—For erection of two houses at Washington. Mr. Hughes Ritchies, Havelock Arms, Newbottle.

ECCLES.—Dec. 12.—For erection of a bowl-house and pavilion on land in Edison Road, Patricroft, and for the construction of a bowling-green on land in Edison Road, Patricroft. Mr. G. W. Bailey, town clerk.

FALKIRK.—Dec. 3.—For erection of a manse in Cemetery Road, Camelon. Mr. Alexander Gauld, architect, Melville Street, Falkirk.

GRANTHAM.—For erection of a parish reading-room, Barrowby. Canon Welby, Barrowby Rectory, Grantham.

HALIFAX.—Nov. 30.—For erection of a pair of semi-detached villa residences at the junction of Bell Hall Terrace and Saville Park. Mr. Medley Hall, architect, 29 Northgate, Halifax.

HALIFAX.—Dec. 5.—For erection of twenty-five through houses in Queen Street and Middle Dean Street, West Vale, Greetland. Mr. S. Wilkinson, architect, Sowerby Bridge.

HALIFAX.—Dec. 2.—For erection of a pair of semi-detached villas in Rothwell Road. Mr. Arthur George Dalzell, architect, 15 Commercial Street, Halifax.

HALIFAX.—Dec. 5.—For erection of detached villa residence and appurtenances on the Greenroyd Estate, Skircoat. Messrs. G. Buckley & Son, architects, Tower Chambers, Halifax.

HASTINGS.—Dec. 2.—For erection of coastguard buildings, consisting of quarters for an officer and thirteen men, &c. Director of Works Department, Admiralty, 21 Northumberland Avenue, W.C.

HAWORTH.—Nov. 29.—For erection of sixteen houses at Mytholmes, near Haworth. Messrs. John Judson & Moore, architects, Keighley.

IRELAND.—Nov. 28.—For extension and improvement of the infirmary, steam cooking apparatus and laundry improvements, new sewers and water-closets. Mr. James Perry, county surveyor, Galway.

IRELAND.—Nov. 28.—For building labourers' cottages at Castlecomer. Mr. Thomas Mahony, clerk to the Guardians.

KEIGHLEY.—Nov. 29.—For erection of two blocks of shops and houses in Cavendish Street. Messrs. John Judson & Moore, architects, Keighley.

KEIGHLEY.—Dec. 3.—For erection of fourteen dwelling-houses in Bradford Road. Messrs. W. H. & A. Sugden, architects, Keighley.

LEEDS.—Nov. 30.—For erection of ten houses, Tunstall Road. Mr. Fred. Mitchell, architect, Safe Deposit Chambers, 71 Albion Street, Leeds.

LEEDS.—Nov. 28.—For alterations and additions at the Brunswick Ward Conservative Club. Mr. Thomas Winn, architect, 92 Albion Street, Leeds.

LONDON.—Dec. 5.—For construction of underground public conveniences for both sexes in Broad Street, Golden

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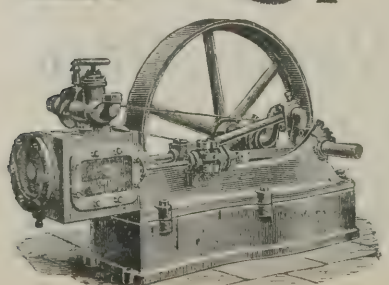
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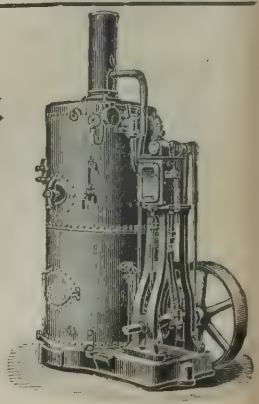
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[*Mention this Journal.*]

Square. Mr. T. Hensman Munsey, vestry clerk, Vestry Hall, Piccadilly, W.

LOUGHBOROUGH.—Dec. 6.—For erection of infants' department at Rosebery Street schools, for the School Board. Messrs. Barrowcliff & Allcock, Mill Street, Loughborough.

MORECAMBE.—Nov. 29.—For erection of four houses in Thornton Road. Mr. Albert Gorton, architect, 24 The Crescent, Morecambe.

NORTH BERWICK.—Nov. 29.—For additions to High School. Mr. R. Wilson's office, 3 Queen Street, Edinburgh.

OVENDEN.—Dec. 9.—For erection of a pair of semi-detached villas on the Watkinson Hall Estate. Mr. Medley Hall, architect, &c., 29 Northgate, Halifax.

RISHTON.—Nov. 26.—For erection of the Conservative Club. Messrs. Howard Sandbach & Parker, architects, 15 Richmond Terrace, Blackburn.

ROTHERHAM.—Nov. 30.—For erection of bath-rooms, &c., to aged female ward. Mr. H. L. Tacon, architect, 11 Westgate, Rotherham.

ROTHERHAM.—For erection of thirty bee-hive coke ovens, chimney and setting two boilers. Roundwood Colliery, Rotherham.

RUGBY.—Dec. 6.—For erection of a fire-brigade station and stabling in the Council Yard, Chapel Street. Mr. D. G. Macdonald, surveyor, Rugby.

SCARBOROUGH.—Nov. 25.—For rebuilding 82 and 83 Newborough Street. Mr. J. Caleb Petch, architect, Scarborough.

SCOTLAND.—Dec. 3.—For erection of timber bridge of 12 spans, with stone abutments, over the River Spey, at Boat of Garten. Mr. Alexander Mackenzie, surveyor, Kingussie.

SEDBERGH.—For erection of Bull Hotel, Sedbergh, Yorkshire. Mr. John Hutton, architect, Kendal.

SHEFFIELD.—Dec. 3.—For construction and erection of urinals and wall at lower entrance to Weston Park. Mr. Charles F. Wike, city surveyor, Town Hall, Sheffield

ST. ALBANS.—Dec. 3.—For erection of four shops with dwellings on site of Norwood House, London Road. Mr. J. E. Anstin, electric light engineer, 23 York Place, Baker Street, London, W.

STOKE-UPON-TRENT.—Dec. 1.—For erection of a cooking centre at Harpfield. Messrs. R. Scrivener & Sons, architects, Hanley.

WAKEFIELD.—Nov. 28.—For erecting a manager's residence at the Manor Haigh Moor Collieries, Ossett Road. Mr. William Watson, architect, Barstow Square, Wakefield.

WALES.—Nov. 29.—For erection of laundry and disinfecting block, discharging and mortuary block and stables for the new isolation hospital at Ystrad, Rhondda Valley. Mr. W. D. Morgan, architect, 23 St. Mary Street, Cardiff.

WALES.—Nov. 30.—For erection of a school at Rhiwfawr. Mr. W. W. Williams, architect, Island Chambers, 63 Wind Street, Swansea.

WARLINGHAM.—Nov. 30.—For erection of a bailiff's house. Mr. E. Mawdesley, town clerk, Town Hall, Croydon.

WEST HAM.—Dec. 13.—For erection of quarter-sessions court, police cells and mortuary, West Ham Lane. Mr. Lewis Angell, borough engineer, Town Hall, Stratford, E.

WEST HARTLEPOOL.—Dec. 2.—For erection of a block of school buildings providing accommodation for 1,502 children, caretaker's house, &c., upon a plot of ground situate in Lister Street, Osborne Road and Flaxton Street. Mr. E. Percy Hinde, architect, Liverpool.

WHITBY.—Nov. 30.—For erection of a pair of semi-detached villa residences at Stakesby. Mr. Edward H. Smales, architect, 5 Flower Gate, Whitby.

WINCHESTER.—Dec. 8.—For alterations and additions at the workhouse. Messrs. Cancellor & Hill, architects, 12 Jewry Street, Winchester.

WREXHAM.—For pulling-down the King's Head hotel, Bridge Street, and erection of new hotel and three shops, with dwelling-houses attached. Mr. Walter Slater, architect, 9 High Street, Wrexham.

AFTER having been closed for repairs since the beginning of September, the parish church of Drymen, N.B., was reopened on Sunday last. The alterations include galleries, which have been placed above the transepts, with stairs leading to them, providing about eighty additional sittings. The architect was Mr. James Thomson, Bath Street, Glasgow, and the contractors Messrs. John Edmond & Sons, Drymen. The cost was about 500*l*.

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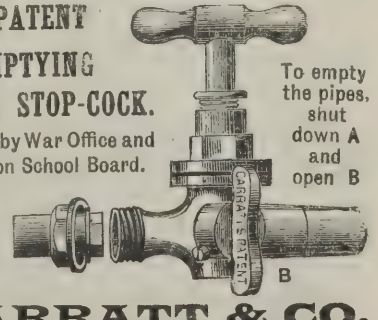
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TENDERS.

ALCESTER.

For erection of a workhouse infirmary. Mr. W. H. WARD, architect, Paradise Street, Birmingham.

J. G. Fincher & Co.	£7,500 0 0
J. Atkinson	6,789 0 0
B. Whitehouse & Sons	6,693 0 0
L. Jones	6,498 0 0
Huins	6,300 0 0
Smith & Pitts	6,250 0 0
J. Smallwood & Co.	6,197 0 0
Gowing & Ingram	6,049 0 0
W. Robinson	5,950 0 0
C. HUXLEY, Redditch (*accepted*)	5,757 0 0

BARNSLEY.

For erection of seven dwelling-houses, shop and outworks in Doncaster Road. Messrs. WADE & TURNER, architects, 10 Pitt Street, Barnsley.

Accepted tenders.

E. Moorhouse, builder	£983 0 0
Exors. of W. Hammerton, Worsbroughdale, joiner	350 0 0
J. Shaw, plasterer	105 0 0
M. Fleming, slater	95 15 0
W. Dransfield, plumber	65 5 0
Stephenson & Son, painter	30 0 0

BURY.

For wiring the public baths, St. Marie's Place.
CALVERT & Co., Manchester (*accepted*).

CARLISLE.

For plastering five houses in Beaconsfield Street.
W. JOHNSTON, 11 Crown Terrace, Penrith (*accepted*).

CLACTON-ON-SEA.

For erection of detached villa. Mr. G. GARDINER, architect, Clacton.

E. West	£896 0 0
Myall & Ellis	876 0 0
Chambers & Co.	870 10 0
Architect's estimate	865 0 0

CORNWALL.

For erection of a school at Tredavoe, Paul. Mr. HENRY MADDERN, architect, Parade Passage, Penzance.

Masons' work.

T. Adams	£37 11 0
W. H. Hosking & Sons	37 1 9
J. & J. White	32 10 0
J. LAVERS, Wherrytown (*accepted*)	28 0 0

Carpenters' work.

J. Berryman	57 11 6
C. M. Richards	55 10 0
J. Hosken, sen.	53 15 0
J. E. Hosken	50 0 0
T. J. Harvey	48 0 0
W. H. Hosking	42 5 0
J. JAMES, Penzance (*accepted*)	39 15 0

DARTMOUTH.

For rebuilding the Criterion Restaurant, the Quay. Mr. J. ARTHUR BRAND, architect, 3 Victoria Road, Dartmouth. Quantities by Mr. L. JACOB, 423 New Cross Road, London.

T. Brown	£1,349 0 0
R. T. Pillar	1,250 0 0
W. G. Row	1,200 0 0
J. Back	1,119 0 0
R. C. PILLAR, Devonport (*accepted*)	1,110 0 0

DEWSBURY.

For erection of a branch store at Lees Moor. Messrs. HOLTOM & FOX, architects, Westgate, Dewsbury.

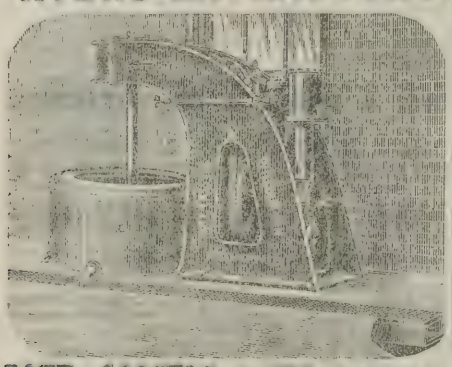
J. Pickersgill, mason	£424 0 0
R. Dixon, joiner	295 0 0
C. Baily & Son, ironfounder	84 5 0
J. Sheply, plumber	59 0 0
T. Brear & Son, slater	42 0 0
N. Ramsden, painter	19 19 0
J. Lockwood, plasterer	8 10 0

DOWNPATRICK.

For erection of press and weigh rooms, gentlemen's dressing-room and telegraph office at the Stand House Steeplechase Course. Mr. P. C. COWAN, surveyor, Court House, Downpatrick.

W. Crickard & Son	£241 3 3
A. McRobert	176 10 0
J. & T. STOCKDALE, Downpatrick (*accepted*)	170 0 0

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DURHAM.

For construction of 625 lineal yards of 8-inch and 6-inch pipe sewers, with manholes, lampholes, &c., at Sherburn. Mr. GEO. GREGSON, surveyor, Durham.

G. T. Manners	£247	0	0
F. C. Dixon	186	0	0
R. Oliver	185	0	0
H. NICHOLSON, Sherburn (*accepted*)	167	0	0
Surveyor's estimate	185	0	0

EASTBOURNE.

For alterations and additions to Clevelands, St. John's Road. Messrs. STEVENSON & EARP, architects, Eastbourne.

S. Vidler	£3,163	0	0
M. Martin	3,000	0	0
J. Martin	2,900	0	0
Schwarz & Sons	2,700	0	0
C. P. DENNIS & Co., 134 Terminus Road, Eastbourne (*accepted*)	2,489	0	0

ELDWICK.

For erection of a house and shop, with stable, &c. Messrs. JOHN JUDSON & MOORE, architects, Keighley.

Accepted tenders.

J. Brown, Bingley, mason.
R. Greenwood, Bingley, joiner.
W. Thornton, Bingley, slater.
H. Spurr, Bingley, plasterer.
A. Bolton, Bingley, plumber.

HEYWOOD.

For constructing a 12-inch stoneware sewer in Bury Old Road, a distance of about 255 yards. Mr. J. AINSWORTH SETTLE, borough surveyor, Municipal Buildings, Heywood.

J. FLETCHER, Heywood (*accepted*).

LICHFIELD.

For enlargement of the Watling Street schools, Norton-under-Cannock. Mr. T. H. FLEEMING, architect, 102 Darlington Street, Wolverhampton.

Craddock	£1,780	0	0
Lynax	1,300	0	0
Harris	1,298	0	0
Wistance	1,298	0	0
Cave	1,218	0	0
Bradnay & Lloyd	1,129	0	0
CRASSWELL, Walsall (*accepted*)	940	0	0

LEICESTER.

For construction of about 1,713 lineal yards of brick sewers, 286 lineal yards of pipe sewers, with bell-mouthed junctions, manholes, lampholes, &c. Mr. E. GEO. MAWBEY, borough engineer.

J. Ainscouth & Son	£6,063	8	3
W. & J. Foster	5,905	5	9
J. Holme	4,568	11	0
Johnson & Langley	4,337	7	10
J. D. Nowell & Sons	4,316	2	0
Bentley & Loch	4,157	9	6
T. PHILBRICK, 25 Earl Howe Street, Leicester (*accepted*)	4,106	17	10

LONDON.

For erection of the superstructure of Block 3 of the Parcel Dépôt, Mount Pleasant, E.C.

Foster & Dicksee	£95,222	0	0
Kirk & Randall	92,853	0	0
Spencer, Santo & Co., Limited	89,200	0	0
J. Chessum & Sons	89,100	0	0
W. H. LORDEN & SON (*accepted*)	84,444	0	0
General Builders, Limited	79,571	2	0
Less for old materials.			
General Builders, Limited	131	2	0
Spencer, Santo & Co., Limited	85	0	0
Alternative tender.			
Foster & Dicksee	92,222	0	0
B. E. Nightingale	92,000	0	0
Kirk & Randall	89,395	0	0
J. Chessum & Sons	87,900	0	0
Spencer, Santo & Co., Limited	86,549	0	0
W. H. Lorden & Son	81,111	0	0

MARYPORT.

For pulling-down and rebuilding the Victoria Vaults and Royal Oak Inn. Mr. C. EAGLESFIELD, architect, Maryport.

Accepted tenders.

Marshall, builder.
J. Kendall, joiner.
T. Mandle, slater.
E. Graham, plumber.
T. Kirk, plasterer.
J. Gordon, painter and glazier.
Total, £2,500.

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For extensive additions to aërated water manufactory in Grange Road. Mr. WALTER G. ROBERTS, architect, 61 Albert Road, Middlesbrough.

Brickwork, &c.

J. Johnson	£185 0 0
W. Pounder	169 17 0
J. Coates	131 15 0
D. DOUGHTY (*accepted*)	131 15 0

Joiner, &c.

R. Sweeting	210 0 0
J. Bell	205 10 0
H. F. CARTER (*accepted*)	181 0 0

Slater.

J. & R. MASSALL (*accepted*)	57 15 0
W. Tyreman	57 4 0
J. Harrison	56 13 0
W. B. Robinson	55 0 0

Plumber, &c.

BAKER BROS. (*accepted*)	23 0 0
Curtis & Bowman	22 13 0
J. Ripley	19 17 2

Brick, &c., and Joiner.

Allison Bros.	425 0 0

PETERBOROUGH.

For erection of premises, shops, &c., at Boroughbury, Peterborough, for the Liberal Club building committee. Mr. ALAN W. RUDDLE, architect. Quantities by architect.

W. Howard	£3,620 0 0
J. W. Rowe	3,478 0 0
Furnis Bros.	3,369 0 0
W. Pattenson & Sons	3,143 0 0
F. Colls	3,075 0 0
Sibley Bros.	3,030 0 0
Bridgfoot & Son	3,017 0 0
J. Guttridge	2,998 0 0
G. Clare	2,950 0 0
Watson & Lucas	2,942 0 0
D. GRAY, Peterborough (*accepted*)	2,746 0 0

RUGBY.

For erection of wood-chopping house and store at the workhouse.

DYCE & SHARP, Rugby (*accepted*)	£145 0 0

Note.—Four other tenders.

UTLEY.

For erection of a residence. Messrs. JOHN JOHNSON & MOORE, architects, Keighley.

Accepted tenders.

E. Smith & Sons, Utley, contractor.
Greenhow & Murgatroyd, Keighley, joiner.
W. Thornton, Bingley, slater.
J. & W. Harrison, Keighley, plumber.
J. Greenwood, Crosshills, plasterer.

WALSALL.

For erection of caretaker's house at the Wolverhampton Road schools. Messrs. BAILEY & MCCONNAL, architects, Bridge Street, Walsall.

Brockhurst & Wood	£485 0 0
T. Hughes	380 0 0
J. Wilkes	370 0 0
W. Wistance	367 0 0
S. Wootton	360 0 0
A. T. Broster, Hall Lane, Walsall *	348 0 0

* Accepted subject to approval of Education Department.

WESTON-SUPER-MARE.

For erection of the Locking Road schools.

Cowlin	£6,200 0 0
Perkins	6,040 0 0
Gibson	5,785 0 0
Walters	5,450 0 0
H. A. Forse	5,440 0 0
C. Addicott	4,957 0 0
Taylor & Son	4,581 0 0
KEEN & KEEN, Weston-super-Mare (*accepted*)	4,489 0 0

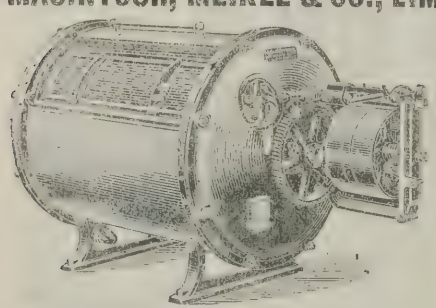
WINDSOR.

For erection of a residence and stabling, Bolton Road, Windsor, for Mr. A. W. Benyon. Messrs. EDGINGTON & SUMMERBELL, architects, Windsor.

W. Satchwell, Egham *	£4,000 0 0

* Amended estimate.

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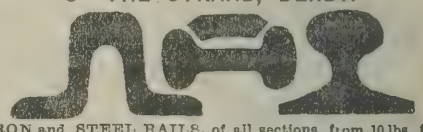
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WINDERMERE.

For erection of the new Beech Hill hotel, below Storrs. Mr. JOHN BANKS, surveyor, Kendal.

Accepted tenders.

M. Birch & Son, Lindale, mason and slater.
H. Collett, Kendal, joiner and carpenter.
R. & J. Anderson, Kendal, plasterer.
T. Graham, Grange-over-Sands, plumber, painter and glazier.

WINDSOR FOREST.

For erection of a billiard room at Cranborne Hall for Mr. J. Foster. Mr. A. HENLEY ATTWATER, architect, 16 Craven Street, W.C.

W. Satchwell, Egham £250 0 0

No competition.

Received too late for Classification.

STRATFORD.

For alterations, additions and dilapidations at No. 51 Leytonstone Road, for Mr. G. Potter. Mr. FRED. A. ASHTON, architect, 177 Romford Road, Stratford, E.

W. J. Maddison	£878 0 0
J. & H. Cocks	847 0 0
A. E. Symes	800 0 0
C. North	793 0 0

ELECTRIC NOTES.

ON Thursday last an instrument which combines the powers of the phonograph and the cinematograph was exhibited at the Empire Theatre of Varieties, Dublin. By its means living pictures are projected on to a screen, and simultaneously everyone in the house hears the sounds uttered at the time of the action represented in the picture. This is said to be the first time such a result has been achieved. Mr. Sinclair intends to exhibit his invention in London at an early date.

THE Wigan electric-lighting committee have now decided that an installation be put down to supply Wigan with electric light. The Council are at present waiting the report of the committee, who also have under consideration the running of the trams by electrical traction.

NOTICES have been given by the Stourbridge Urban Council and the Lye and Wollescote Urban Council of their intentions, respectively, to apply for provisional orders to enable them to supply the electric light in the districts which they severally control. The same urban districts are included also in the application which the Midland Electric Corporation for Power Distribution, Limited, are making for a provisional order for the extension of the area of supply already authorised.

THE employment on a large scale of electricity as a form of power has not yet been witnessed in the United Kingdom, although in America there are several already in existence and one is now being erected or rather reconstructed in New York which will produce some 70,000 horse-power. What may, however, be regarded as a start in this direction on this side is now about to be made. A project has been formed in Scotland which, if carried out successfully, will demonstrate to the people of this country how well-founded have been the predictions of those who anticipate that the application to human requirements by means of its conversion into electricity of nature's vast store of energy, now running, so to speak, to waste, will virtually amount to a revolution of our industrial system. The scheme referred to has been planned by Mr. George Anderson, civil engineer, Edinburgh, and should when completed be one of the triumphs of engineering. The promoters have already drafted their Bill for presentation to Parliament next session. The scheme contemplates the utilisation of the waters of Loch Ericht, which, along with those of various daughter lakes, will be conveyed by tunnel and aqueduct to the head of Loch Leven, some twenty miles distant, there to be converted into electrical power. The scheme is expected to cost one million, and the promoters calculate that 38,000 horse-power will be secured.

THE electric-lighting committee of the Edinburgh Town Council have determined not to be caught short-handed again with the enormous increase of applications for electric light, and they have decided to recommend the Council to accept estimates for machinery at their new station in M'Donald Road, Leith Walk, to the extent of 60,000*l*. Messrs. Mather & Platt, of Salford Ironworks, Manchester, are to get the order for the engines and the dynamos to the extent of about 40,000*l*. In all there will be six machines of about 13 horse-power each. Two of these machines are to be delivered under heavy penalties on August 15, two on September 15 of next year, and the remaining two on a later date. In all there will be seventeen boilers to contract for, which amounts to about

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20,000*l.* Mr. Sinclair, Leith, has got the contract for seven, and Messrs. D. Stewart & Co., Glasgow, for six, also to be delivered on August 15 and September 15 respectively. The remaining four boilers, two from each contractor, are to be delivered at a later date. Altogether there will thus be installed next year at M'Donald Road more boilers and machinery than there is altogether at Dewar Place at the present time, and the committee will be able to supply more than double the present number of lamps. Since October 17 applications have been received equal to 7,252 8-candle-power lamps.

BUILDING AND BUILDERS.

CHRIST CHURCH, Greenheys, Manchester, which was erected in 1850, is being rebuilt in sections.

ON Monday Mrs. Kendal performed the ceremony of laying the memorial-stone at Mr. Morell and Mr. Mouillot's new Grand Theatre at Southampton.

THE foundation-stone has been laid of a new Established church in Walker Road, Aberdeen. The church will contain 818 sittings, and the cost will be 3,000*l.*

ON the 19th inst. the foundation-stone of a new Baptist chapel was laid in Dunfermline. Situated at the south-east end of Dewar Street, it is to provide accommodation for between 500 and 600 worshippers, and the cost is estimated at 2,000*l.*

LORD PROVOST RICHMOND, chairman of the Clyde Trust; Mr. James Deas, the engineer; and Mr. T. R. Mackenzie, the secretary, are in London in connection with the Clyde Trustees' scheme for the construction of a dock at Shieldhall, N.B.

ON the recommendation of Dr. R. J. Reece, inspector for the Local Government Board, the Wath, Swinton, Greasborough and North Rotherham Joint Hospital Board have decided to apply for 9,000*l.* to purchase a site for an infectious diseases hospital.

THE ancient church of Overton, near Lancaster, is to be improved and altered so as to bring it up to present-day requirements. Plans have been prepared and approved for carrying out the work, which is expected to cost upwards of 1,000*l.* The existence of Overton church can be traced to 1140.

AT the Smethwick Police Court on Wednesday, Mr. J. H. Coy, of Oakland Villa, Albert Road, Stechford, was summoned at the instance of the District Council for infringing the building bylaws by allowing four houses in Milcote Road to be occupied, on October 17, without first obtaining a certificate authorising him to do so from the surveyor. Mr. Botterley (Messrs. Shakespeare & Co.) prosecuted, and said that at a previous court a contractor named George Gittin, of Barford Road, Birmingham, was summoned for the offence; but he then pleaded that he was only the builder for Coy, and the case was adjourned for a week in order that Coy might be summoned. Defendant pleaded that if a technical offence had been committed it arose through ignorance. The Bench fined the defendant 3*l.* 4*s.* 2*d.*, including costs. The case against Gittin was dismissed.

THE finance committee of the Aberdeen Town Council visited the fish market last week for the purpose of inspecting the sites suggested for the proposed extension of the market buildings. It was decided to recommend the Council to carry the extension along the Market Street wharf. The cost of the extension is estimated at from 3,000*l.* to 4,000*l.*

WHILE some masons were working at the chimney of a house in the course of erection at Ballyclare, Ireland, and just as they were about to unfurl the flag indicating that the masonwork was completed, the gable and back wall of the building collapsed, precipitating to the ground two men. On their being extricated from the débris it was found that both had been seriously injured.

THE Liverpool city coroner held an inquest on the 22nd inst. touching the death of William M'Lachlan, fifty-one years of age, who had lived in Henderson Place, Cranmer Street. The deceased was working on a scaffold outside Messrs. Tate's factory, and when mounting on to the platform of the scaffold from a window of the building he slipped between the platform and the wall and fell to the ground, a distance of 40 feet. He was taken to the Northern Hospital, where he died the same evening from fracture of the skull. Verdict, "Accidental death."

SOME old premises in Bull Street, near Corporation Street, Birmingham, belonging to the Horton estate, and which are being demolished in connection with the scheme for widening Bull Street, partially collapsed shortly before midday on Wednesday, and at one time the danger of the whole front falling out into the street was very imminent. Some workmen were removing a 4½-inch wall on the right side of the building when it suddenly collapsed, and some men working below had a very narrow escape. Communication was sent to Mr. F. W.

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Rinder, the surveyor, and he was quickly on the spot. He found that the front of the building was bulging, one corner of it only being sustained by two slender iron columns. Traffic along the street was immediately stopped, and steps were taken to support the building, which was rapidly becoming more dangerous. Scaffold poles and planks were temporarily used, and raking shores were brought into requisition as quickly as possible, but the street was blocked until nearly nine o'clock at night.

THE foundation-stone was laid on Saturday afternoon of a church which is in course of erection at Stirchley, King's Norton. The site of the new church abuts on the High Street, Stirchley, and is in proximity to what was formerly a school-house. The church has been designed in the later Decorated style of Gothic architecture, and consists of a nave 82 feet long by 35 feet wide in the clear, with north and south ambulatory aisles, each having five bold but low arches from the nave. The chancel will be 32 feet 6 inches by 22 feet. On the south side of this will be the clergy and choir vestries, the latter being carried up as a tower, in which will be the organ-chamber over the vestry; and again above the organ-chamber will be a ringing-loft and belfry large enough for a peal of eight bells. At the western end of the nave, and connected to it by a triple arcaded and traceried opening, will be the apsidal-shaped baptistery, and north and south porches and inner porches, and above the triple arcade will be a large window. Over each of the nave arcades there will be ten two-light traceried windows, and carved corbels and shafts supporting eleven hammer-beamed principals and intermediates, having traceried spandrels; while bold flying buttresses, whose arched soffits will be visible inside the shallow aisles, will stiffen the walls carrying the wide spanned roof. The chancel will have a seven-light east window, two windows of two lights each on the north side, and one on the south side. The roof of the chancel will be waggon-shaped, and divided by ribs into panels. All the walls will be built of brick throughout. The external dressings are to be of red terra-cotta, on account of its greater durability than stone in a manufacturing district, and the internal piers, arches and other dressings will be in selected Farleigh Down Bath stone. There will be kneelings for 578 adults. In the architect's design a morning chapel, on the north side of the chancel, was shown, but this is not being carried out at present. A heating apparatus vault is provided in the tower basement. Mr. William Hale is the architect, and Mr. Thomas Smith the builder.

VARIETIES.

THE inauguration of the Opera Comique at Paris, which is now imminent, will be the occasion of an official gala, to which invitations will be issued by the President of the Republic.

THE Midland Railway Company are asking, in their Bill for next session, for powers to enlarge their station at Sheffield. The scheme differs considerably from that which was contained in last year's Bill. It is much larger, and the cost is likely to reach 300,000*l*. For the purposes of the enlargement the company recently acquired The Farm, the Sheffield residence of the Duke of Norfolk.

THE new chapel erected by the congregation of St. Patrick's Roman Catholic parish at the junction of Maitland Street and Arthurstone Terrace, Dundee, was formally opened for public worship on Sunday, the 20th inst. The general style of the building, which cost about 7,000*l*., is modern Gothic. The external dressings are of red Dumfries stone, while the bull-nosed rubble is from Borvingmuirhead.

A NEW Episcopal church in Torry, Aberdeen, was formally opened and dedicated on the 16th inst. by the Bishop of Brechin. The church has cost about 5,000*l*., and is seated for 600 worshippers.

AT St. Mary's and St. Alkelda's Church, Middleham, on Friday, a dedication service was held by the Ven. the Archdeacon of Richmond to consecrate the font canopy after its restoration. The canopy, which was recently discovered after being lost for some time, is a beautiful eighteenth-century one. It stands about 6 feet high, and consists of three tiers of open woodwork. The estimated cost of its restoration was 50*l*.

A NOVEL method of road-making has been adopted on the site of the great subsidence at Northwich. A heavy timber frame 112 feet long and 36 feet wide was prepared by direction of the county surveyor, laid on the London Road, and covered with cinders. It should effectually prevent sudden collapse. The chasm, which has swallowed upwards of a thousand tons of material, is completely filled and the road is now opened. The cost of the rough restoration is estimated at 300*l*.

A MEETING in aid of the restoration of Peterborough Cathedral was held on the 21st inst. at the Town Hall, Stamford, under the presidency of the Mayor, when an address explaining what had been and what still remained to be done was given by the Dean of Peterborough. A collection in the room realised the sum of 43*l*.

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THE consecration of St. Edward's Church, Birmingham, took place on the 21st inst. The church and schools were bought from the Presbyterians for 1,700*l*., and given to the Church of England. The rebuilding and refurnishing cost upwards of 1,300*l*.

THE annual dinner of the Builders' Benevolent Institution took place on the 17th inst. at Carpenters' Hall, London Wall. Mr. B. J. Greenwood (president), who occupied the chair, proposed the toast of "Success to the Builders' Benevolent Institution," and contended that the charity was deserving of support, as it acted the part of the Samaritan to those who had fallen by the wayside in the rush of life. Since its formation nearly 300 people had been assisted, and recently, in consequence of the great age of some of the candidates, the committee had decided to elect without the necessity of canvassing all who were eligible. The toast was drunk with enthusiasm. In the course of the evening subscriptions were announced amounting to 875*l*.

CONSIDERABLE structural alterations have recently been made at the London offices of the Caledonian Fire and Life Insurance Company. The offices are situated in King William Street. The alterations have mainly taken place in the Life Department of the office, and consisted of the removal of heavy cross walls and a stone staircase from the ground floor, and the substitution of an internal mahogany staircase leading from the general offices on the ground floor to the secretary's and other offices situated upon the first floor. The new life office has been refitted with handsome mahogany counters and fittings. The general contractors for the works were Messrs. Thompson & Beveridge, of Albany Street, N.W. The alterations were designed and carried out under the personal supervision of Mr. Howard Chatfeild Clarke, of Bishopsgate Street Within.

THE excellent programme at the Alhambra has been still further strengthened by the engagement of La Belle Otero, who in her particular line is unapproachable. It is true that both her singing and dancing may be somewhat wanting in true *technique*, yet she sings and dances with such *entrain* that she fairly magnetises her audience, who acclaim her with delight and recall her again and again. Mr. Dundas Slater has again played a trump card in securing this beautiful artiste for the ten evenings which she has at liberty previous to her extended foreign tour. Other items of the attractive bill are the divertissement, "Jack Ashore," which retains all its freshness; Miss Juliette Nesville, who perhaps might with advantage try a new song; the excellent Bonhair troupe of acrobats; Les Minstrels Parisiens, who are giving some fresh items from their extensive *répertoire*; Permane's splendidly trained bears, and many other excellent turns.

THE Board of Trade have under their consideration the question of increasing the facilities for embarking and disembarking passengers and for handling the mails at Holyhead harbour. Holyhead harbour and roadstead were transferred from the Admiralty to the Board of Trade in 1863 by the Harbours Transfer Act, 1862, and both before and since that date large sums of money have been expended by the Government on its maintenance and improvement. At present passengers travelling by the London and North-Western Railway Company's steamers running between Holyhead and Kingstown use the quays on the inner basin of the old or inner harbour, while the mails are embarked and landed at the mail pier in the outer area of the old harbour. This pier is a wooden one, is too small and otherwise not well adapted for the large steamers that carry the mails, and is very costly to maintain. The construction of a substantial and commodious pier at Salt Island, outside the old harbour, which could be used by the mail steamers, would be of great advantage to the mail service and to the harbour, but the expense involved in the construction of such a pier has hitherto proved an obstacle to the execution of the project. Negotiations have for some time past been in progress between the Board of Trade and the London and North-Western Railway Company for the sale to the latter of the old harbour (now under lease to them for a long term of years), together with the adjacent quays and land,

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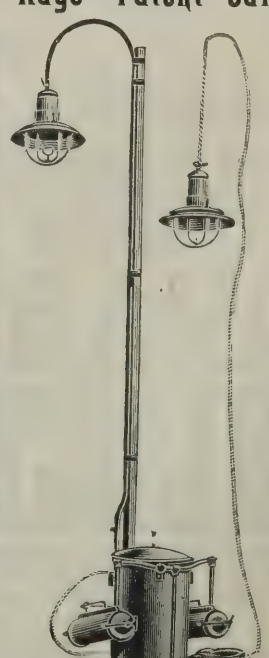
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and if these negotiations are brought to a successful conclusion it will no doubt facilitate the action of the Board of Trade in carrying out the much-needed improvement by the erection of a pier which will meet the requirements of the mail service for many years to come.

THE new Industrial School for Boys at Offerton, Stockport, which takes the place of the school vacated in a populous part of the borough, was opened on the 17th inst. Sir Joseph Leigh presided over the gathering in the assembly hall. A statement made by the Rev. E. Hedley (secretary) showed that the ndustrial school movement in Stockport started in 1854, with four boys in a small house. The care of girls was afterwards entered upon. In recent years a separate girls' school was built further out of the town, accommodating fifty girls, and now a little further out still in the country the boys' school was built, accommodating 150. The building included workshops, &c., and they had 5 acres of land. In 1866 the Stockport Industrial School was certified by Government, and since that time 1,000 boys had been dealt with. Mr. George Walthew (treasurer) said altogether the new school scheme would absorb 12,300*l.*, and of that sum they were now 3,669*l.* short. The money raised included 726*l.* in subscriptions, a grant of 600*l.* from the Cheshire County Council, 400*l.* from the London School Board, and 200*l.* from the Halifax School Board. It was a fact worthy of being placed on record that no less a sum than 5,001*l.* had been derived from the profits made by the school. The sum of 2,249*l.* had been transferred from the school accounts, and 2,751*l.* called in from investments. They had got the five acres of land there at Offerton for 1,000*l.*, or about a halfpenny a yard, and he thought Colonel Turner deserved special thanks for selling at such a reasonable price. Mr. Whiteley spoke of the importance of the particular phase of education carried on in such schools amongst the waifs and strays of society, and reminded those present of the advances made in educational matters all round during the last thirty years. Mr. Henry Bell, Mr. F. R. Robinson and other gentlemen took part in the proceedings.

TRADE NOTES.

THE new schools, Eastbourne, are being warmed and ventilated by means of Shorland's patent Manchester grates.

MESSRS. CLARK, BUNNETT & CO., LIMITED, inform us that they have received an order for eighteen hand-power lifts at the new schools for Christ's Hospital, Horsham, under Messrs. Aston Webb & E. Ingress Bell, architects. Also for two hydraulic bed-lifts and six service lifts at the Hendon Asylum, for the board of managers of the Central London Sick Asylum District, under Messrs. Giles, Gough & Trollope, architects.

IMPROVEMENTS IN BRONZE CASTING.

AT a meeting of the Société des Ingénieurs Civils de France M. E. Maglin made a communication on the casting of bronze statues, in which he sketched the art of working in bronze from the earliest ages, while dwelling more particularly on the method of moulding known as the waste-wax process (*moulage à cire perdue*). In recent times, he observed, several inventors had endeavoured to make moulds of gelatine, the results of which were not encouraging, but it was given to a French sculptor—M. Le Bourg—to devise a method perfect as regards the results obtained, and also the saving in labour.

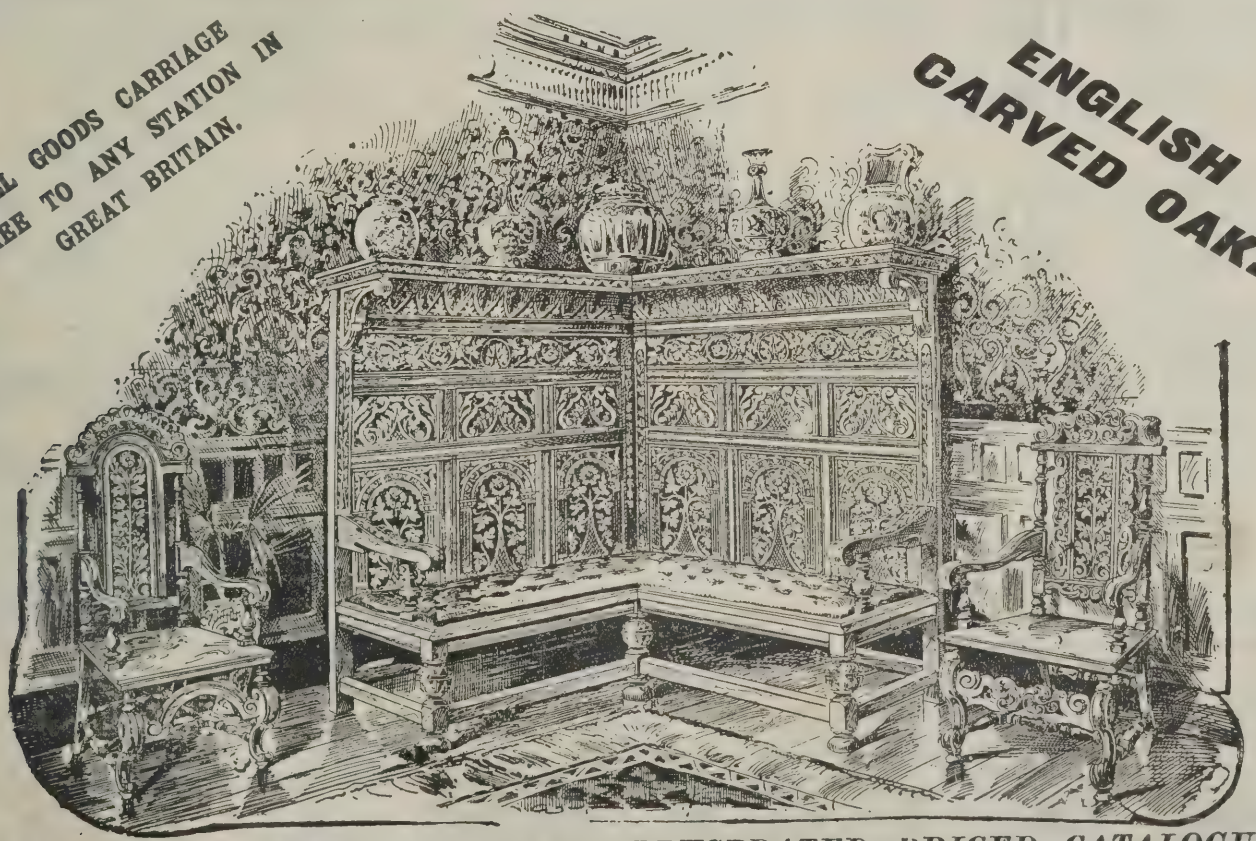
The process in question depends upon the fact that gelatine, with the addition of glycerine and glucose, preserves a constant elasticity even when exposed to the atmosphere, and by its means a statue may be moulded in its entirety, being surrounded by an envelope or covering in two parts, which are detached with great facility, while producing moulds of remarkable sharpness. In this manner a wax (une cire) is obtained by a single pouring, the seam of the mould joint being easily removed, since it is upon soft wax that the retouching has to be effected. This done—by the ordinary methods of the waste-wax process—the statue to be reproduced is covered with slip (barbotine); the wax is melted out, and the bronze is run into the mould after the jets and vents have been arranged. The specially original point about this method is that, while affording a considerable number of copies absolutely identical, it is independent alike of the sculptor, the chaser (ciseleur) and the bronze mounter.

M. Maglin also observed that M. Le Bourg had made other improvements, some for preventing cracks in the wax, and others for producing various patinas in a dry manner by oxidation. At the same time he showed a series of models in different stages of progress for illustrating the details of the successive operations.

The president, M. Edouard Lippmann, asked if the method that had been described was public property, and if not, whether it was applicable to the same compositions of metal as

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those for other methods of moulding, to which M. Maglin replied that the method was not public property, and that it was applicable to the mixtures of metal usually employed, but the bronze could be cast at a greater heat.

To a question by M. J. Gaudry, whether the method was suitable for large statues, the author replied that, as the chief object of the method was to afford a considerable number of copies, it had chiefly been applied to statues of ordinary dimensions, although it had also been employed for others of greater size, while in theory there was no limit in this respect.

M. Périssé mentioned the case of a large equestrian statue which, instead of being cast in several pieces and afterwards united by internal sockets (manchons), was formed of one single cast piece, although the casting was effected in several jets or pourings. This was the statue of Etienne Marcel, intended for the Paris Hôtel de Ville, and shown—rough as it left the mould from the atelier of MM. Thiébaut Frères—in the wide central gallery of the 1889 Paris Exhibition, where it attracted great attention from connoisseurs. The method of producing this statue consisted in casting separately the ten parts, which could not have been cast all together in the ordinary manner without liability to fracture during contraction, viz. the four legs of the horse; the two arms, head and legs of its rider, and also the horse's tail; and then in putting these ten parts in their proper places in the general mould in such a manner as to obtain, thanks to certain precautions, an intimate union of the metal, advantage being taken of the heat in the last bronze run for effecting the "firing on."

This method, which greatly simplifies the moulding while insuring a better casting, had already been adopted with success for parts of existing statues that required changing; but, for the operation to succeed, it was necessary that the molten metal should circulate in sufficient quantity over the parts to be connected by fusion, for which object pockets, or jets, were arranged, the excess of metal being received outside the mould. Such precautions were taken for the equestrian statue above mentioned, in which case, however, there was this exceptional difficulty, that the firings-on or fusions had to be effected at ten different points simultaneously. Indeed, the sockets (manchons) for each of these ten parts had been cast previously; and above each socket there had been arranged, in the general mould, a feeding pocket, which had furnished metal in excess for fusing the extremities of the ten parts. It is thus that the eleven parts of this equestrian statue only formed a single whole, which formed such a prominent figure at the last Paris Exhibition, although it is not this identical statue which was erected in front of the Hôtel de Ville, because the Paris Municipality insisted on strict observance of a certain clause in the contract.

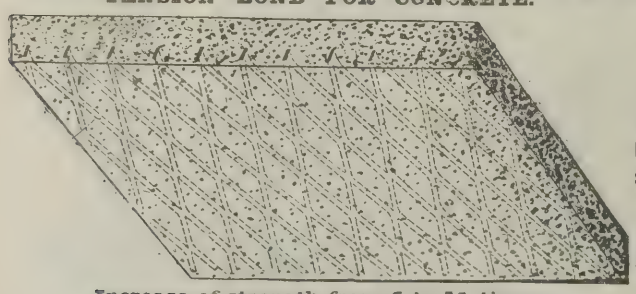
In connection with an observation by M. Roget, that M. Le Bourg's method produced works of art differing widely from those to which the public are accustomed, and that perhaps a little educating up will be required before its delicacy is appreciated, M. Maglin expressed the hope that, inasmuch as reproductions by this method had already received the sanction of artists, they would eventually be appreciated generally, and also raise the tone of public taste—to which one circumstance greatly contributed, viz. that perfect replic s could be obtained at a lower rate than heretofore.

In reply to a question by M. E. Badois, M. Maglin added that about one hundred reproductions might be made with one and the same mould, but that when the gelatine process was used such moulds only lasted for five or six castings.

BIRMINGHAM MASTER BUILDERS' ASSOCIATION.

THE annual meeting of the Birmingham Master Builders' Association was held on the 17th inst. at the Grand Hotel, Mr. J. Bowen presiding. The annual report, presented by the chairman, stated that the committee were able to record that the period of good trade mentioned last year had continued. With increased prosperity in the building trade there had been greater competition, in many cases the advance in contract prices obtained being insufficient to cover increased cost of material and labour. A notice had been received from the bricklayers asking for alterations in rules and a rise in wages to 10*d.* an hour. That notice would receive the careful attention of the committee, and it was felt that uniform working hours must again be secured. It had become year by year increasingly evident that to successfully combat the ever-growing demands of the operatives it was necessary that they should be dealt with by an amalgamation of towns rather than by individual associations. Federations of employers having been established in Lancashire and Cheshire and the West of England, and the attention of the National Association having been drawn to this great need, England and in Wales had been divided into four federation areas. The committee had had under their consideration the new regulation of the public

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works committee of the City Corporation, that before making connections to the sewers a deposit should be made to cover the cost. A deputation waited upon the public works committee and endeavoured to obtain some modification of this arbitrary requirement, but they regretted to report that their efforts were unsuccessful.

The Chairman congratulated the Association upon the progress that had been made. The membership had increased during the year from sixty-nine to ninety-three. The desirability of every builder in the district joining the Association could not be too strongly insisted upon, especially in view of the formation of the Midland federation. Now the Birmingham radius had been extended he hoped builders in the outlying districts would see their way to join the Association. With trade societies taking up a strong position, and constantly federating, it would be impossible for them as employers to hold their own unless they took united action.

The following officers for the ensuing year were re-appointed :—President, Mr. J. Bowen; vice-president, Mr. F. G. Whittall; treasurer, Mr. G. Twigg; secretary, Mr. E. J. Bigwood.

The Secretary, in acknowledging his appointment, stated that financially the Association was in a better position than ever it had been. The total receipts amounted to 311*l*, and after all liabilities there was a balance of 172*l*. He regretted that more consideration was not shown to the trade by the City Council, and he thought their only remedy was to return a practical builder to the Council.

The meeting then terminated.

The annual dinner was held in the evening at the Grand Hotel, Mr. John Bowen presiding. Among those present were Alderman Edwards, Councillor Baker, County Councillors Mogg and Bigwood, F. G. Whittall, J. Price (city surveyor), G. Willcock (Wolverhampton), W. Sapcote, J. Barnsley, E. Harper, C. H. Barnsley, J. Biggs, W. E. Lee, C. Silk, J. Webb, R. Bulley, J. A. Harper, H. Rudder and T. Johnson.

After the usual loyal toasts had been honoured, Mr. C. H. Barnsley gave "The City and Trade of Birmingham."

Alderman Edwards, who replied, spoke of a prophecy which was made to him forty years ago to the effect that within the ensuing twenty-five years Birmingham would be half rebuilt. It had turned out to be perfectly true, and it might have been repeated with equal truthfulness many a time since. In fact, Birmingham was still in the course of being rebuilt. He had been reported as saying that within his recollection the particular district in which he spoke had gone up 50 per cent. in value ; but what he did say was that it had gone up 50 per cent. within the last ten years. He remembered perfectly well when the site on which that handsome room stood was actually under a building lease of 3*d*. per yard. Now it was honestly worth 1*l*. per yard. There were leases running in Lionel Street which were granted at ½*d*. per yard. That suggested the enormous development of the city. As a further illustration of this point he contrasted the scope of, and the difficulties which attended the building of, the old General Hospital with the magnificent subscription list which was provided for the building of the present establishment, and the time in which the building scheme was carried through.

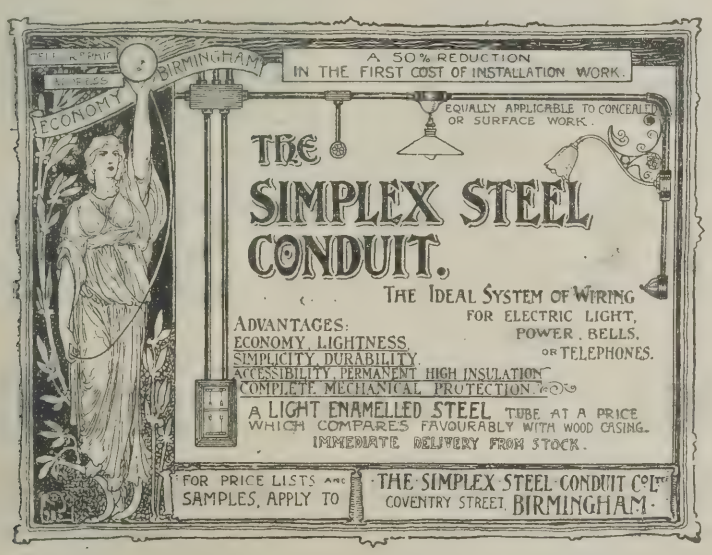
In responding to the toast of "The Association," which was submitted by Mr. W. Hale, the President said the Association was making progress, for during the year the number of members had increased from sixty-three to ninety-three. They did not combine simply to advance prices to an unreasonable extent, but to uphold their rights and privileges. The time had come when the builder should be regarded as equal to the member of any other trade or profession. Speaking of trade unions, he recognised the good which they did for the worker, but expressed the opinion that the time would come when they would reach the limit of concessions which the masters could safely grant them. The federation which the workers had established had made a similar movement for the employers necessary, and the Master Builders' Association of Great Britain had taken up the matter and formed four federations. That of the Midlands would embrace eleven counties and the whole of North Wales, and it was hoped that it would be in working order during the year. He hoped that the difficulties which lay before them would be dealt with in a conciliatory spirit.

Other toasts were proposed or responded to by Mr. Whittall, Mr. E. Harper, Major Barnsley, Messrs. W. Sapcote, A. Smith, T. Johnson and J. Price.

Mr. Leonard Courtney, M.P., also addressed the meeting.

GLADSTONE MEMORIALS.

IN order to clear up the misconception which evidently exists in some quarters regarding the memorials to Mr. Gladstone, it may be well to state that, apart from purely local movements in this direction, there are three undertakings which have a



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wider range, namely (1) The statue to be executed by Mr. Brock, R.A., and placed in Westminster Abbey, the cost being defrayed out of a vote of the House of Commons. (2) The Liberal party memorial, a statue to be executed by Mr. Pomeroy, and to be placed within the Houses of Parliament. (3) The national memorial to Mr. Gladstone, which is entirely non-political, and is intended to commemorate Mr. Gladstone's services to his country rather than to his party. The entire absence of political significance in the national memorial is emphasised by the fact that the Prince of Wales has been pleased to accept the position of president of the general committee, and has subscribed to the funds; that many of the most prominent members of that committee were Mr. Gladstone's political opponents, and that the majority of the Lord Mayors and Mayors of England, of the Lord Provosts and Provosts of Scotland, of the chairmen of county councils in England and Scotland and of the mayors and chairmen of Town Commissioners in Ireland are also members of the general committee. The form which the national memorial is to take, as decided by the general committee at the meeting at Grosvenor House on July 21 last, is the offer to erect in London, Edinburgh and Dublin, not merely statues, but "monumental memorials," which it is intended shall be something more elaborate and decorative than the sculptured figures which are to be seen in so many of our public places. The committee also propose to erect at Hawarden a building for the suitable housing of St. Deiniol's library, which was collected and arranged by Mr. Gladstone's own hands, and is at present contained in a temporary iron structure. The cost of these three monumental memorials and of the building for the library will be at least 50,000*l.* The amount hitherto contributed is nearly 21,000*l.*, but active efforts are being made in many of the great centres of population in the United Kingdom to stimulate public interest in this national movement by holding public meetings, forming local committees and organising a system of canvassing for subscriptions. In many cases the results of these efforts have not been reported to the general committee. Steps in this direction have been taken in Lancashire, Cheshire, Mid-Lothian and other counties, and also in many cities and towns. Several sites have been suggested as suitable for the monumental memorials, but no definite decision on this point has yet been arrived at. As already mentioned, satisfactorily to carry out their first purposes the committee require 50,000*l.* Should the response to their appeal produce, as is confidently hoped, a larger sum than is necessary to carry out these primary objects, the executive committee will lay before the general committee at a future date suggestions for the application of the surplus fund to some purpose or purposes of general utility and interest suitable to be specially associated with Mr. Gladstone's name.

CLYDE DOCK EXTENSION.

GREAT satisfaction has been expressed in Glasgow and neighbourhood at the proposals of the Clyde Trust for the extension of the dock accommodation, says the *Glasgow Herald*. The official description of the docks at Shieldhall and Yoker is as follows:—Shieldhall Dock will have about 45 acres of water area. It commences by an entrance at the eastern boundary of Braehead, the property acquired by the Corporation last year for the south side sewage scheme. It comprises a large outer basin nearly rectangular in shape, 900 feet long by 800 feet wide; a north basin extending eastwards fully 850 yards parallel with the river and 250 feet wide; and a south basin of the same width, between 600 and 700 yards long, extending eastwards also, with a pier between, 270 feet wide. The total quayage is fully 4,000 lineal yards. There is a riverside quay or wharf 300 yards long in extension westwards along the river wall from the west end of the wharf at present in course of construction. There is a division southwards of Renfrew Road to enable the dock to be constructed, and to give ample quayage accommodation for mineral and general traffic, the total width between the face of the new river quay and the north side of the diverted road being 1,450 feet. Clydebank Dock will be on the north side of the river, occupying all the land between the river and the Lanarkshire and Dumbartonshire railway, from the east boundary of the Clydebank Shipbuilding yard to the west boundary of the Yoker estate. The water area will be about 19 acres and the total quayage 1,800 yards. The proposed dock will enter immediately east of Clydebank yard into a canting basin of ample dimensions which extends eastwards. The basin will be 600 yards long by from 250 to 300 feet wide. The plans also embrace the widening of the river on the north side in front of the proposed dock. The site of the new dock is just opposite the Cart. The Clyde Trust is also in negotiation for the purchase of about 20 acres of ground on the north bank of the river between Sawmill Road and Barclay, Curle & Co.'s shipbuilding yard at Whiteinch.

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The ground, which belongs to Mr. Crawford Stuart, lies between the Lanarkshire and Dumbartonshire railway of the Caledonian system and the river. The acquisition, which is said to be practically arranged, is being made merely as a precaution to meet future requirements.

PLUMBERS' REGISTRATION.

A CONFERENCE of representatives of various bodies interested in a Plumbers' Registration Bill was held in the Carpenters' Hall, London Wall, E.C., on the 18th inst. The conference was convened by the National Association for the Promotion of Technical and Secondary Education, with the object of considering under what conditions the Plumbers' Registration Bill of last session would be acceptable to all the parties interested. Mr. J. C. Preston (master of the Carpenters' Company) presided, and the attendance included representatives of the County Councils' Association, of the local authorities of London, Manchester, West Riding, Surrey and Kent, and of a number of Royal Societies. After considerable discussion, resolutions were passed, it being understood that they were passed without prejudice to the question of whether any Bill for the national registration of plumbers be introduced or not:—"That if a Bill be introduced it should provide that there will be placed upon the registration council (*a*) directly appointed representatives of local municipal authorities aiding plumbing classes, and (*b*) an adequate number of directly appointed representatives of teaching institutions, any of such additional organisations as are specially interested in the education and registration of plumbers; and also that the examination for the purposes of registration should test the candidates' general knowledge of other sections of the building trade in addition to their special knowledge of plumbing; and that in any Bill the council created by the Bill should be the actual managing body, and have direct charge of the registration; and further, that the conduct of the Bill should not be left in the hands of any one body."

EXTRA PAYMENTS ON CONTRACTS.

THE subject of extra payments on contracts, of interest to all engineers and contractors, is one involving a number of interesting legal questions which must be passed upon by courts before it is possible to say what is the real standing of claims for such work. In contracting, as in any other business, differences of opinion between parties will always arise, and where these differences cannot be settled by mutual agreement between the parties interested, then recourse must be had to the law. It is all very well for engineers to say that such and such specifications are the best, but it should be borne in mind that after they have had their say the courts may reverse their opinion. A recent case before the United States Circuit Court in the district of Utah illustrates, says the *Engineers' Record*, this point very clearly, and a review of the decision, 83 Fed. Rep. 784, will doubtless interest both engineers and contractors.

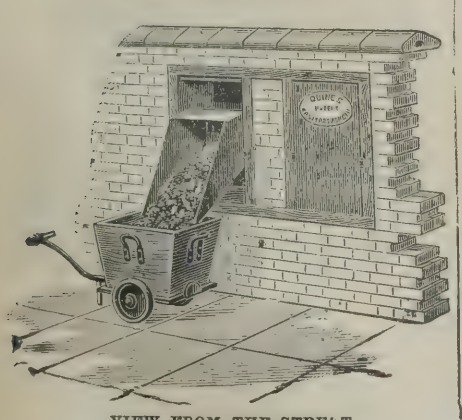
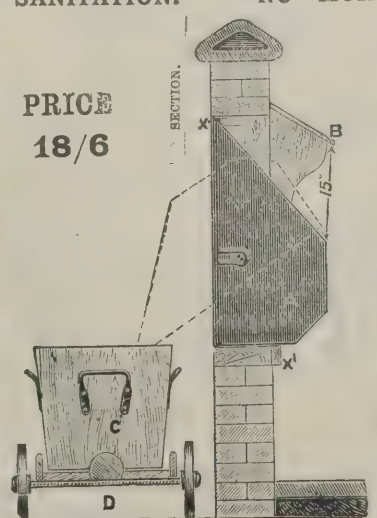
In March 1891 the city of Salt Lake City received bids for constructing a 36-inch concrete and brick aqueduct about 6 miles long, "according to the plans and specifications in the office of the city engineer." With the plans there were filed twenty-two paragraphs entitled "Instructions to Bidders."

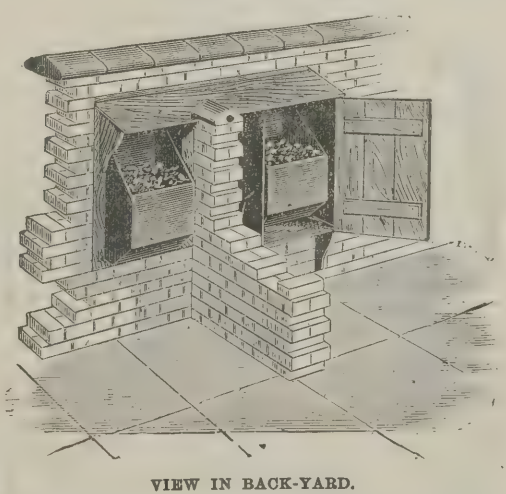
Messrs. E. L. De Bois & Joseph Williams bid for the entire work, but the masonry alone was awarded to them, the grading and tunnelling being let to other parties. In the contract the different kinds of work were specified as in the instructions to bidders, and a price was set opposite each class of work. The contracts contained no statement of approximate quantities, but it referred to the bid of these parties, which contained the amounts of the classes of work as given in the instructions. De Bois & Williams failed after the work was commenced, and Mr. Joseph H. Smith and his associates, the plaintiffs in the case, assumed the management of the business and finished the aqueduct. The suit was brought to recover a reasonable value for the work done by them which was alleged to be in excess of the contract.

The main controversy was over the statement of approximate quantities in the sixth paragraph of the instructions to bidders, which read:—"For the purpose of arriving at the comparative value of the respective bids, the following quantities will be taken as approximating the actual quantities which the execution of the work will develop, and shall be used for no other purpose in connection with this contract." The city maintained that the effect of this language was to withdraw the sixth paragraph from the contract, leaving that instrument without any statement of quantity, and binding the contractors to build the aqueduct in any form or place, and with any materials mentioned in the contract which might be designated by the city engineer.

In the opinion of the court, written by Judge Hallett, this

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construction of the contract is held to be untenable. He says that the sixth paragraph of the instructions must have been drawn to enable bidders to understand the work which they were to undertake. A survey of the line of the proposed aqueduct and an estimate of quantities were essential to intelligent action. No bid could be made without such survey and estimate, and it will be noticed that the invitations for proposals specifically mention plans and specifications in the office of the city engineer. To eliminate the sixth paragraph on the ground that it was operative only to enable the city to select a low bidder would give the city the right to force the contractor to build any kind of an aqueduct which the city engineer might designate, either underground or on stone archways in the style of the Roman Empire.

The principal items in controversy were for cut-stone and rubble masonry, 30 cubic yards in all. According to the report of the city engineer, the cut-stone masonry actually employed amounted to 535 cubic yards, and the rubble masonry to 403 cubic yards, while the plaintiffs' estimates were somewhat larger. Obviously there was a nominal specification of stone masonry in the contract, while a large and substantial construction of stone was actually required. There was a material departure from the plans and specifications which resulted in a new and different undertaking, upon which the plaintiffs were decided to be entitled to recover the value of the work done by them in excess of the contract.

Judge Hallett said further that other considerations led to the same decision with equal force and clearness. The greater part of the extra work was in a cañon about a mile long, where a dam and settling basin not mentioned in the contract were built at the head of the aqueduct. At the preliminary trial of the case a question arose as to whether the line of the aqueduct in the cañon had been changed after the date of the contract. The city engineer and others testified that no survey had been made on the site of the cañon near the aqueduct until after the contract was let. Other parties testified that a line was pointed out to them, which they examined with a view to making proposals for the work. The evidence on this point was not considered as of much importance, however, because the contract was held to settle the question. The city invited proposals for building the aqueduct according to plans and specifications in the office of the city engineer, and the contract was that the work should be done in conformity with these plans and specifications. In this a survey and location of the line in all its parts was held to be assumed, inasmuch as plans and specifications cannot be properly made without such survey and location. Upon the contract alone it was held that the line of the aqueduct on the site of the cañon was surveyed and located before the contract with De Bois & Williams was made. "It was not necessary to say that this presumption is conclusive. It is enough to say that it supports the testimony of the bidders that a line was shown them on the side of the cañon somewhat lower than that on which the aqueduct was built, where but little stone or tunnel work was required. The location of the rejected line seems also to be indicated by the statement of nominal quantities of stone and tunnel work in the approximate quantities."

All that has been said in respect to stone masonry was also held to be applicable to tunnelling. The amount of this work specified, 160 yards in all, was far less than the work actually done. Judge Hallett entertained no doubt as to the exceptional cost of the tunnel work over the trench work. This view of the case, therefore, led him to give a verdict for the plaintiffs, and to grant their motion for a new trial.

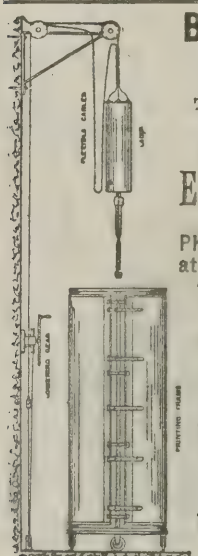
THE LATE SIR JOHN FOWLER.

WE announce with regret, says the *Times*, the death of Sir John Fowler, the eminent engineer, which occurred on Sunday at Bournemouth, after a long illness.

This event removes from our midst one who in a peculiar degree was representative of modern engineering achievement. He was one of the few great engineers remaining whose reputation was made amid the first mad rush of early railway enterprise; he had lived to bear largely upon his individual shoulders the burden of constructing the so-called "Underground railway," an achievement which for the time when it was carried out was one of gigantic difficulty; he had designed, with the aid of Sir Benjamin Baker, the greatest railway bridge which the world has yet seen; and ere he died he had learned that the Sudan railway to Khartoum, which he had planned and commenced in 1875, was on the eve of completion. There are few living men whose record is more closely associated than was his with some of the greatest triumphs of this century.

Born in 1817 at Wadsley Hall, Sheffield, he became at the age of seventeen pupil to Mr. J. T. Leather, the hydraulic engineer. In that capacity he was associated with many of the engineering schemes which were at that time carried out for

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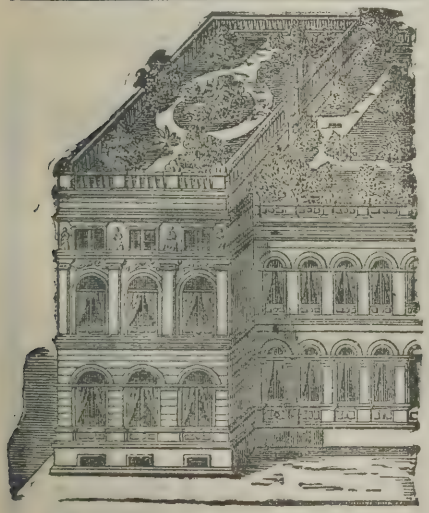
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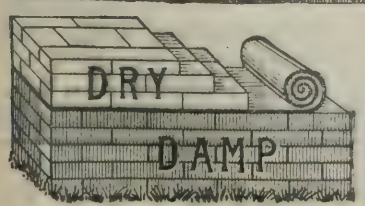
the water supply of Yorkshire and the surrounding districts. After an interval of two years, spent as assistant to Mr. Rastwick in the preparation of drawings and contracts for the London and Brighton railway, he returned to Mr. Leather as responsible resident engineer on the Stockton and Hartlepool railway, and was subsequently engineer, manager and locomotive superintendent of that railway. At this time young Fowler was twenty-six years of age, and had acquired experience of an unusually varied and practical kind. He started on his own account, and rapidly obtained a very considerable practice as chief engineer to a number of railways which were then passed through Parliament, notably the Sheffield and Lincolnshire and the Great Grimsby railways, which he successfully carried out. The latter railway gained him considerable reputation, so that, when the full fury of the railway mania broke forth, not only were his services eagerly sought by railway promoters, often for the most fantastic schemes, but proposals for railways all over the country were indiscriminately named after the Great Grimsby by their promoters. It was the tenth such scheme that prompted Lord Devon, the then chairman of committees, to exclaim, "What, Great Grimsby again! Go it, Great Grimsby!"

But perhaps to the general public the most interesting portion of John Fowler's work was that connected with the design and construction of the Metropolitan Railway. At the outset almost insurmountable difficulties were encountered from the opposition of vestries and owners of property, and when to these were added the discouraging prognostications of failure from many of the most eminent engineers, it is not surprising that at times the success of the scheme should have at the best appeared doubtful. Through all this the stern determination and confidence of Fowler was unshaken. When the first portion was at length opened, traffic flowed in beyond the expectations of the most sanguine. The first Act for a line from Edgware Road to King's Cross was carried in 1853, and after the financial support of the Great Western Railway to extensions at both ends had been secured a further Act was obtained in spite of strenuous opposition. It was not, however, till 1860 that capital was secured and the work commenced. After further extensions had been obtained it was decided in 1863 by the House of Lords that the railway should be continued to form a circle, connecting together all the principal termini. It is to be regretted that Mr. Fowler's scheme for a second complete circuit, which should accommodate all through goods and passenger trains without interfering with the terminal traffic, was negatived through the unfulfilled undertakings of other lines. It is not too much to say that the experience gained during the making of this railway revolutionised the ideas of engineers as to the possibilities of constructive engineering. The huge expenditure upon Parliamentary opposition, wayleaves, compensation, alteration and replacement of sewers, water and gas-pipes and other obstructions, has handicapped the paying powers of this great pioneer enterprise. But the lessons then learned and the improvements introduced by John Fowler and Sir Benjamin Baker and others who have since been associated with Fowler have rendered possible the construction of those cheaper tunnelled lines which now promise to relieve the congestion which has overtaken the street traffic. With almost all these recent schemes—for instance, the City and South London, the Waterloo and City and the Central London Railway—Sir John Fowler's name has been associated. Another great work upon which Mr. Fowler was employed was to investigate and report upon the most suitable gauge for the less important Indian railways. It will be remembered by many that in what has been called "the battle of the gauges," Mr. Fowler was always on the side of uniformity of gauge wherever possible, and it was his recommendation of a 3-feet 6-inch gauge, as compared with the 2-feet 9-inch gauge, recommended by his colleagues on the Commission, which influenced the Indian Government to choose the metric gauge, which has been so largely adopted for the lighter railways of the Indian Empire.

From Mr. Fowler's connection with India it is peculiarly interesting at the present time to turn to the part which he took in the development of Egypt under Ismail Pasha. A visit to Egypt, made in 1868 for the benefit of his health, brought him into contact with De Lesseps, who was then just completing the Suez Canal. Mr. Fowler joined a party who went to view the undertaking, and a letter which he wrote to the *Times* on that occasion was described in a leading article upon the subject as the judgment of an engineer of the highest eminence and repute. A further visit in the following year with the Prince and Princess of Wales brought him into direct contact with the Khedive, who eagerly sought his views as to the large schemes of improvement which he was then contemplating for Egypt. He became consulting engineer to the Khedive and the Egyptian Government, and in that capacity among other undertakings planned a Nile railway to run from Wady Halfa to Metammeh, and thus with water connecting links to form a junction between Cairo and Khartoum. Had

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this scheme been then carried out, how many British lives, including that of the hero Gordon, and how much treasure, might have been spared. It was in consideration of his work for the benefit of Egypt that in 1885 the Queen conferred upon him a Knight Commandership of St. Michael and St. George.

Of Sir John Fowler's work upon the Forth Bridge so much has been written that any addition is here superfluous. His association with Sir Benjamin Baker in that work was only the continuation, perhaps the crowning point, of the work which they had for many years carried on together, and which has continued until death has removed the elder partner. In recognition of the greatness of this achievement, a baronetcy was in 1890 added to the honours which Sir John Fowler already possessed. He was President of the Institution of Civil Engineers in 1866, and delivered from the chair a very memorable address on the requirements of a complete engineering education. In 1890 he received the honorary degree of LL.D. from Edinburgh University.

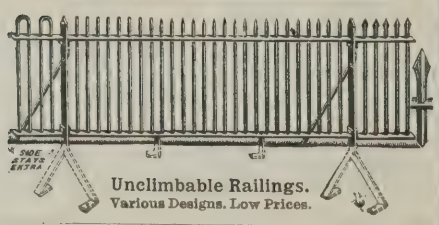
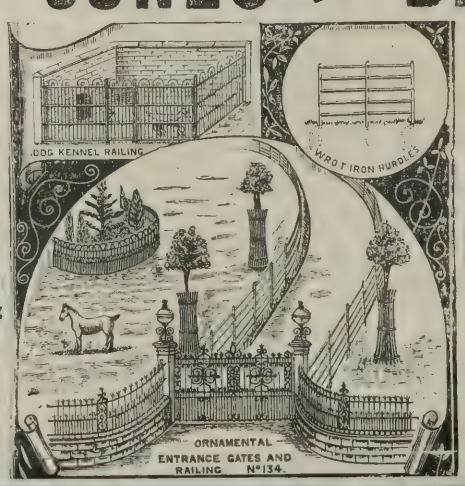
Sir John Fowler was an ardent sportsman and was fond of deer-stalking in his extensive Scotch forests. He was also fond of yachting. His Scotch seat was Braemore in Ross-shire, for which county, as also for Inverness, he was J.P. and D.L. In 1850 Sir John Fowler married Elizabeth, daughter of Mr. James Broadbent, of Manchester, and he is succeeded in the baronetcy by his son, Mr. John Arthur Fowler, born in 1854, who was educated at Trinity College, Cambridge, married in 1878 Alice, daughter of Sir E. C. Bayley, and is J.P. and D.L. for Ross-shire.

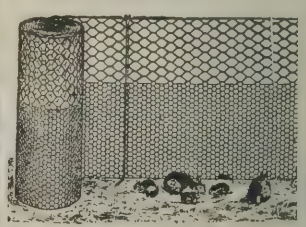
THE BROOK HOSPITAL.

A MEETING of the Metropolitan Asylums Board was held on Saturday, when it was stated that a communication was received from the Local Government Board adverting to the managers' application for an order authorising the borrowing of a further sum of 101,830*l.* in connection with the erection &c., of the Brook Hospital; referring to a former letter, in which they commented on the fact that the architect gave directions for works entirely on his own responsibility, and stating that under these circumstances they deemed it right to omit from the order the amount due to the architect in consideration of these extra works, and that as this amount appears to be 375*l.*, the order will authorise the borrowing of the sum of 101,456*l.* instead of 101,830*l.*

The following report of the Local Government Board on the Brook Hospital was also submitted:—"It is admitted that Mr. Aldwinckle, the architect employed by the managers in connection with this hospital, under-estimated the cost of the building, &c., to a serious extent; that works which should have been included in the contracts were omitted; that as regards foundations and the substitution of fireproof floors for others, his reports were most misleading; and that he authorised deviations from and additions to the works specified in the contracts, involving a large expense, on his sole responsibility, and without any authority whatever from the hospital committee or the board of managers. The Board have not failed to consider the explanation offered by Mr. Aldwinckle, but they cannot but regard his proceedings as deserving of grave reprobation, and in the opinion of the Board he altogether failed to realise what was due to the committee of the hospital and also to the managers as the architect appointed by them. The Board are aware that a resolution was passed by the sub-committee of the managers that the architect should not incur, without the consent of the committee, any expense exceeding in one amount the sum of 50*l.* But Mr. Aldwinckle states that this was not communicated to him. The Board regard it as unsatisfactory that further evidence as to this could not be produced, in consequence of the assistant clerk who acted as clerk to the committee having left the service of the managers and being absent from England. There was either neglect in not communicating the resolution to Mr. Aldwinckle or a failure to keep a proper record of the communication addressed to him on the subject. The Board cannot, however, consider that, if Mr. Aldwinckle was not, in fact, informed of the resolution, this affords any justification for the course which he adopted. With regard to the hospital committee, the Board recognise that the members held a large number of meetings, and gave a very considerable amount of time to the duty devolving on them, and that they were not furnished by the architect with such information as they were certainly entitled to; but they regret to have to state that in their opinion there was not such supervision of the works by the committee as was desirable, and as is shown to have been necessary in order to prevent the grave irregularities on the part of Mr. Aldwinckle. With respect to the managers, the Board cannot but consider that the practice of drawing cheques for the amounts included in the certificates of the architect, without any information being furnished to them by the architect or the hospital committee as

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to the works, &c., for which the certificates were given, was open to serious objection. Although on the certificates the contractors may have been entitled to have been paid the sums certified, the managers, it appears to the Board, should clearly have been furnished with information as to whether the certificates were in respect of the works included in the contract, and, if not, what were the extras or works for which certificates were given. With regard to the conclusions at which Mr. Knollys arrived on other points, the Board concur in the views expressed by him. The Board learn with satisfaction that the managers, since the period when the irregularities referred to occurred, have issued special instructions to architects and committees, and made other arrangements with regard to works. The instructions which they have adopted support the comments which the Board have deemed it their duty to make on the transactions alluded to in the report of their inspector, and they trust that by such means as have already been adopted, and otherwise, every effort will be made to prevent the occurrence in the future of irregularities such as those which are disclosed in the report."

The Chairman moved that the letter and report of the Local Government Board on the inquiry into the Brook Hospital expenditure be referred to the Brook Hospital committee, and be instructed to consider and report to the managers on the following points, which were alluded to in the letter:—(1) Supervision of building works in progress; (2) payment of contractors upon architects' certificates.

Mr. Brown, late chairman of the Brook Hospital committee, who seconded the motion, thought there was not much fault to be found with the committee. He failed to see that any committee or any board could take upon themselves the work that could only be done by the professional experts.

Mr. Brass blamed the Local Government Board for not sanctioning the purchase of another site for the hospital, and said that 70,000*l.* of the extra expenditure had been spent in consequence of the defective nature of the Shooter's Hill site.

Mr. Purchase argued that there had been gross mismanagement and waste of public money in the construction of the hospital.

Mr. Strang pointed out that better sites were offered, but the Local Government Board would not give their sanction to them.

Mr. Pope, Mr. White, Mr. Helby and others having spoken, the motion was eventually adopted.

It was decided to send a copy of the Local Government Board's letter and report to Mr. Aldwinckle, the architect

WANDERING ELECTRICITY IN NEW YORK CITY.

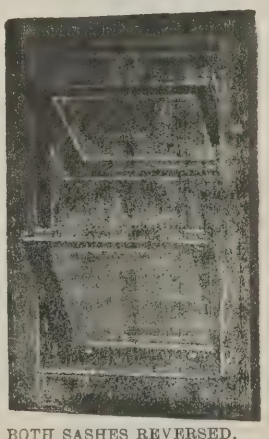
At the meeting of the American Institute of Electrical Engineers, held on October 26 in New York, Mr. A. A. Knudson presented a paper on an electrical survey of the borough of Manhattan, New York City, showing the results of measurements of stray electric currents as indicated by differences in potential between railway tracks, underground pipes, elevated railway structures and the terminals of the Brooklyn Bridge. The experiments were first undertaken about eighteen months ago at the instance of some of the municipal officers, who were curious to know whether any current was leaking to underground pipes from the conduit of the Lenox Avenue electric conduit railway. Since that time many other tests have been made, including some but a short time ago, and the paper is a presentation of the results.

The island of Manhattan nominally has no overhead trolley railways, but as a matter of fact what is known as the Union Railway Company runs its cars over the Harlem river to the island. The set of tests were begun on the conduit railway near the power station supplying it with current. From the first unmistakable signs were encountered of railway current leakage from the rails of this line to both water and gas pipes, the sudden fluctuation of the voltmeter needle proving this beyond a doubt. The phenomenon seemed hardly explicable, however, from the known conditions of an underground electric conduit, and as the test progressed it was finally discovered that the current came from two sources. The trolley line contributed some of it, while another current passed from the water pipes to the rails, and was finally traced by means of telephone receivers placed temporarily on the cars to electric-lighting sources. Hence the author of the paper drew the conclusion, already reached by other engineers, that a system using an all-metallic insulated return, which effectually confines the current to the conductors provided for it, is much preferable to one using the ordinary ground return in large cities, where the space below the street surface is largely occupied with various lines of iron pipes, more or less subject to electrolytic action.

Another series of tests was begun at a terminal of the overhead trolley line and carried north about a mile along an

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elevated railway. It was found that at the terminal the current passes into the water-pipes and elevated structure, and there is a difference of 2 to 2½ volts. A quarter of a mile further along the current all passes to the elevated structure, through which it runs for a quarter of a mile and then goes back to the water-pipe, reversing again in about half a mile. The same conditions were found to prevail on the section of the elevated railway extending about a mile in the opposite direction from the trolley terminal, although the difference in voltage is not so pronounced.

These tests were made on the west side of the island, in the neighbourhood of 135th Street and Eighth Avenue. About a year ago the trolley railway had a terminus on the east side of the island at Third Avenue and 129th Street, immediately in front of an elevated railway station. At this point there was a difference in potential averaging 2 volts, rising at times to 10 volts, between the trolley track and the nearest elevated railway pillar, and a difference of as much as 5 volts at times between the tracks and the nearest gas main. A few days ago, when workmen were engaged in removing the rails of this terminal, Mr. Knudson had a chance to observe the result of the passage of electricity from the rails to the gas pipes and elevated structure. The actual width of the base of the 70-lbs. rail when new was 4 inches, while its maximum width near the end when taken up was 2¾ inches, and the sides of the base were worn away to knife edges for a distance of several feet back from the end. Moreover, the metal ties, originally 1½ by ⅜ inch in section, have been eaten completely away in the middle, and but one was found which was whole from end to end.

In the tests made of the elevated railway structures the difference in potential between the columns and the street rails or water-pipes was generally very slight, ranging from one-thirtieth to one-fifth of a volt, and indicated that the current came from electric-lighting sources. Coming down the west side of the city, however, a full-fledged trolley current was found in the extreme lower part of the island, which was finally traced up the east side to the Brooklyn Bridge. The tests at the upper end of the island showed that an overhead trolley line using rails and water-mains for its return service can spread its influence for a distance of a mile or so in any direction through the various conduits and elevated railway structures, so it was an easy matter to trace the bridge current to the trolley roads in Brooklyn. Tests at the New York terminal of the Brooklyn Bridge showed that its superstructure was in some places as much as three volts positive to the rails of the adjoining cable railway. The existence of these currents naturally led to a consideration of their effect on the bridge, particularly on the anchorages. A large number of tests were made, which are believed to show that no damage as might be expected from the electric corrosion of pipes in other cities has taken place on this structure.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

23508. Thomas Potter, for "Improvements in the construction of fireproof buildings."

23543. Paul Guenther Ludwig Stuhlmann, for "Improvements in and relating to grooved tiles."

23652. John Boland Atkinson, for "Improved process for making bricks, tiles, pipes and such like from oil shale."

23758. Peter Stuart Brown, for "Improvements in the manufacture of multiple ply veneer and in the production of roofing-plates and other articles therefrom."

23856. George Morgan, for "Improvements in the manufacture of glazed tiles and bricks."

Specifications Published.

26530. Dargue, Griffiths & Wright, for "Apparatus for heating buildings and the like by means of hot fluids or electricity."

30869. Rutnagur, for "Ventilation of buildings."

102. McGrouther, for "Fireproof doors."

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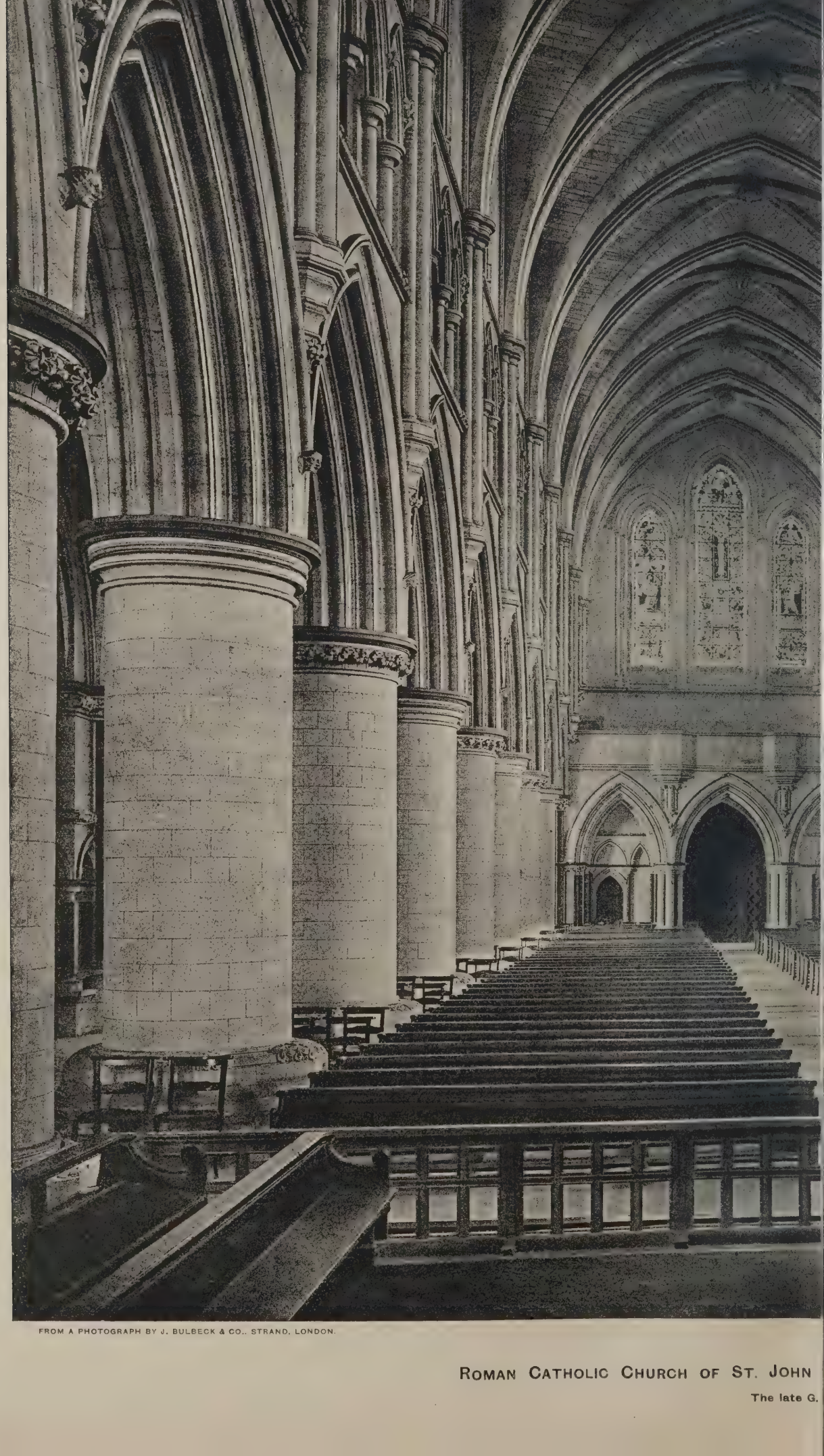


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ERNEST GEORGE

Nov 25th 1898.

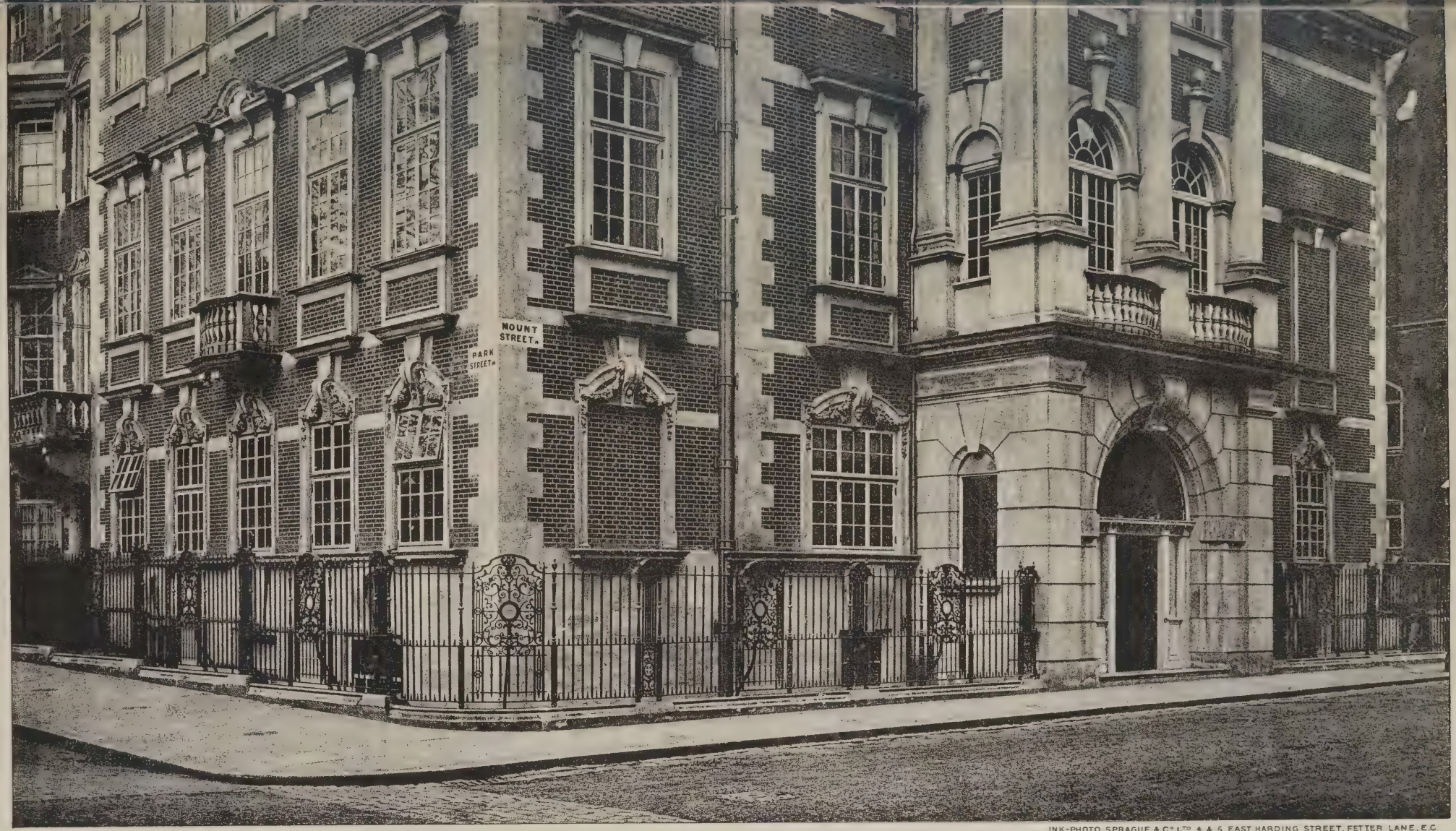


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FAIRFAX B WADE, Architect.

The Architect.

THE WEEK.

When it was lately decided in the Court of Appeal that a ship was not premises under the Workmen's Compensation Act it was supposed there would be a limitation of cases. But from a judgment given on Saturday that expectation is not likely to be confirmed. The plaintiff in the action was a carter in the employment of Messrs. Brown, Backhouse & Co., Liverpool. The plaintiff was engaged in arranging timber in a cart outside defendants' premises. He was waiting for some bolts in order to complete the load. A piece of timber somehow tilted and threw him on the road, and he subsequently died from the injuries he received. When an action was brought in a local court under the Workmen's Compensation Act the widow was awarded 243*l.* 12*s.* 7*d.*, the county court judge holding that the premises were a factory, and that the accident arose out of the man's employment on or about a factory. The defendants appealed. Their contention was that the deceased's employment was not employment "on or in or about a factory" within the meaning of section 7, subsection 1, of the Workmen's Compensation Act, for the man was employed as a carter and was at the time of the accident in charge of a cart which was outside the defendants' factory. His employment was clearly not on or in the factory. Neither, according to the true construction of the section, was it about the factory. The word "about" ought not to be limited as being simply equivalent to "near." It meant near and in the business of the factory. The Court of Appeal took the same view as the county court judge, holding that the Legislature obviously thought that the word "on" would not include all that they intended to include, neither was the word "in" sufficient; they therefore added the word "about," which was clearly an enlarging word. The question was really a question of fact, and the county court judge had found that the employment of the deceased was on or in or about a factory. The appeal was dismissed. The decision of the Court of Appeal will hardly be confirmed by business men. It is a very common expression to say of a man, "He is about somewhere," which means that he may be in one of the spaces between workshops or buildings, or within a building. The expression is not used to signify beyond the walls of premises. In the case in question the cart was close to the premises, but it might have been at the end of the street or in an adjoining street. We do not profess to have a clearer notion of the intention of the Legislature than the Court of Appeal. All we can say is that "about" in general acceptation has not the meaning given to it by their lordships.

An instructive paper on "The Effect of Subsidence due to Coal-workings upon Bridges and other Structures" was read by Mr. S. R. Kay at the meeting of the Institution of Civil Engineers on Tuesday. When designing such structures it was, he said, necessary to know, first, the principles of subsidence following the working of coal, to determine the position and character of the works; secondly, an approximation to the area necessary to be left unworked for the protection of the same; and thirdly, how the design may be suited to the supposition that the coal may afterwards be worked without any solid pillar being left for support. Subsidence always followed coal-working where no pillars were left, and was generally proportionate to the thickness of material excavated. Subsidence around pillars left for support was shown to be most irregular in its action, and all rules on the subject were of an empirical character. If absolute immunity was to be secured an ample pillar should be left. A period of two years or three years at least, after the coal was extracted, should elapse before commencing works, and more if possible in the case of deep mines. In building ordinary road or railway bridges or viaducts, the form of the arch should be avoided and steel superstructure employed, having the requisite elasticity to adapt itself to any slight movement subsequent to erection. Waterworks and reservoirs, where certain heights above sea level were to be maintained, should not be constructed in mining districts unless the suitability of the site outweighed the cost of protection. Bridges with strong well bonded abutments and wings and steel superstructure were frequently worked under, and sustained little or no damage, especially in the case of deep mines. Where, therefore, they must be built over an area to be subsequently mined, the girders should have a good bearing upon the beds. The subsidence to be expected, amounting to about two-thirds of the thickness excavated, should, if necessary, be provided for in the first height of the bridge, otherwise provision should be made for the eventual raising of the superstructure to its former level if required. Lofty viaducts should be protected by pillars, and lower structures should be built as indicated. The piers should be solid, and should not be pierced by an arch.

It is to be hoped there will not be many incidents like that which occurred in St. Clement's Church, Belfast, on Tuesday, otherwise the position of builders will become difficult to understand. In that church, as elsewhere, there is a difference of opinion about the manner of conducting services. A contractor received orders to remove several objects which one party did not admire, and as the rector would not hand over the key of the building, the workmen, it is said, forcibly opened a side door. They then set about removing the rood-screen, pulpit, reading-desk and the retable over the Communion table, while the chancel railings and supports were cut away and bodily removed. The crosses on the porch and over the east window on the outside were cut down. Four constables were on duty during the operations, and one of the churchwardens was present. It is said in France there is nothing sacred to a sapper, but we should not like it to become a proverb that a builder has no reverence for work in churches. The question of responsibility in such cases is not clear, and it might happen that the courts would hold the builder to be accountable. In this case it is said the rector intends to take proceedings against those who forced their way into the building, and if, as is stated, he had already made arrangements with another contractor to remove anything which could be considered as irregular, the lawsuit will become rather complicated and therefore costly.

Madame Garnier, the widow of Charles Garnier, has given another example of her own generosity, and of her desire to perpetuate the reputation of her husband. We have already mentioned the gift of medals to the Ecole des Beaux-Arts. Now several pictures which belonged to the architect have been presented to the Musée of Saint-Calais. It was generally supposed that Charles Garnier was a native of Paris, but the reason given for selecting Saint-Calais is that it was his native town. Among the pictures are a *Belle Jardinière*, by Bal; *Fountain in the Environs of Rome*, by Benouville; *View from the Garden of Garnier's Villa at Bordighera*, by Th. Ballu; *A Shepherd of the Roman Campagna*, by A. de Curzon; *Abduction of a White Girl by a Red Indian*, by Saintin; *Interior of the Church of St. Germain des Prés*, by Chaperon; a *Monk's Head*, by Cabanel; *Head of a Man*, by Alaux. In gratitude for so valuable a gift, the Municipal Council has decided to subscribe liberally to the fund for the erection of a memorial of Charles Garnier.

The new school of music which was lately opened in Moscow would appear to be intended not merely for teaching or practising, but for a testimony to the union of the arts. It is constructed in a costly style. In all the classrooms the utmost precaution is taken to prevent sound from passing beyond the walls. The double floors are rendered sound-proof by a packing of felt, cotton and flax. The concert-rooms, whatever their capacity, are adorned with wall-paintings and sculpture. The largest accommodates 2,000 auditors, and the vault contains a representation of St. Cecilia surrounded by bands of angelic musicians. An immense bust of Rubenstein is another feature in the concert hall, and there are few famous composers whose portraits or busts are not found in the building. The walls of the foyer have marble plaques on which the names of successful students will be engraved. In costliness there is no building of its class which is comparable with the Moscow school.

WESTMINSTER IN NOVEMBER.

THERE are districts in London which correspond with those of other cities, but engineering Westminster is unique. Why have such crowds of all varieties of civil engineers settled down about the Abbey? There is no profession or business so closely connected with finance. An individual can give a commission for a building, or a row of them, but it requires several individuals to raise the funds which are necessary for a railway, a harbour, waterworks or gasworks. Apparently, therefore, engineers should keep close to company promoters and have their offices near Lombard Street. Important as is the raising of funds, it is, however, an operation which is simple if compared with the obtaining of an Act of Parliament. Almost daily it is revealed how easily people can be persuaded to risk their fortune in financial schemes of which they know nothing, but the most eloquent counsel, the shrewdest Parliamentary agents, the skilfullest members of the Institution of Civil Engineers combined cannot be sure of the passing of a Bill in which they are concerned—nay, a slight irregularity may prevent it from being read once in either House of Parliament. That element of uncertainty makes it necessary for all whose business is connected with the promotion of private Bills to be within call of the Parliamentary committee-rooms and offices. Half an hour's delay in the appearance of a witness or the production of a document might cause a preamble to be declared as not proved, and in consequence an outlay of thousands of pounds would become useless. For it must always be remembered there can be no postponement of Parliamentary proceedings. If a scheme cannot be followed out to the end in one Session, all the evidence, plans, estimates, &c., cease to have value, for the whole operations must be commenced in a succeeding Session as if the scheme was heard of for the first time.

To the uncertainty which is characteristic of Parliamentary work must be added the extreme haste which the conditions impose. There are speculators who look forward through a long term of years in patience awaiting that ripeness of time which is necessary to bring about a satisfactory result. Sir William Vernon Harcourt was once "floored" by a genius of that kind. He had not long obtained "silk" and was anxious to display his ability to lead. One of the witnesses for a harbour in some out-of-the-way place with an unpronounceable name in Wales, had declared it was the finest site for a harbour in the world. "May I ask," said Mr. Harcourt in cross-examination, "what place you described last year as the most suitable for a harbour in the world?" The witness coolly mentioned another site with a long name. Counsel then asked him to give those he preferred on many preceding occasions, and was answered correctly in the most cheerful manner. "Now," said Mr. Harcourt, stretching himself to his full length and speaking in loud tones, "you say it is so and so which is to be preferred; tell the committee what place will next year be said by you to be the finest site for a harbour in the world?" The witness supplied the name without a second's hesitation. There was a roar in the room, in which the committee joined, and the cross-examination collapsed. Whether the Bill passed we forget, but such sublime audacity on the part of a witness at least deserved that reward. In the majority of cases it is not considered wise to take any important step in the promotion of a Bill until November approaches. If, for instance, plans were prepared at an earlier period it would be easy by knocking down or building a small cottage or a few fences to make the plans incorrect. They are supposed to represent everything that exists on the ground selected for the proposed works at the end of November. Then again, if a route were divulged an opposition scheme could be started, and although the promoters might be bought out, that is always a humiliating expenditure of money. Parliament in its wisdom has practically limited the most important operations to November, and although the efforts to produce the documents required for compliance with standing orders are often exhausting to all engaged in them, yet the arrangement has many advantages in its favour.

Let us suppose, then, a Bill for a new railway (the rules are uniform for most classes of work) is to be introduced in the coming Session. If the promoters are a company already existing there need be no question about alternative courses. In such a case the directors know what is the general desire in the district which is to be served, and the direction of the line is determined beforehand. It may be necessary to avoid approaching one or more towns too closely through fear of opposition from landed proprietors. Elsewhere there cannot be an excess of proximity. It used to be said that Sir John Rennie's system was to draw a straight line from town to town and tell his assistants to follow that course. The direction of the South-Eastern between Ashford and Redhill supports the theory. But in our days more circumspection is demanded. In a line that is to be got up by a new company or by a few speculators economy of construction has to be considered, and to it questions relating to gradients and curves have to succumb. The first necessity is to determine the course of a line with sufficient precision to enable the earliest of the necessary notices to be published in sufficient time. That could be done in an emergency before the survey or section is started.

The standing orders, happily, are not too exacting about plans. The Ordnance Survey, although it is not acceptable in the Law Courts unless in few and peculiar circumstances, is considered to be sufficiently trustworthy to be a basis for Parliamentary plans. But it must be brought up to date by the railway engineers. Every field or enclosure is required to be distinctly marked and numbered, and as on a scale of 4 inches to a mile, or 1,320 feet to an inch, buildings or groups of buildings could only be discerned by a microscope, plans on a larger scale have to be provided. Parish, borough, district and county boundaries are also to be marked. The engineering difficulties are not always manifest on the small-scale plans, and the fight over them has to be supported by some of another kind. What the Parliamentary plans are to supply is information about the properties which will generally be affected by the proposed operations. Suppose there is a tunnel a couple of miles in length through rock which abounds in faults, two straight lines will adequately represent it on the section. A big bridge of one span across a river would appear no less simple. But in dealing with the narrowest public road it is necessary to suggest the kind of structure that will be erected and to show the new approaches and their rate of inclination. In the preliminary stages of the Parliamentary campaign it does not matter whether a tunnel or a bridge is an impossibility, but, strange as it may sound, the battle might be lost by neglecting to clearly mark a few poultry-houses or wood sheds on a plan. Everything of the nature of a fixture must be numbered or linked with something numbered, and the omission of a small ~ therefore is a ground for an allegation. The Parliamentary work of every November has not only to be accomplished in a rush, but those who undertake it are assured it will be scrutinised by eyes which are inimical to it, and that profit can be made out of trifling oversights, if anything connected with property or Parliament can be called trifling.

The difficulties impart fascination to Parliamentary surveying. This is evident from the desire to share in it. If an engineer were to be found early in the month who had returned for a holiday, or for consultation from some of the great works in South America or elsewhere, where he had the disbursement of millions, he would take it as a favour to be invited to prepare a section of a new line. The work seems to rejuvenate old stagers. The most potent, grave and reverend notabilities of the Institution consider they are qualified for scampering over fields with a spirit-level. An assistant who would suggest that a President or ex-President had become too stiff to cross hedges and ditches on a November day would have little chance of promotion or support. There are so many associations with the season it is no wonder the interest is abiding. November is the English engineers' springtide. To be able to produce plans which will stand the tests imposed on them is a victory, and all who have taken part in it may well be proud. Then, if the Bill passes the ordeal of committee-rooms and becomes law, there are working plans and sections to be prepared, designs to be got out for bridges and other structures, contracts to be arranged, and for some of the staff works to be carried out. Everybody is sanguine of success at least during November, and trustful that the scheme then undertaken is the forerunner of many others.

It is thus easy to understand why in the early days of November there is a good deal of satisfaction in Westminster offices. There are men who, from being independent, only remember they are engineers at that time. To them Parliamentary work is a pleasure which has an interest that is wanting in shooting or hunting. To others an engagement may have an almost vital importance, for in engineering, as in many professions, there are men who are impelled by necessity, and work for four weeks at a liberal rate—even if no other follows—gives relief in the present and hope for the future. In some offices strangers are rarely employed, while elsewhere the surveying and levelling may be entrusted to outsiders.

Whatever are the arrangements, the engineers who are engaged depart from Westminster to their field work in the best of spirits. If they could be assured of dry weather the prospect would be cheering. But apart from the personal discomfort, it is tormenting to be plotting a survey in a continuous downpour, for if possible plans should be made ready on the spot for copying in town. Levelling is also difficult when the glasses are obscured by wet, and on a dark day the "sights" have to be more frequently taken than is desirable in expeditious work. At one time it is sometimes said, attacks were to be apprehended from hosts gathered by discontented landowners, but the majority of those stories are apocryphal. In our time people are in general too willing to dispose of land, and those who spoil landscapes by announcements of remedies for all the ills that flesh is heir to cannot grumble about the appearance of embankments. The rate of progress in the field is anxiously watched in Westminster, not only by the engineer who is responsible, but by the lithographer who is to prepare the plans.

It may not be generally known that by some firms lithographic draughtsmen are not allowed to leave the premises during a fortnight or even a longer term in November. They have to sleep as well as take their meals in discomfort. But as plans often arrive in fragments it is necessary to despatch them without a minute's unnecessary delay. The part taken by lithographers in Parliamentary battles is of great importance; they are often treated with little consideration, as if the work were only mechanical. And yet it is manifest that if errors are committed they may be overlooked in the hurry and excitement of the last days of November, and with fatal results to the schemes.

Another class of men whose services are not sufficiently appreciated are the compilers of books of reference. As every field and enclosure has to be numbered on the plans, similar numbers with the names of owners, lessees and occupiers of the property must be found in the reference-books. One supplements the other, and the lists must be no less exact than the plans. It is comparatively easy to prepare exact descriptions, but how are the conditions of tenure to be determined in a hurry? There are tenants who are ignorant of their landlords and suppose the agent is owner. There are holders of leases who are not aware of their degree of sub-tenancy. Sometimes incorrect information is wilfully given; sometimes it is inspired by stupidity alone. The reference-taker has to sift the evidence, to test it by rate books and parish documents, and to establish titles without any of the law's delay. If any one's interest is overlooked, the Examiner on Standing Orders is sure to hear of it, and a few cases are risky to a Bill. There is a property in Fleet Street for which local rates have been paid for some centuries, but no human being can discover its position. Parliamentary plans and reference-books relating to a scheme for rebuilding Fleet Street, if such were prepared, would be declared to be incorrect if the position of the mysterious property did not appear in them. Plans and books should be able to declare with the Northern Farmer, "Proputty, proputty's ivry thing, 'ere," and any omission is, we suppose, only rightly punished by rejection. It is no wonder, then, that during last week and the beginning of this week (Sunday not excepted) so many lights were kept burning in Westminster offices until a late hour, to the amazement of people who passed. The comparison of small plans and enlarged plans, of plans and sections, of plans and reference-books is a tedious and anxious job. Revision after revision may be required before they are brought into correspondence. It has often been found necessary to send in haste to the country to verify a difference on which opinions varied. As the 30th approaches the anxiety increases, unless by good luck, as well as by good management, all tests are found to establish the accuracy of the month's work.

Even at the last moment an error can arise. It is considered right to avoid facilitating reference beyond what is essential. Consequently, if a parish is shown on a sheet and part of a sheet, the whole of the second sheet is not lodged in the parochial offices. But in the hurry of making up the lodgments the part beyond the parish boundaries may be substituted for the part within them. That constitutes a serious allegation against the scheme. On one occasion in a Westminster office, where there was excessive care, the whole of the arranging of the printed sheets was done by the engineers who had taken part in the field-work, instead of by ordinary bookbinders. Repeatedly the sets were checked before they were stitched together. But when the objections came in the first of a long list was found to relate to the incompleteness of the set lodged with the House of Lords. That was like lèse-majesté, and the Examiner on Standing Orders declared he dared not even consider it. The case was sent before a committee, when evidence was heard, and as the omission was ascribed to extraordinary anxiety the plans were allowed to pass. A delay in train service may also prevent the lodgment at a proper hour in a country office, and it can be said there never were plans and reference-books issued from Westminster which were secure against allegations by skilled engineers and Parliamentary agents.

Then a short calm follows. There is speculation whether there are any errors which afford grounds for serious objections. An occasional discussion may arise about the difficulties which will have to be encountered whenever the work is undertaken. Some of the assistants employed being no longer required have to resume other duties, and in general there is in every large office in Westminster a good deal of leave-taking in the early days of December.

The lodging of plans on the 30th does not put an end to preliminary work. Notices have to be served on owners and occupiers, and the difficulty of identification is renewed. Estimates of the cost of the undertaking must also be prepared before the end of December. The amount need only be given in a gross sum, but as the items may be disputed it is necessary to prepare the estimate in detail. The estimate opens as it were a new chapter in the history of the scheme. An engineer and a Parliamentary agent could contrive to do the preliminary work on speculation without incurring ruin. But the declaration of an estimate involves the lodging of a sum equal to 5 per cent. on the amount with the Chancery Division of the High Court. That means in reality one department of the Bank of England transferring a sum to another department; but simple as is the operation it is not gone through without the payment of sterling coin. Owing to inability to gain the requisite sum a great many schemes perish at the estimate stage.

If that stage is passed the calls for money increase. The evidence before the Examiner on Standing Orders has to be met with counter evidence. Fees are also exacted for every demonstration of the existence of the Bill in either House of Parliament. If the committee-room is reached an army of witnesses on one side or the other will appear, with counsel to control them, and expenses multiply in proportion as time runs on. As a rule it is not until August the Parliamentary procedure, which began in November comes to an end, although in cases where the preamble is not proved an earlier termination is likely to be announced. In unsuccessful cases months of excitement and harassing labour too often pass not only without remuneration, but with a waste of money, and those who have had experience do not therefore consider the bustle, which is characteristic of Westminster in November as an unmixed good. But no men are more sanguine than those connected with Private Bills. The less they obtain from fortune in one year the more confident are they in their expectations of the coming Session, and thus it is that the titles of certain schemes become quite as familiar in the offices of the Houses of Parliament as is the last day of November.

ARCHITECTURE IN QUEBEC.

THE complications of the present time, coupled with apprehensions about the future, have compelled Englishmen to take an interest in Canada which must amaze many an ancient colonist. We may therefore expect that a little more attention will be given to Canadian architects and their works. The practice of art in their region is attended with many difficulties. The majority of emigrants can with difficulty persuade themselves to believe that Canada is to be a permanent home for themselves or their families. The climate is trying to many of those who are confident that the hard English weather made hard Englishmen. While they suffer they picture to themselves the delightful orange groves and remarkable fertility which can be found near the shores of the Pacific in the United States, and as they gaze on the pictures of the western Eden which are circulated throughout the Dominion, and realise how cheaply it can be reached, the Canadian climate becomes more dismal. When feelings of that kind prevail who can wonder if men are indifferent about the erection of dwellings which will outlast several generations?

There are other reasons which militate against the erection of business premises of a character which would serve as the memorials of a family or firm. The North American is always in a state of transition, and he has no ambition to be attached to a particular manufacture or business for the term of his life. He is ready and willing to renounce one which he has established and take up another of a different character if he can persuade himself that by the change he is likely to make more profit. When the owner is on the look-out for a change, it is not to be expected that his premises will be suggestive of permanency. Strangers are generally amazed when they see for the first time the temporary character which so many American and Canadian manufactories and business establishments express. But they should remember the restlessness which prevails among the people, and then a collection of sheds becomes significant. The improvements in machinery are also unfavourable to the erection of costly buildings. Time is always superseding machinery, and the buildings which are adapted to one class of power are not easily adapted to suit another class, and on the other side of the Atlantic the endeavour is to possess the very latest aids to increased production.

We find evidence of the obstacles to the erection of buildings that are capable to endure in the proceedings of the annual convention of the Province of Quebec Association of Architects. The new president, Mr. A. Raza, when explaining why so little appeared to be done by the Canadian architect in comparison with his Parisian brother and other representatives of an ancient civilisation, said :—"In America one must build quickly and give large and prompt returns to the client for his investment. The client insists on the greatest amount of rentable space being crowded into his building; in having ladders instead of reasonable and commodious staircases. It too often happens that the greedy speculator shrinks from the idea of consulting an architect, and will call on any stonecutter or wood-butcher to draw the rudiments of a plan, venturing on this to build those ugly and ill-proportioned, ill-matured structures spoiling whole streets nay, even the whole suburbs." Architects who have every day to find themselves met by the general belief that all which is needed is a temporary shelter for residence as for work cannot be expected to be always in good spirits. There are consequently expressions of despondency in the reports of the Quebec Association, admissions that the prosperous time which was anticipated had not arrived, complaints that municipal authorities do not more efficiently co-operate with architects by insisting on the production of plans before buildings are commenced. The supposed happier lot of French architects is referred to in order to bring the condition of affairs in Canada into stronger relief. For example, the President said:—"The Société Centrale des Architectes de France commands the greatest influence and respect. It has been granted the most precious and extraordinary privileges, as every enlightened citizen feels that the honour of the country is centred in its schools of painting, sculpture and architecture." So erroneous a statement could hardly have a beneficial effect on the minds of the Quebec architects. The Société Centrale resembles the Quebec Association, for it also has to express dissatisfaction with the ways of men in authority. The two societies are also alike in being without schools of painting, sculpture and architecture. Mr. Raza was, we suppose, thinking of the Ecole des Beaux-Arts.

Although in Canada, as in England, it is not necessary to employ an architect, the Quebec Association cannot complain of utter indifference on the part of the authorities. It has obtained a privilege which is unattainable in England. The Association now possesses "the right to prohibit unauthorised and unqualified persons from calling themselves architects." In other words, the 138 members are supposed to have a prior claim on all commissions. According to the report:—"The profession is now closed to unqualified practitioners, and only three alternatives are left to outsiders who wish to qualify themselves to practice. (1) Old members having allowed themselves to be disqualified may re-enter by paying their arrears, subject to the action of the council. (2) Members of a well-known sister society who come to settle and practice regularly in the province, by presenting their credentials. (3) Those who shall pass the examination prescribed by the charter and by-laws." The third class will not be numerous, for the report informs us that "the examinations of this year have not been fruitful of success; only one candidate presented himself at the winter examination, but retired on account of ill-health. Three candidates were examined at the summer session, but all failed to matriculate." It is, therefore, proposed to change the curriculum.

As the Association is told it can congratulate itself on having secured an authority that is much coveted by other societies, we suppose the privilege is likely to confer advantages on the members. If "wood-butchers" are carrying off the commissions it is of course right to do something to protect the public against themselves. But is it quite certain not one of the "wood-butchers" has contrived to find a footing among the one hundred and thirty-eight members? In other words, what guarantee have the people of Quebec that the whole of the members are thoroughly competent to undertake the duties of architects? They have not passed any examination or submitted to any tests. Their credentials consist simply of receipts for subscriptions which were paid, and those documents are hardly adequate to satisfy the public about the possession of good taste and competency in construction. As to the future, there must be some kind of training followed in order to succeed in the examinations, and that will be an advantage, but if the curriculum is lowered once, as is determined, there is no reason why the process should not be repeated again and again until the lowest degree of capacity is met.

By obtaining the power of opening and closing the profession to aspirants the Quebec Association must appear a more exalted body in the eyes of those who care to consider such subjects; but dignity in a society, as in an individual, means keeping up appearances of a more costly description. The expenses will therefore be increased; but how are they to be met unless by additions to the membership? For its own sake the Association must therefore produce an easy curriculum, although the members will of course in their own interest desire to see the standard continually raised. The mutual congratulations in which the one hundred and thirty-eight members are told to join can therefore only be temporary.

In Quebec registration may be the least of many evils, and on that account merits adoption. It may, too, be its own reward and impart various desirable qualities. But all that is said by the advocates of the system has a marvellous resemblance to what has been said elsewhere. We should like to see the Association succeed; but we cannot believe that a document, because it is signed by a Lieutenant-Governor and has been mentioned in the *Official Gazette* of Quebec, is sufficient to remove the difficulties which attend architecture in a country like Canada. The future of architecture will be more effectively secured by the education of the people. For temporary premises the wood butchers may serve, but let the fact be once recognised that Canada has many of the conditions which are desirable for a residential country, and we may be confident the people will prefer to obtain designs from architects which will recall the homes of the mother country.

THE EDINBURGH SCHOOL OF APPLIED ART EXHIBITION.

IN the galleries of the Royal Scottish Academy, Mound, an exhibition was opened on Monday, free to the public, of the work done during the past year by the students in the Edinburgh School of Applied Art, of which Dr. Rowand Anderson is hon. director. The school is managed by a joint committee of the Board of Manufactures and outside subscribers, and for several years a contribution of 1,000*l.* was given to it out of the grant-in-aid by the Edinburgh Town Council. This year that sum, in the exceptional circumstances of the city finances, was reduced to 750*l.*, but it is hoped it may be increased again, as the School is doing an excellent work in the equipment of young architects and designers in all branches of art industry for the work that is before them. The attendance last year at the school was between sixty and seventy students, and the mere amount of work upon the walls is evident proof of the industry of the workers. But in addition to quantity there is excellent quality; and it is doubtful if a better exhibition of the kind could be seen in London or other populous centres with a much larger population to draw upon for students. Part of one of the octagons is set apart for the drawings of three students, who, having completed the school curriculum, were awarded travelling scholarships of 60*l.*, 40*l.* and 40*l.* respectively for four months. It is a condition that they must proceed to some art centre, and make drawings for their own improvement of architectural or other work. The first prizeman, Mr. J. Douglas Trail, being a furniture draughtsman, many of his designs are of beautiful pieces of furniture of English and French design met with at South Kensington and elsewhere. The other two bursars were J. Hervey Rutherford and J. Forbes Smith, architects. Their drawings are mostly architectural, and they show also elegant designs for metal and stained-glass work. There are scholarships likewise given of 52*l.* per annum in connection with a national survey of Scotland. Those taking part in this interesting work this year were J. Hervey Rutherford, J. Edwin Forbes and W. Beattie Brown, jun. This scheme embraces accurate reproductions of the best features in the old castles, mansion-houses and cathedrals of Scotland, and if the Society is ever in sufficient funds it is hoped that a careful selection of such drawings may be published for future reference. In the meantime they are being carefully catalogued and preserved against that day. Specimens of work done by the students on Saturday afternoon excursions, in the school by the pupils of various grades, and in modelling in clay, in drawing the figure, and in colour are also shown—the whole forming a most noteworthy display, creditable alike to teachers and to students. To the young men of the city engaged in any handicraft a visit to the exhibition may be cordially commended.

CRITICISM WHICH HELPS.

A NUMBER of years ago Mrs. Scott-Siddons, the eminent reader, says Mr. C. H. Blackall in the *Architectural Review*, was giving an entertainment at a small town in Illinois. The audience was limited only by the capacity of the hall, and was manifestly enjoying itself in the quiet, undemonstrative way which is so characteristic of our rural populations, without indulging in applause of any marked sort. After a peculiarly brilliant rhetorical effort Mrs. Siddons bowed, and as the expected applause did not immediately follow, she flushed a bit, and then suddenly tripped down to the footlights and made a little speech, stating that she believed that the good people of the town did not appreciate how necessary to an artist was the applause of the audience, and how hard it was for her to keep up the spirit which she knew they expected when they gave no sign of the approval which she felt quite confident was in their minds. The speech was very daintily turned, and immediately brought down the house, each succeeding number being loudly applauded. This incident illustrates indirectly the attitude, more or less self-confessed, which every architect cannot but feel towards his work. It emphatically is not good for a man to live alone; and the architect who is able to do his work year after year without recognition, without applause, without favourable criticism, without the kindly pat on the shoulder or the occasional hearty grasp of the hand from a fellow, is not the kind of man who produces very good work. We may call it conceit, or apply any hideous name we please to the quality, but the fact remains that, other things being equal, an architect will do far better work when his efforts are properly acknowledged and received, and he is given the credit therefor which he feels is his due.

This involves the question of criticism—a question which is so vitally associated with growth that it has to be taken account of in estimating artistic possibilities. Criticism of itself does not imply either praise or blame. The aim of criticism certainly is not to whitewash the shortcomings of one's fellows any more than it is to give an opportunity for the critic to display his analytical perspicacity. The fundamental object of all criticism is the improvement of the standard, the benefiting of the one who is criticised, or, by exposition, the analysis of success. Bearing in mind that the very last element of architectural criticism is a mere expression of like or dislike, that if we are to be criticised it should be for our good, intelligent praise of one's work then becomes, in logical sequence, as effectual criticism as a keen, discriminating analysis of one's failures. Every architect has at times the strong feeling of desire to have his work weighed in the balance, intelligently measured, and the reasons for its successes or failures stated to him in such a manner that he may draw hope and strength perhaps even from his failures. The difficulty is how to bring out that criticism in such a way that it shall have its maximum efficiency with a minimum of the gall and bitterness which so often accompanies attempts at architectural criticism.

There are two ways of encouraging intellectual or artistic growth. Perhaps it would be fairer to make a broader statement that there are two ways of fostering education. We can point out the errors, tell wherein the student falls short, tell him what he ought to have done or what he ought to have left undone; that is one way, the fault-finding way, the analytical way, and it is by far the easier way. Humanity is so constituted that it is a much more simple operation to sift out the bad than it is to definitely decide upon what is worthy. The second way, and the way to which educators now are looking as offering the most promise, is to neglect the bad, be blind or indifferent if you will to the failures, but to emphasise such successes as are apparent; to praise the good, keep silent in regard to the commonplace and to develop the good rather than simply exterminate the evil. This is the successful way in kindergarten systems, and we must consider this country as still in its early youth, as not yet by any means attained to even the youngest manhood in architectural matters, but as still a candidate for the kindergarten system in art.

The great lack of our national work to-day is that it is not criticised; that our architects have no fair means of comparing their work with that about them, and the result is that it becomes extremely difficult for the young architect starting in business to keep in touch with the best work and to feel himself in the line of growth, the temptation being sometimes overpowering to fold his hands, to use the architectural expressions which he brought from college and to limit himself to a few forms simply because he dare not go beyond, when, if he could be put within reach of intelligent criticism, the possibilities of growth might be almost unlimited. We must have criticism if we are to grow; not the kind of criticism which is put in the daily papers, which is either blatant advertisement, indifferent condemnation, or, at the very best, an expression of like or dislike; but criticism which is based on sound architectural foundations, which has reason for what it utters and which can be presented in such a way as to appeal to the criticised. Most of those who have undertaken the criticism of contemporaneous architecture have been in a sense dilettanti; but one who never has practised architecture, who never has had to encounter the actual difficulties, practical and æsthetic, that are so emphatically the bone and sinew of growth, cannot criticise the work of architects in such a way that they can feel a confidence in receiving it. Intelligent criticism of architecture must come from architects; it must come from those in our own ranks if it is to be received and profited by. But on the other hand, the frailty of human nature is very loth to be found fault with, and if A tells me that my porch is bad the instant retort springs to my lips that his column is bad, and neither profits by criticism. If I tell a brother architect that he is clear off on his mouldings, that he should have done it so and so, or that his construction was bad, he will think, even if he does not say, that I had better be looking after my own glass windows, and that until I can do better work that he I had better keep my criticism to myself. So that criticism of the destructive type, though of great value to the recipient when fair and unbiased and properly received, is a means of development which is so easily turned into a weapon of offence that its pruning value disappears.

Especially with us who have so few absolute canons of taste, who depend so largely upon our imported ideas, is it difficult to receive a severe cut across some of our pet ideas. We may say that we take it in the best spirit in the world, but we do resent it all the same; we do feel that there was no call for quite so slashing denouncement, and that, after all, if we have made mistakes they are no greater than those of our neighbour. In other words, criticism such as is usually made defeats its own purpose with the party most interested; and, after all, when we consider the matter, why need we point out our fellow creature's frailties? It is like the story of the pilot who did not know where all the rocks were in his ship's course, but he knew perfectly well where they were not. If our criticism can develop the good the result will be just the same as if we eliminated the bad, without wounding any feelings or stirring up any antagonism.

The kind of criticism which is given among the students of the Ecole des Beaux-Arts hurts and stings with its brutal frankness, and the students grow delightfully under it and thrive upon it; but that is because they are students, and accept it as such. When they get out in the world the case is very different. I well remember on one occasion in the André atelier a certain very bumptious young Frenchman who had been feeling quite confident about the excellence of his design, so confident that he felt no desire to call upon the anciens for advice, but went right ahead and had his scheme all worked out on the day the master arrived. The practice was for M. André to spend from three to fifteen minutes on each man's work, pointing out what might have been improved, criticising it always with the most friendly spirit, striving to bring out the best side of the sometimes almost hopeless work before him; but when he came to this young Frenchman's work he sat down in front of it, looked it all over very carefully for a few minutes, and then without saying a word got up, left it and went to the next man. That cut more effectively than the most biting, slashing criticism, and the young Frenchman learned his lesson. In fact, one can often say most by saying least, and the kind of criticism which ignores will sometimes point out errors in the most effectual manner while avoiding the possibility of misunderstanding.

Our critics need not be blind to our faults. We all have them, and so long as we live in an imperfect world, and are ourselves so far from our own ideals, we cannot expect to strike perfection. Rather we have to strike an average between what we can do well and what we want to do, and the criticism which recognises that there is good in every honest effort, which seeks to accentuate that good, and is willing to forego the tempting desire to find fault with what is manifestly crude or wrong, will do more to build up our weak spots, to give us strength where we need vigour, and assurance where we need faith, than if the criticism was of the destructive type. The knife is necessary sometimes. There are such violent manifestations of ill-digested conceit in architecture that a knock-down blow seems about the only fit argument. And yet it is quite possible that those occasions demand far less heroic treatment than our critics might be inclined to believe, and even in some very extreme cases a damning with faint praise would be far more efficacious. We need not give our commendations lavishly, we can be sparing in our pats on the shoulder; but if we criticise each other's work in the friendly spirit, in the uplifting mood, we can at least be sure of a hearing, and can be confident in not arousing the antagonism which might turn our good intent into arrogance.

It is fair to assume that if our most biting critic were to be set down before Rheims or the Farnese Palace, his first thoughts would be of the good proportion, of the beautiful detail, the harmonious ensemble; and, indeed, criticism of the historic work is usually of the constructive type. It is when we consider the work of our fellow men that the destructive element crops out; and there seems no good reason why those who undertake to criticise existing architecture cannot do so from the same points of view that they would criticise the great works of the past, and when a modern building is under discussion point out so fully its strong points that they can afford to neglect the weak ones. And if we who are criticised strive earnestly to repeat our successes, to seek to do the things that commend themselves, our proportion of failures ought to grow beautifully less.

Ruskin may be a questionable guide in matters of architecture, but his advice regarding criticism is always worth heeding. "Do not think of your faults; still less of others' faults; in every person who comes near you look for what is good and strong; honour that; rejoice in it; and, as you can, try to imitate it, and your faults will drop off like dead leaves when their time comes."

TESSERÆ.

The Costliness of Roman Houses.

A CERTAIN Mamurra was the first that encrusted his whole house with marble. After the conquest of Carthage, the ceilings in the Capitol were for the first time gilded; but this species of luxury soon extended to private houses. "We live," exclaimed St. Jerome, "as though we were to die to-morrow, and build as though we should live for ever. Walls, ceilings and columns glisten with gold." Tertullian also speaks of costly tapestry manufactured at Tyre. Columns were an ornament very frequently employed. It was not uncommon to see many hundreds of them in one single edifice, which perhaps had besides a fountain to cool it. The extent of habitations was prodigious. One of the ancients complains that the palace of Augustus took up as much ground as formerly composed the whole farm of Cincinnatus. During Nero's reign some of the slaves of that tyrant possessed fish-ponds which were very large. And Pliny exclaims, "Such were not the habitations of those who founded this empire; they went from the plough or the cottage to triumphs, and their fields were smaller than are now the rooms of their descendants." Sallust and Seneca also compare houses to whole cities. Buildings were immoderately extended, not only in length and breadth but also in height. According to Juvenal, Cetronius built a house which was more lofty than the Temple of Hercules and Fortune; and Posides erected another that even surpassed the Capitol in elevation. Fruit-gardens and pleasure-grounds were enclosed within the walls of such edifices, or even laid out upon the roofs. Fruit trees were highly valued. A single apple tree yielded its owner a yearly profit of 10*l*. These, however, were only common trees; there were others of rarer kinds for pomp or pleasure—for instance, the lotus. Valerius Maximus relates that Domitius accused his colleague Crassus of having adorned his portico with columns from Mount Hymettus. "What do you value my house at?" asked Crassus. "At sixty times one hundred thousand sesterces," was the reply. "And how much lower will you rate it if I cut down ten shrubs (arbusculos)?" "Thirty times one hundred thousand sesterces." These ten shrubs consequently cost 15,000*l*. The palace of Clodius, who was assassinated by Milo, cost 110,000*l*.; it probably contained none of these shrubs or trees, otherwise the expense would have been much greater. Hirrius received merely from the buildings that surrounded his fish-ponds a yearly income of 60,000*l*. This luxury in building spread with extraordinary rapidity. In the consulship of Lepidus and Catulus, twenty-nine years before Julius Cæsar, the house of this Lepidus was the finest in Rome; and thirty-five years afterwards it was surpassed in magnificence by more than 100.

Ratisbon Cathedral.

The west front of the minster forms its most remarkable feature. Flanked by two towers of enormous bulk, the hoary dignity of its general effect seems rather enhanced than impaired by their inadequate height. The whole façade is replete with that commanding force of effect whose accomplishment should ever be the principal aim of cathedral piles. It is only so far too much dilated in its general grandeur that the graces of its beautiful detail are considerably obscured. On a nearer approach, however, that glorious eccentricity the great triangular porch assumes the real proportions of its amazing height, and while lost in admiration of this pavilion and parterre of stone, one cannot but remark how greatly Mediæval architecture had the *pas* of Mediæval sculpture. The imagery seems only subordinate to the general effect of the decoration. The tabernacle-work, the foliature, the fruit and the flowers are of superlative delicacy; the statues do not even pretend an approach to excellence. The interior achieves precisely what all such edifices should: it captivates the eye and smites the heart at a single glance; the spirit of the place at once overpowers and fills us with raptures. Less intricate and more entire in its magnificence than most Gothic fanes, its mighty aisles, its superb porch and its array of painted windows, varnished with all the glories of the crucible and redolent of divine and legendary lore, constitute the chief distinction of the Dom Kirche of Regensberg, and you may see them almost at a glance. Instead of deep recesses in the aisles, this church possesses the peculiarity of six projecting shrines of tabernacle-work, each a chapel in itself. Among these is the font, a very remarkable construction of its kind. It is a huge polygonal draw-well, having sculptured panels under a stately arch of tabernacles and imagery, flanked by two Gothic basins of marble, each supported by a spiral column. These, doubtless, are accustomed to contain the sacramental element. The exterior is of great simplicity. They have evidently lavished all their luxuriance on that unparalleled west front.

The Medusa's Head.

Although the Gorgon's head is often seen in the centre of Minerva's shield, it still more frequently appears upon the ægis, but the ægis is quite distinct from the shield. The ægis was originally a goat-skin, and when Jupiter was contending with the Titans he was directed to wear it with the head of the Gorgon. Homer designates Jupiter by the title of Ægis-bearing, and from this circumstance the goat-skin became the mantle or paludamentum of the Roman emperors, and the Medusa's head at last degenerated into a fibula or button, with which the cloak was fastened on the right shoulder. The Roman emperors, in the character of Jupiter, wore the ægis, as seen upon the splendid cameo of the Emperor Rudolf now at Vienna. But we are more accustomed to see the ægis in connection with Minerva; she wore it in various shapes and ways, frequently as a skin, covered with small scales and fringed with serpents, and sometimes as a band, very often as a cape round the neck, fastened in front with the Gorgon's head. This we may observe, that when the goddess is fully armed the Medusa's head never appears upon the ægis and buckler also. There are abundant examples of the Gorgon's head occupying the centre of her shield, but it was not so in the celebrated

statue by Phidias in the Parthenon, and is probably not to be found in the earlier specimens of art in that position. We do find it so placed on the coins of Antiochus, Philip, Antigonus of Pergamus, and upon numerous Roman bas-reliefs. One form of the Gorgon's head appears upon copies of Roman sculpture and pseudo-antiques, which deserves a caution: it is the distorted countenance of a beautiful female bristling with snakes and her mouth wide open, as if screaming to the utmost extent. This is not antique and certainly not in accordance with the taste of the early Greek artists. They represented the Gorgon hideous, with terrific teeth and something of a fiendish grin upon the countenance; the tongue also was made to protrude, as may be seen not only upon painted vases but upon numerous coins, both Greek and of the Roman families. During the more refined period of art the hideousness was set aside and a type "severe in youthful beauty" was adopted. A curious instance of a Medusa head with the tongue protruding occurs on the large round shield of a statue of Minerva found in this country, and now in the possession of the Duke of Bedford. Raphael has introduced the same type of pseudo-treatment in his grand picture the *Cycle of Philosophy*, commonly called the "School of Athens." Michel Angelo da Caravaggio has bestowed the utmost effect that art could display in a similar treatment of the same subject. The picture now in the Gallery of the Uffizi at Florence is painted upon a convex surface, and it is a true observation that "as you turn the eyes appear to follow you." The same gallery contains another modern example of Medusa, by Leonardo da Vinci. The great painter has here adopted a truly poetical treatment: the head, severed from the body, lies neglected on a desert waste; the back part turned toward the spectator, so that all may gaze with impunity (mark the contrast to Caravaggio); the mouth is evidently open, but from this point of view not disagreeable. The last breath, like a dense cloud of steam, is seen issuing forth, and venomous reptiles and creatures of darkness are approaching, not for prey but eager curiosity, and only held back by fear whilst the faintest symptom of life remains. The eyes, although averted and foreshortened, are terrific to behold; but the main part of the picture, because nearest in front, is the serpents, who still seem writhing, and exhibit every variety of exhaustion and suffering. Some are already dead, others stretched along lifeless in all but their head, others spending their last passion in violent contortions, and two seem to meditate a revengeful attack upon the now sightless eyeballs of the pale and beautiful countenance. But all are dying. For poetry and accurate imitation of nature this picture well merits the praise and admiration so frequently awarded to it.

John Leech's Sketches in Oil.

Leech was singularly modest, both as a man and as an artist. This came by nature, and was indicative of the harmony and sweetness of his essence; but doubtless the perpetual going to nature and drawing out of her fulness kept him humble as well as made him, what every man of sense and power must be, conscious of his own strength; but before the great mother he was simple and loving, attentive to her lessons as a child, for ever learning and doing. This honesty and modesty were curiously brought out when he was, after much persuasion, induced to make the coloured drawings for the exhibition of his sketches in oil, which was such a splendid success, bringing in nearly 5,000*l*. Nothing could induce him to do what was wanted—call them paintings. "They are mere sketches," he said, "and very crude sketches, too, and I have no wish to be made a laughing-stock by calling them what they are not." Here was at once modesty and honest pride, or rather that truthfulness which lay at the root of his character, and was also its "bright, consummate flower," and he went further than this in having printed in the catalogue the following words:—"These sketches have no claim to be regarded or tested as finished pictures. It is impossible for any one to know the fact better than I do. They have no pretensions to a higher name than that I have given them—sketches in oil." The origin of these sketches in oil is curious. Leech had often been asked to undertake works of the character, but he had for so many years been accustomed to draw with the pencil, and that only on small blocks, that he had little confidence in his ability to draw on a large scale. The idea originated with Mark Lemon, his friend and colleague, who saw that by a new invention the impression of a block in *Punch*, being first taken on a sheet of indiarubber, might be enlarged, when by a lithographic process the copy thus got could be transferred to the stone and impressions printed upon a large sheet of canvas. Having thus obtained an outline groundwork consisting of his own lines enlarged some eight times the area of the original block, Leech proceeded to colour these. His knowledge of the manipulation of oil-colours was very slight, and it was under the guidance of his friend, John Everett Millais, that his first attempts were made, and crude enough they were. He used a kind of transparent colour which allowed the coarse lines of the enlargement to show through, so that the production presented the appearance of indifferent lithographs slightly tinted. In a short time, however, he obtained great mastery over oil colour, and instead of allowing the thick fatty lines of printers' ink to remain on the canvas, he by the use of turpentine removed the ink, particularly with regard to the lines of the face and figure. These he redrew with his own hand in a fine and delicate manner. He added a delicacy of finish, particularly in flesh colour, which greatly enhanced the value and beauty of his later works.

Arrangement of the Greek Stage.

The massive and permanent walls of the Greek stage had certain openings which, although differently decorated for different pieces, were never changed. Each of these entrances to the stage had its established and permanent signification, and this enabled the spectator to apprehend many things at the first glance, which he must have otherwise gradually made out in the course of the piece, since contrivances similar to our play-bills were unknown to the ancients. On the other hand, the audience came furnished with certain preliminary information concerning what they were about to witness, by means of which the plot was far more clear to them than it can now be by mere reading. Of this kind was the distinct meaning attached to the right and the left side. The theatre at Athens was built on the south side of the Acropolis, in such a manner that a person standing on the stage saw the greater part of the city and the harbour on his left, and the country of Attica on his right. Hence, a man who entered on the right by the parascenia was invariably understood to come from the country or from afar; on the left, from the city or the neighbourhood. The two side-walls always bore the same relation to each other in the arrangements as to exterior or interior. Of course, the lower side entrance which led into the orchestra stood in the same relation; but of these, the right one was little used, because the chorus generally consisted of inhabitants of the place or of the immediate neighbourhood. The main wall, however, or the scene, properly so called, had three doors: the middle, which was called the royal door, represented the principal entrance to the palace, the abode of the prince himself; that on the right was held to be a passage leading without, especially to the apartments of the guests, which in Greek houses were often in a detached building appropriated to that purpose; that on the left, more towards the interior, leading to a part of the house not obvious to the first approach, such as a shrine, a prison, the apartments of the women, &c.

Decorated Characteristics.

Arches mostly enclosing an equilateral triangle, the mouldings often continued down the pier. Windows large and divided into two or more lights by mullions; tracery in the head at first composed of geometrical forms, later of flowing character. Clerestory windows generally small. Diamond-shaped piers with shafts engaged. Capitals with scroll moulding on under side of abacus, with elegant foliage arranged horizontally. Bases generally formed of quarter round and scroll moulding. Doors frequently without shafts, the arch moulding running down the jambs. Rich doorways and windows often surrounded with triangular or ogee-shaped canopies. Buttresses worked in stages, variously ornamented with moulded slopes, triangular heads, with panels and niches. Corner buttresses often placed diagonally. Parapets pierced with quatrefoils and flowing tracery. Niches panelled and with projecting canopies. Steeples lofty and well-proportioned. Roofs of moderate pitch open to the framing. Fonts mostly octagonal, with quatrefoils and tracery on sides. Mouldings bold and finely proportioned, generally in groups, the groups separated from each other by hollows, composed of segments of circles. Deep hollows, principally confined to inner angles. Mouldings varying in size and kind, on chamfer and rectangular planes, often ornamented with ball flower. Foliage, chiefly of ivy, oak and vine leaves; natural. Rich crockets, finials and pinnacles.

Universal Applicability of the Italian Style.

The Italian system is universally adopted without any material changes. It is found to suit all climates; it is the architecture for the manufactory, the dwelling-house, and—with the exception of England—for all public buildings and churches. It presents no signs of decay, though most ancient. Noble as it now is, it has been the work of progressive creation, adapting itself to the wants of those who required its aid; never retrograding, but continually, as it were, in bud, and still so despite the efforts made to control it. We cannot understand the principles on which it advanced without studying the works of those great men who have gone before us, and then we observe that they all invented. Certain points of similarity are unavoidable in art; supports and coverings are necessarily the same. Still, there are other points in which each one either trusted a little to his own original invention, or produced something of equal value by a reproduction and improvement of what had been done before.

NOTES AND COMMENTS.

AMONG other effects of VICTOR HUGO'S genius was the creation of interest in the Cour des Miracles, that strange sanctuary or refuge where the drones of the social hive of Paris were safe from the officers of the Châtelet and the Prévôt. It was there, as can be read in "Notre Dame," the poet PIERRE GRINGOIRE was sentenced to be hanged, and was saved by the gipsy girl ESMERALDA. There were several cours in old Paris where the blind recovered their sight, the dumb became loquacious, and cripples displayed agility. But HUGO'S Cour des Miracles, although it is difficult to fix its position, is always certain to be the only Bohemian sanctuary in the popular mind. It is, therefore, a happy thought to have a realisation of the place, with its quaint architectural surroundings, forming a part of the Paris Exhibition of 1900. M. COLIBERT, the architect who is thus inspired, was one of VIOLLET LE DUC'S pupils. He has given proof of his competency to reconstruct a bit of old Paris by his "Bastille," which was one of the attractions of 1889. M. COLIBERT contemplates the presentation not only of the cour, but of a part of the neighbourhood, with the ancient wall and probably the cathedral of Notre-Dame. For the old structures will be only an environment for the presentation of some of the most startling incidents of VICTOR HUGO'S romance, and a revival of the picturesque processions which were as characteristic of Paris in the fifteenth century as the old buildings.

As architects few of our readers can take a professional interest in the proposed college at Khartoum. All that is contemplated for the "initial outlay" is only 10,000*l.*, and of that sum merely a fraction would be expended on building. The kind of construction that prevails in the Soudan is primitive, and we suppose would be followed. In course of time, when the people become civilised, they will be able to appreciate a better class of work. But architects, no less than the rest of their fellow countrymen, will rejoice to see a memorial of GORDON which would be most pleasing to that hero. The schoolmaster will be a more useful emissary of civilisation than a filibuster. If we wish to have an easy time in the Nile Valley we must begin with the training of children, for, as Lord SALISBURY well says:—"It will tax the resources of the present generation, and of those who come after them, for many years before the wall of prejudice can be thrown down which separates the thoughts of the European and the thoughts of the Egyptian and the Soudanese races, and until it is to a considerable extent accomplished, we cannot count securely upon their co-operation, either in the duties of government or in the promotion of industrial progress. The only method by which this reconciliation can be attained is to give to the races whom you have conquered access to the literature and knowledge of Europe."

WHEN it was arranged that national museums and art galleries were to be opened on Sundays, the work for which the Sunday Society was constituted over twenty years ago came to an end. It was then decided that Mr. MARK H. JUDGE, architect, who, at much sacrifice to himself, acted as honorary secretary during the whole period, deserved a testimonial. A committee was formed, and on application for subscriptions to the members and friends of the Society a satisfactory response was obtained. It was felt, however, that others would be desirous to aid in recognising Mr. JUDGE'S services. The fund will accordingly be kept open until Christmas, and subscriptions can be forwarded to the honorary secretary of the fund, Dr. CORFIELD, 19 Savile Row, W.

THE late CHARLES DICKENS was not an enthusiast about architectural works, or indeed works of art of any kind. But even he described the Ponte Vecchio at Florence as a most enchanting feature in the scene. He continues:—"The space of one house in the centre being left open, the view beyond is shown as in a frame, and that precious glimpse of sky and water and rich buildings shining so quietly among the huddled roofs and gables on the bridge is exquisite." In saying this DICKENS expressed the opinion of even the humblest tourist. The Ponte Vecchio is now threatened with destruction, and when one remembers how much that was historical in the city has been sacrificed to commonplace buildings, there is not any likelihood the bridge will be preserved, unless the multitude of British and American visitors will protest against the vandalism. The piers of the Ponte Vecchio are supposed by some archæologists to have formed part of an Etruscan bridge, but there can be no certainty on the subject. All that is known is that a bridge existed there in 1080, that one was carried away by a flood in 1177, and another in 1333. The existing bridge which succeeded the last is the work of TADDEO GADDI. There were always shops erected on it, and according to tradition MASO DI FINIGUERRA was a tenant of one of them, and produced some of his best work in it. There is enough historical interest around the bridge to preserve it, for similar structures of its date are becoming rare. But the Florentines apparently have set their desires on a metallic structure, as more representative of modern Italy.

ALBERT DÜRER gave much attention to lettering, and endeavoured to work out a system of proportion for Gothic minuscule. It would be difficult for any painter, engraver or caligraphist to observe the artist's instructions; but DÜRER was simply giving way to a fascination which is always likely to be powerful. Although small and commonplace, letters involve many problems, and to devise an alphabet of novel forms which would be generally used would be almost enough to secure reputation. The 150 alphabets which Mr. LEWIS F. DAY brings together in his "Alphabets, Old and New" (B. T. BATSFORD), are enough to suggest the amount of ingenuity which has been exercised on a subject which is so simple. But with all the simplicity there are many things which are not easily understood. How is it that the type used in a Paris newspaper differs in form from the type of London and Rome, and that European type is to be recognised as differing from American type? Again, why should there be such a difference between the type of the eighteenth and the nineteenth century? Mr. DAY'S selections go back to the fourth century, and he gives a great many varieties of his own devising. The book is, therefore, sufficiently comprehensive. Some of the attempts at novelty are not always interesting, and suggest indifference to form, but the majority reveal skilful training and respect for principles. Several of Mr. DAY'S designs show the influence which the instrument employed for lettering can have on the forms. In this country there is not much scope for variety, but the Germans are constantly exercising their invention in caligraphy. In Mr. DAY'S book an abundance of patterns will be found for copyists, while those who endeavour to be original have much which is inspiring. The collection is at once practical, historical and imaginative.

DURING the present session of the Leeds and Yorkshire Architectural Society the following papers will be read:—A Cruise in the Eastern Mediterranean, by Mr. JOHN TWEEDALE; Brickwork Tests, by Mr. MAX CLARKE; Sienna and BALDASSARE PERUZZI, by Mr. FRANCIS W. BEDFORD; Byzantine Architecture in Constantinople, by Mr. A. E. HENDERSON; A Summer in Umbria, by Mr. H. M. FLETCHER; British Plaster Work: its Past and Future, by Mr. G. P. BANKART; Steel Construction in Buildings, by Professor GOODMAN.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: SOUTH AISLE, LOOKING EAST.

SHOREDITCH PUBLIC BATHS.

NEW PREMISES, EDMUND STREET, BIRMINGHAM.

CLARIDGE'S HOTEL.

ON the view of the new Claridge's Hotel, which appeared in last week's *Architect*, Mr. C. W. STEPHENS'S name should have appeared. The building was designed by him, and carried out under his superintendence. The work of Messrs. ERNEST GEORGE & YEATES was limited to the hall, staircase and reception-rooms of the ground floor. The error was accidental, and we much regret its occurrence.

SUMMER HOLIDAYS AMONG FRENCH CATHEDRALS.

By the Author of "Ecclesiologia Germanica," &c.

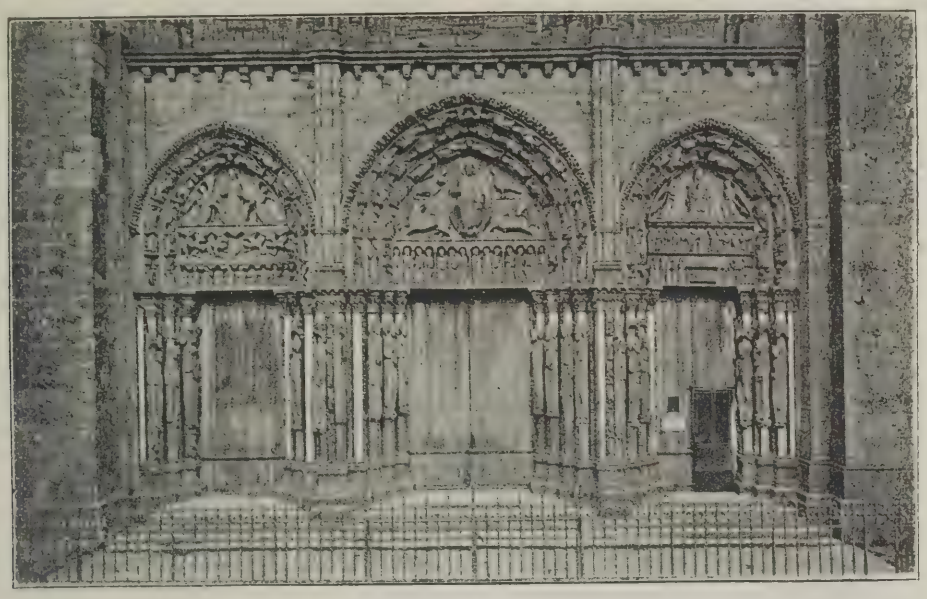
(*Continued from page* 347.)

IV.

Chartres.

A SUNDAY in Chartres! What can be more delightful? Such are our thoughts on waking at the Hôtel Grand Monarque in this most enchanting of French cathedral cities on August 6, the festival of Our Lord's Transfiguration. It is but six o'clock; however, we throw aside the "jalousies" of our windows, and a lovely patch of blue sky greets us above the hotel courtyard, on whose red-tiled roofs some white pigeons are cooing and pluming themselves as if in celebration of the day. An omnibus about to start for the purpose of conveying to the hotel anybody who may happen to arrive by an early train, waits below; the horses are stamping on the paved courtyard, tossing their heads, jangling their bells, champing their bits, and snuffing the fragrant morning air. Presently the great bourdon from Jean Texier's exquisite steeple booms over the city for the six o'clock Mass, but except for these sounds the stillness of early morning is unbroken.

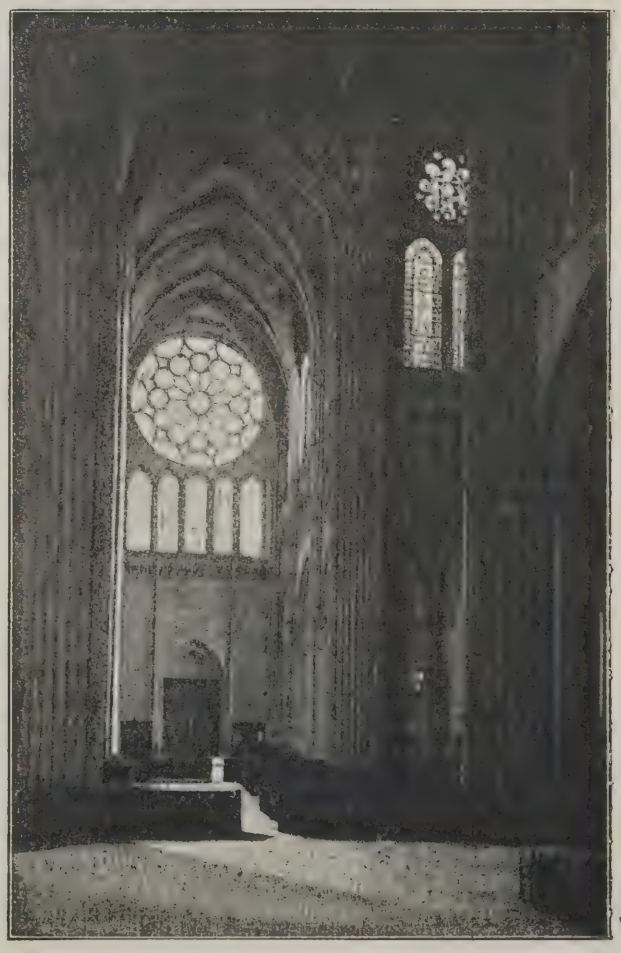
The omnibus has clattered off; we have sacrificed to the Graces, and on descending to the courtyard find



Chartres Cathedral: Western or Port Royale.



Chartres Cathedral: Vieux Clocher and South Portal.



Chartres Cathedral: View across Transept, looking South.

Mignon and Toby, who advance with erected tails to give us a morning greeting, the latter accompanying us as far as the *porte cochère*, and after wishing us *au revoir* in a few staccato barks, trots back to the culinary regions, with the self-satisfied air of a dog who has done his duty.

Wending our way across the sunny Place d'Epars towards the cathedral, we find that we are not the only persons abroad at this early hour, for we soon fall in with quite a stream of old *citoyennes*, all looking so neat and fresh in the simple black dress, shawl, and closely fitting white cap. *Paroissiens* in hand —wrapped in some instances in a white pocket handkerchief— the dames on reaching the "Close" pursue their different ways. Some enter the great dim cathedral by the Port Royale, or one of those grand transeptal porches where colossal figures of apostles and prophets, priests and kings keep guard, to one of the Masses about to be celebrated in the chapels round the choir. Others descend a little flight of steps in the base of a tower flanking the north transept. We follow them, turn to the right, traverse a passage, open a glass door and find ourselves in perhaps the most awfully solemn religious interior of Christendom—the crypt under the north aisle of Chartres Cathedral. To our right (westward) this crypt is comparatively light, having small windows in its north wall revealing frescoed historical subjects on the opposite one. Eastward, a most impressive picture is presented by the long aisleless vault, depending for light upon the lamps suspended at intervals, or by the private candles placed by the devotees on their chairs, but culminating in a perfect blaze where, above the altar, round which numerous lamps and candles are burning, and at which the white-chasubled priest is moving softly to and fro, sits enthroned one of the two figures of the Virgin so venerated at Chartres—that of Notre-Dame de Sous-terre. We do not linger long here, being anxious to regain the morning air. Daws are wheeling round and round those matchless spires which rise up into the cloudless blue heaven, chasing each other in and out of all sorts of nooks and crannies, while uttering their cheerful "Jack! Jack!"

The contrast presented by these two western spires of Chartres Cathedral—we may not inaptly term them the Alpha and Omega of spires—is most striking.

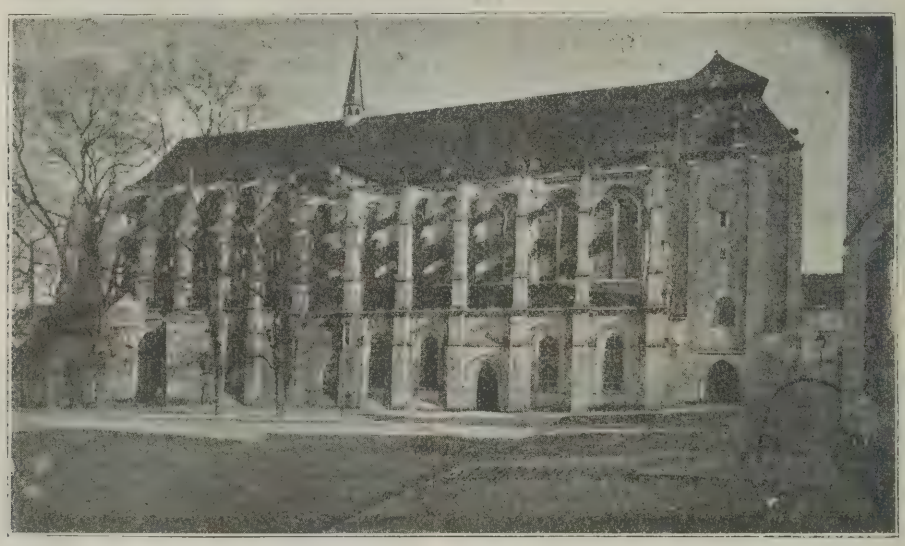
There is a Doric simplicity, a solemn grandeur of design, in the south-west or Vieux Clocher, but it was robbed of its true proportions when the raising of the western façade took place after the fire which, occurring thirty years after its completion, caused the reconstruction of the church on a much more grandiose scale.

The other spire, the work of Jean Texier, is too of its kind unsurpassed, and though the antipodes of the Vieux Clocher in every respect, groups well with it from all points of view, and thus we are in possession of two steeples each in itself a *chef d'œuvre*.

There is neither central lantern nor flèche at Chartres, a feature that becomes rarer in France the further one travels from the English Channel; but steeples, which at present rise no higher than the spring of the gables, were designed to flank the transepts, as at Rouen and Rheims.

A saunter in the precincts of this titanic pile, and we enter by the richly sculptured Port Royale, whose illustration in our text precludes any detailed description. So dark is the cathedral on entering it from the bright sunshine outside that only after the lapse of some moments are we able to discern the details of the building, very dark in its western part, increasing in luminosity towards the great crossing, but with the choir and apse bathed in the glorious early morning sunshine.

The silence is unbroken, save every now and then by the tinkle of a bell in some remote chapel, or by the occasional footfall of a devotee on the way thither along the dusky nave aisles. The silver pipes of the great organ, by-and-by to pour forth its voice in the showy Interlude or Offertorium, gleam out from the dusky heights of the clerestory, where, as at Metz and Strasburg, it is disposed with such grand effect. The gigantic piers supporting the simply moulded arches which divide the nave from its aisles are on the very common French plan of four shafts surrounding a central drum. At Chartres these cores are alternately circular and octagonal, the circular ones having their attached shafts octagonal, and *vice versâ*. All have foliaged capitals, bold almost to coarseness. In plan and arrangement these columns at Chartres are assimilated to those in St. Hugh's Choir at Lincoln, with which they are contemporary.



Chartres: North Side of St. Pierre.

The uniformity in the design of this great church is not the least interesting of its features. Begun in 1194, and completed in all essentials in 1260, one fails to discover any evidence of a change from the first scheme during the long progress of the work. Nothing seems to have been left for subsequent ages to carry out, the only accretions observable being the chapel of St. Piat opening out of the eastern ambulatory, and that of Vendôme, which forms an agreeable break in the line of the south nave aisle. The dates of these additions are respectively 1340 and 1415.

Throughout the aisles, and in the clerestory of the great apse, the lancet window prevails, while in the clerestory of nave, choir and transepts the fenestration is effected by coupled lancets surmounted by an immense plate-traceried rose formed of an octofoil, round which are sixteen small quatrefoils, the whole seemingly cut out of a slab of stone, and contained beneath a discharging arch, whose semicircular form assists in imparting a quasi-Romanesque air to the pile externally. Each of the great lancets composing these clerestory windows is 8 feet 5 inches in the clear; their only moulding is a chamfer, and the painted glass with which the whole series is filled is in

quantity and quality unrivalled. Executed chiefly at the same time as the building, these windows form, together with those of the aisles, a most interesting study of the progress made in the art of glass painting during the first sixty years of the thirteenth century, single figures occupying the former, and small subjects treated medallion-wise the latter, and their interest is enhanced a thousandfold when we recollect the glorious pageants their ruby stains have assisted to exalt and the storms and revolutions which seem to have left these masterpieces of the vitreous art unscathed.

Seating ourselves in a chair with our back to the central western door, we have on either hand the Transitional respond of the nave of the cathedral burnt down in 1194, and we remember that the three doors and windows now admitting to, and lighting the west front of, Chartres Cathedral served for the nave and aisles of this former building, of which they and the tower bases form the only remains. When the present



CHARTRES: INTERIOR OF ST. PIERRE.

great nave was begun after the fire in 1194 it was made to enclose the whole space occupied by the old cathedral, aisles and all; hence the singular width and colossal proportions of the present church. To our left and right is graceful Transitional work, arches on piers with Corinthianising capitals admitting into chapels formed in the bases of the towers. The baptismal chapel is on our left, the Chapelle du Calvaire on our right. Here is one of those enormous crucifixes so frequently seen in the French churches, and erected, like many others, in commemoration of the mission held in 1826. Seen subsequently on Sunday night at sunset, this crucifix, rising to the roof, had a most solemn and awful effect. Passing up the shallow flight of steps which lead from the floor of the nave to the aisles, we pace them silently, glancing *en passant* at the Chapelle de Vendôme with its tall Flamboyant window, the only relief to the prevailing sternness of the cathedral, and crossing the vast transeptal space, gain the choir aisle; but as early Masses are proceeding at two or three altars here we are unwilling to disturb those attending them; so, postponing our visit to this portion of the building for the present, retire to a secluded seat near the great southern transept door. Here is the bénitier, for at Chartres you are not confronted immediately upon entering, as in many Parisian churches, by an old person who holds a brush protruding with a dozen fingers made of bristle. Anything less suggestive of the beauty of holiness we cannot imagine. It is ugly, slovenly, greasy—in short, filthy. No, at Chartres the bénitiers are large and filled with pure, clean water, and while sitting near this particular one it is touching to notice the smallest children making ineffectual efforts to reach the stoup, till some elder comes along to the rescue and gives the little ones the water wherewith to cross themselves.

By way of "appetiser," we take an airing, and are presently threading the steep intricate streets of the Basse Ville. Here cats are sunning themselves at doors, and almost every *rez-de-chaussée* is the scene of much slopping and besoming by sturdy bourgeoises in sabots to make all taut and trim for the day. Now we are in front of St. Aignan, a quaint mixture of Gothic and Grecian, but how picturesque. It is a simple structure, like a huge ark outside, with not even a spirelet to mark the separation between nave and choir. Let us enter by the enchanting little Renaissance door at the west end of the north aisle. We find ourselves in a fairy church of translucent colour, not so gorgeous or deep, perhaps, as the Sainte-Chapelle at Paris, or Notre-Dame de Bon Secours at Rouen, but exceedingly



CHARTRES CATHEDRAL: THE WEST FRONT.

devotional. But how come Romanesque clerestory and triforium to surmount a somewhat fragile-looking Flamboyant arcade, anyone unacquainted with the history of St. Aignan will ask himself on seeing it for the first time. The fact is, this church is a very, very clever imitation, but not the correct thing. Buildings of the same age as St. Aignan (1623) require a very practised eye to mark the distinction between original and copied work, so admirably did the seventeenth-century architects adapt the early Mediæval styles. What the fancy of the architect of St. Aignan was for putting a triforium of small Byzantine Romanesque arcades and a simple clerestory of round-headed windows over his Flamboyant arches we cannot say. And he has surmounted the whole by a wooden coved roof with tie-beams (of the same character as that employed by Burges in his early French Gothic churches at Brisbane, Cork and Stoke Newington), charming in its simplicity and for its appropriateness.

Still descending, we gain a stone bridge crossing a little stream, and stay awhile admiring the picturesqueness of the whole scene—the great cathedral occupying the summit of the hill and the centre of the city, towering like a mighty giant over the dwellings of the people that seem to cling to it for protection, and, nearer in view, the apsidal east ends of St. Aignan and St. Pierre.

Towards the latter we now bend our steps, glad to escape

from a dusty and uninteresting boulevard into the old town again. St. Pierre is a grand church, resembling in plan some of those built by the Preaching Orders in Belgium and Germany, and consisting of a lofty clerestoried nave and chancel under one line of roof, the separation between the two being marked by a slender flèche. There is a very early tower at the west end, but it only rises to the height of the present



Chartres : A Note in the Nave.

nave clerestory. The oldest part of St. Pierre is the arcade and apse of the choir, in very early First Pointed. More advanced than, but not unlike that of the cathedral, is the nave arcade, with its towering clerestory of tall windows—broad lancets in couples, with a very small circlet within the discharging arch. Next in point of date is the Middle Pointed glazed triforium and clerestory of the choir, forming a perfect lantern of old glass little inferior to that in the cathedral. We stroll for a short time round the aisles of St. Pierre, where in the lady chapel are the celebrated Limoges enamels, now covered with white veils. Having seen these interesting enrichments on a previous visit to Chartres, we do not accept the polite invitation, "Pour voir les émaux il faut s'adresser au sacriste : sonnez S. V. P."

Returning to the cathedral at the conclusion of a *petit premier déjeuner* in the courtyard of the Grand Monarque, we circumambulate the choir aisles with their matchless sixteenth-century screens—a New Testament history in stone—and presently arrive at the celebrated black image, "la Vierge Noire du Pilier."

(*To be continued.*)

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last at 9 Conduit Street, Mr. G. H. Fellowes Prynne, president, in the chair.

Messrs. L. Blanc and Woodroofe were elected members.

A vote of thanks was passed to Mr. Batsford for the donation of several books to the library.

Mr. Paul Waterhouse read a paper on

Oriel and Bay Windows.

There is something unusually humane about the rule of the Association which lays before the readers of papers not merely he duty of producing an oration, but the subject of the discourse. The ordinary untempered request for a paper brings with it a double horror, for with the honourable burden itself there comes the duty of selection—a duty which, as the paper writer passes in review the possible titles of possible essays, so fills him with the sense of his own ignorance that the process of choice becomes merely a process of rejection, followed eventually by recourse (or shall I say relapse?) into some faltering selection of a theme where for the moment the mist of nescience seems to hang less thickly than over the surrounding regions of architectural learning. The course adopted by the Association is more humane. The committee gives one a subject—by what process of papers in hats or balls in ballot-boxes I do not profess to know—a subject and a man are mated and for better or worse are introduced to one another. There is a blessing in the system—it saves a world of trouble, and is the means of introducing a large number of middle-aged practitioners to subjects of which they had previously no knowledge whatever. For the writer who is faced by an unresponsive title goes to his "Parker's Glossary" and his "Architectural Dictionary," drinks eagerly if not deeply at these fountains of knowledge, and comes smiling to his audience, refreshed with the sense of having put himself at least abreast of common knowledge in the subject which he has so lately made his own.

Alas ! for the students of oriels and bay windows ; the dictionaries give them but cold comfort under either heading. You will find there, to be sure, a wonderful turmoil over definitions and derivations. You will learn there that some consider the word oriel to be originally and properly applied to the projecting windows of Mediæval dining halls, or to that part of the refectory occupied by the monks who were slightly indisposed, while others hold that it originally connotes a recess for an altar or for prayer, whether a window or not, and that it certainly cannot properly be applied to the bay window of a banquet hall.

Orare, to pray, is, say some, the foundation of the word, making it, apparently, synonymous with "oratory," while others see in it the Saxon for an "eye-hole," though why they should overlook the fact that oreille (a seventeenth-century spelling of the word) means an ear and not an eye, nor why again the oriel window should be considered more of an eye-hole than any other kind of window is more than I can say. Another derivation connects it with *areola*, a diminutive of area, which in certain senses is equivalent to the "halo," of Greek origin—and, indeed, the similarity of the term aureole (undoubtedly based on *a reola*) favours this source, which is probable enough when one considers that circularity is the essence of the "halo."

Plunge, if you desire it, into the controversy on this topic in the sixth series of "Notes and Queries," and you will learn at least enough to induce you to drop the use of the word altogether.

Probably you will conclude with me that the ancients used the term a good deal more loosely than even we are tempted to do, and that an oriel like a "yorker" and a "gentleman" is one of those things which can be better understood than defined; also that it makes no great matter, for example, whether you restrict the term to bay windows which are corbelled out, or extend it to those whose form continues down to the ground.

Busybodies have been at work, too, even with the innocent term bay window, which most people can understand by the light of nature as meaning a window whose bulging form, whether polygonal, semicircular, or segmental, produces on plan a bay-like addition to the room it affects. But some wiseacre has produced a glossary of terminology to qualify the word. We are taught, for instance, of the "square bay" and the "canted bay," of the "compass bay" and the "square and compass bay," of the "bow bay" and the "square and bow bay," and, lastly, of an elliptic horror entitled the "cabinet window."

A modern tradition often enforced upon young gentlemen under articles of pupilage confines the term "bow" to the circular forms, and "bay" to the rectangular or polygonal, while yet another refinement of etymology would banish the word "bow" altogether.

Let it suffice to say on this unprofitable topic that the ancients call them all bays, whether they had or had not angles in their composition, and that there are many examples to which we cannot deny ourselves the luxury of applying the gracious and expressive term bow.

Thinking the matter over it has seemed to me that we may well avoid in this evening's discussion both the etymological question and the archæological. An historic treatment seems undesirable, and even the constructive aspect, important as it is, may well be laid aside for a season in favour of the attractive subject which I may call for want of a better title "The Morality of the Bay"—I mean its properties and its proprieties, and the rights and wrongs of its uses and significations.

Has it ever occurred to you in thinking about bays that they are bound to be either the glory or the shame of the building to which they are applied ?

A bay window is, in the literal sense of the word, an extravagance, by which one means not merely the escape of

money from somebody's pocket, but a deliberate variation and wandering out on the part of a building from the normal boundary lines of common construction.

Now, it is in the nature of extravagances of all sorts that they must either be successes or failures, and the rule applies to bows and bays. They challenge attention both from within and from without, and if the attention they attract amounts to unfavourable criticism they bring shipwreck on the building they encumber.

Let us think of the objects for which these excrescences exist. They are few, and consist of :—

1. The desire to increase either the size or the amenity of a room.

2. The desire to enable the occupants to look out obliquely or even sideways without putting their heads out of window.

3. The desire to attract oblique sunshine to a room ; or finally,

4. A desire which is at once the most attractive and sometimes the most fatal of all—pure ambition of a worthy or unworthy kind. Ambition is as happy in its literal application as was the word extravagance. Meaning as it does a certain "going round" it touches in its primary and literal no less than in its secondary senses the essence of the ambient bow.

It may seem absurd to some of you to go thus intimately into the rationalities of an architectural feature ; but I suspect that we architects can lose nothing by any attempt to study the true significance of any of the items out of which we compile our compositions. There is one special reason for thought in dealing with such a matter as this, namely, that if we find ourselves dealing with bay windows merely for looks, it is of vast importance to be sure of their excellence and of their propriety. I am not arguing that utilitarian reasons only are the proper grounds for their application, but wish emphatically to mark the necessity of insuring appropriateness in the bay which is merely a luxury.

We are all familiar with the commonest of all examples of inappropriate bays—I mean the almost invariable excrescence which decks the speculative villa. But let us be sure, in condemning it, that we condemn it on the right grounds. Ambitious as these features appear, there is generally an economic reason for their existence. Sometimes they are one storey high, sometimes two, and in either case the use of this unlovely addition is generally dictated by one of architecture's fundamental laws—the economy of space—which is the economy of material. The one-storey bay tells the passer-by, not merely that the speculative builder wished to give a spurious gentility to his drawing-room at the expense of the garden, but that, desiring to put on the ground floor a room of larger capacity than that of the floor above, he hit upon the bay as the best expedient. Even where the bay is two floors high, thus belying the reason just given, another cause may be at work. Without the bay there would have been the need of making the wall of the large front room line with the wall containing the front door; in other words, the room would have had to be cramped, or the entrance lobby unduly lengthened. In fact, the common villa bay, so far from being an ambitious luxury only, is generally born of the desire to keep down the cubic contents. So much for its shape, its plan and its capacity; as for its decoration that is another matter. That it is generally stop-chamfered on every stop-chamferable surface, that it has what they call a patera in the middle of every lintel, and that it boasts of columns of the fern-leaved order of Gothic—all these things are to its shame, but they do not disqualify its original title to existence. Some one should write an article, or even a book, on the cost of ugliness. The pathetic squalor of middle-class homes is greatly due, not to the absence of unattainable embellishments, but to the addition of the undesirable. I know a town in a good stone country, inhabited by persons of comparative wealth (for it is the country home of a neighbouring business centre) the architectural appearance of which has been hopelessly ruined by sins not of omission but of commission. I suppose that if, on an average, 10*l.* less had been spent on every one of the houses in that place, it might have been comely, whereas to-day it is loathsome. It bristles with bay windows, of course, and they have nearly all got stone dressings, but there is scarcely a square arris to be found in the town, and not a chamfer but is mutilated with fancy stops. If all these chamfers had been run out to their legitimate terminations, or better still, if half of them had never been at all, if all that square sunk foliage had never been square sunk, if all those paterae (their creators call them "paterasses") had never been cut, the builders might have been richer, the rents might have been lower, and the town itself might have been natural and beautiful, instead of looking like the purgatorial region which lies between the Angel at Islington and the Seven Sisters Road.

Alas ! for the villa bay ; its existence is justified, but its usual development is one of the darkest sins of architectural wantonness.

I have mentioned as one of the legitimate causes of the bay window the desire to obtain an oblique view from the room. To this cause is due the well-known and often gracious feature which one may call "the seaside bay" ; with this we are all familiar, and happily we are able, among the bays of this class, to distinguish a successful as well as a disgraceful variety. The Englishman's cultivation of the seaside dates practically from the last century, and probably the desire on the part of landladies to claim a sea view as an excuse for additional rental is coeval with the birth of watering-places. It is to this excusable rivalry in the possession of a glimpse of salt water that we owe in most marine towns the amiable bellied fronts of the streets which run at right angles to the coast line. Without the use of bay windows a sea view in such streets would be impossible ; with their employment comes the possibility of such a view—a little strained perhaps in the further buildings, but still appreciable, just worth having and just worth paying for. Indeed, so identified in our minds is a street of bay windows with the mental image of a seaside spot that the very look of certain houses suggests the sea as much as do bathing-machines and a smell of tar. There are people who will tell you that they can smell the Channel on the north side of Hyde Park, but it is more a question of eyes than nostrils. It is, in fact, the existence of a row of smiling, sunlit houses planted along one side of a broad street only, and, above all, the prevalence of bay windows, and especially of bay windows in certain transverse streets that cultivates the illusion—one falls irresistibly into the trap. You remember how in "Liberty Hall" the old man says there are more "burials" than "blooms" in Bloomsbury. One might transfer the pun to Bayswater where there are more bays than water, but the former do so connote the latter that they set one at least thinking of sand and waves, though all the time the houses are bowing and bellying and jostling round one another's shoulders for a peep, not at the blue ocean, but at the green trees and grass. Oh, these seaside bows—the real ones, not the Hyde Park ones—how well we know them. The modern varieties are tall and pert, not circular, but octagonal and bastard octagons at that, with one gaunt oak-grained sash in the centre light and two thin and equally tall ones in the side lights. And then the brickwork all covered with pale stucco, and the weak lead roof that lets the wet through. The old ones, how different and how insidiously attractive. As I write I think of one which, on plan, is about a third of a circle ; it is divided into three sashes of equal size, all made circular of course, and between them comes no brickwork but just the sash boxing, so that, in fact, the entire construction is of wood ; on the floor above the running of the front room over the entrance passage made the bay unnecessary for space, but unwilling to give up the lines of the bay, whose delicate curve means so much to the expression of the house, the designer continued the treatment, and added to its emphasis by a light metal roof of similar form, covering a curved balcony with a balustrade of ironwork. A great deal of the charm lies simply in the shallow curve and in the appreciation, however latent, of the slight extravagance of the circular joinery. The cheap or inexpensive building of last century or of the early nineteenth century seems never to have denied itself circular joinery ; but to-day—probably owing to the prevalence of machine-made mouldings—circular work is apparently the first thing one has to give up in the attempt to save money. In the circular sashes one's satisfaction rests not merely in the delicate form of the sweeping segment, but also mentally—and perhaps unconsciously—in a sense of the added labour, in which there is a gleam of Ruskin's lamp of sacrifice. Not that the later nineteenth century knows no extravagances. The householder who shrinks from laying out money on the refinement of a long-radius curve would scorn to be without his stained-glass "kingfisher" in the panels of the front door, and will probably run to tile risers for the steps. Can it, oh, can it be a fact that every age of building finds at last some corresponding period of admiration, and will it ever be the lot of some degraded generation to cherish a cult of to-day's abominations? Will there some day be talk among the as yet unborn of the good old days of our great-grandfathers and their cathedral-tinted door panels, their delicately tiled halls, their winsome stop-chamfers and their charming bay windows, the angle piers of which were formed sometimes of quaint wire-cut bricks, covered with grey cement rendering, and sometimes with dainty cast-iron columns with neck mouldings four times the true Palladian size, and branching capitals cast in the similitude of the common polypody ?

Such a day I hope can never come ; or rather, when the time does come for our great-grandchildren to pass judgment on what is left of the bricks and mortar of to-day, they will have before them such a vision as we cannot have in any of our retrospects. There is in the work of to-day a visible contrast between the good and the bad such as is not to be found by any searcher of our time in the recesses of our past. The contrast-line, unhappily, does not lie between architects' buildings and builders' buildings ; for, to our shame be it spoken, there are things bred on the drawing-board of men with brass plates which have to find themselves classed on the wrong side of the line. But that the contrast exists there can be no doubt, nor can there, happily, be a doubt that there are many beautiful

things—bay windows among them—which will do as happy resting-places for the eyes of our antiquarian descendants.

But we are getting away from the bays, which, to do them justice, set one thinking and drive one's thoughts afield. In bays of the circular form—and, indeed, in polygonal ones as well, but perhaps specially in the former—it is important to remember, as a designer, that the plan form, whichever is adopted, is the most important thing about them; that it must be cherished and led up to, and that finally it will accomplish more of its mere self than a person of moderate experience would expect. Perhaps it seems unnecessary to say this, but there is a special reason for emphasising the observation. In the actual process of designing we deal necessarily with orthographic elevations as a means to our end. A bay window put on to an elevation is a comparatively dull thing. You, as architects, realise its circularity on your own or other men's drawings, especially on your own, by the toil of drawing in the mullions in oblique elevation. But the drawing does not tell its full tale of effect, and you may be tempted to attach an (apparently lacking) interest to the member by some addition to the simplicity of its lines—some crowning feature, for example, or an addition to the centre of the cornice, if there is one. In this there is danger of error. The circular or segmental plan once adopted, you cannot serve its end better than by the accentuation of the horizontal lines which partake of the circularity. Herein lies the difference, or one of the main differences, between those old bays that we admire (be they stone and Tudor or wood and Georgian) and the modern horrors in which hang the "apartment" labels. The modern bay makes for height in its apertures; it avoids bars, specially horizontal bars, in its glazing; transomes are probably altogether absent, and the piers are made thick and heavy so as to break even the moderate continuity of the sashes meeting rails and of the heads and sills. With the older types this is different. Copious window bars (or in stone-work well defined transomes) perform the double office of breaking up undue verticality and of emphasising the plan form of the bay, while the small piers, mullions or sash boxes only produce as much intermission as the eye (that unconscious arbiter of stability) demands as a guarantee of sound construction and as a preventive of the worst of all faults—the over-bowing lintel. If you do not know what I mean by this last, ride down Oxford Street on a 'bustop and look at the excrescence which is the sole feature of the Frascati restaurant. To design a bay of this description you take a centre on the frontage line of the building (or a little outside it if you prefer to increase the effect), and turn a wall circle the inner radius of which is only about three times the length of the thickness of the wall. Here you have produced on plan a semicircular bay which you proceed to embellish by the insertion of one mullion. To be sure, the omission of mullions altogether would have made the thing more startling, but the one mullion gives the public enough to reflect about with some sadness. As they pass the building they naturally and generally view it obliquely; the eye glancing across the curve which looked so fair on plan, and at least respectable on elevation, takes a straight line from the edge of the single mullion to the jamb, and above it they see transome and head vaunting their unsupported circularity.

This sad example leads to what one may call an axiom of all good circular work, that the vertical supports must always be sufficiently close together to prevent the appearance of the horizontal members being unsupported. This rule is in one sense the counterbalance of what I mentioned before—the need of emphasising the horizontal members; but it is surprising how little, how slender the vertical supports may be and yet satisfy the eye in this matter. In the old inn windows of many a coaching hostel the slimmest glazing bars between the glass panes are enough to prevent the eye being troubled by any optical instability. In the splendid segmental or semicircular bays, which are the glory of some of the country houses of our English Renaissance, the mullions are always so placed that there is no chance of offence in this respect. It should be borne in mind that the relative closeness of these vertical supports is necessitated and regulated, not by the measurement of the length of segment, but by the length of its radius. The flatter the bay, in other words, the less need for the frequent support.

It will readily be understood that the greatest importance attaches to the way in which a bay is covered in. Obviously a bay, like other structures, can be roofed in either of two ways—either with a flat roof or a sloping one. If your bay extends upwards to the whole height of the building its roof may possibly form a part of the general roofing of the house. This, which is often a successful treatment, needs handling with great caution, especially if the bay be large and the building comparatively small. In a very large structure the roof of the bay, whether polygonal or circular, can appropriately be formed as a member growing out of the rest of the roofing; or it may even, if the plan of the bay be part of a regular polygon, or of a circle, take form as a turret, and rise above the apex of the normal roofing. It is, however, very often the lot of a bay window to be the largest feature, or one of the largest features, of a comparatively small house, and in such a case the use of a high-pitched roof of such wide span, with eaves at the level of the general eaves, will often result in the production of a feature whose size will swamp not only the building, but with it the bay itself. It may easily happen that the architect finds himself driven to the use of a flat invisible roof for his bay for this very reason, that any form of sloping roof would work itself out into something too gigantic for the scale of his building.

There is one treatment, popular some few years ago, which I think we may unhesitatingly condemn as inappropriate in nearly all cases. It abounds in the neighbourhood of Fitzjohns Avenue, and consists in the cheerful expedient of clapping a gable of the full width of the bay on to the unfortunate erection, which is placed in the difficulty of reconciling its own polygonal form with the square structure which surmounts it. The problem is usually resolved by one or two expedients. Either the canted angles of the bay are treated as gigantic chamfers and brought to the square by the usual latter-day expedient of a vast stop, or corbelling, or the gable, which is at times half timbered, gets its triangular soffits supported by a bracket. These expedients, particularly the bracket business, are unhappy at best, for they cast a shadow on to the splayed windows, besides offering gratuitous harbourage to sparrows and their nests. If a bay must be surmounted by a gable, there are ways of getting over the difficulty. One may make the bay itself square and so produce one of the most beautiful features that can be devised. Indeed, so successful is the appearance of the square bay under a gable that where this form is used one can tolerate a greater width in the gable, and a resultant soffit on either side, though the triangular soffit left by the polygonal bay is so far from tolerable. All good rules have their exceptions, I suppose, and there are buildings of bygone days which successfully carry through even the problem of the square gable on the canted bay. You may see an example in the Talbot Inn at Oundle, of which I have provided a sketch. The homely satisfaction of this building goes to prove that our forefathers could sometimes succeed where their descendants generally fail.

On the whole, one of the most beautiful treatments, though a very unusual treatment, of a gabled bay of polygonal form is that of which one finds an example at Weston, an old house between Leeds and Ilkley. In this case the front or flat wall of the bay runs up to form the gable face, and the splayed sides are surmounted by parapetted wings with finials. The wings having horizontal copings do not, of course, exactly follow the line of the roof. Viewed from the back, if one could so view them, they would present the appearance of triangular blanks, but there is no great harm in this, nor indeed would there be any harm in their following the roof line. A gable formed on a canted plan is often very successful, as those will agree who know the gabled apse of St. Michael's Church at Folkestone, where the gable is like this at Weston, so to speak, three-sided.

In cases where the bay we are dealing with has walls which are lower than the main walls of the building the roofing difficulty is often nearly as great, at least, where pitched roofing is attempted, and the difficulties in this case are caused by the intersection of the bay roof with the vertical face of the main wall behind. It is obvious that the roof of a segmental bay, if projected at an oblique angle on to the main wall, produces nothing more or less than one of those eccentric outlines which the geometricians know as conic sections. With a polygon—if it be (as it generally is not) the exact half of a regular figure—there is no great difficulty, as the centre of the figure will lie on the wall line, and the roof can be brought up to a true apex with regular mitres on the hips. When the figure formed by the plan of the bay is something less than the half of a regular polygon a little cooking is sometimes indulged in, with results which are elegant on the elevations but disastrous in the eyes of ordinary spectators, who cannot be induced to see things as they would appear on a drawing-board.

Generally speaking canted bays are not parts of regular octagons, but have their canted sides less than the front. In such a case there may be a small piece of straight return between the cant and the wall. It then becomes necessary to regulate matters so that the hips of the canted sides shall exactly meet on the wall-line, otherwise a roof is produced which nothing but cooking can save, and which the said cooking will generally shipwreck.

In this connection it is well to observe that many of the best old examples, particularly in Tudor and Renaissance work, have no square returns at all, and further that the angle of the cant is frequently flatter than 45 deg. There is, to be sure, an objection to the practice of allowing a very flat cant to die into a wall face without the intervention of a square return, namely, that the mouldings of the bay become unduly developed in their incidence upon the wall. This difficulty has to be met either by extreme modesty on the part of the mouldings, which have, in fact, to moderate their projection, or by continuing the same mouldings on the wall face as strings or cornices.

On the whole, there is a good deal to be said against pitched

roofs for bays of the lower description, unless it be in the case of those with roofs of weathered masonry. In these, it need hardly be pointed out, the planning must be done in strict regard to the form which will be brought about by the intersection of the roof slope with the back wall.

There is one simple consideration which often altogether upsets the possibility of applying a sloping roof to a bay, namely, the height which such a slope occupies upon the wall-space. If your bay projects 3 feet, it is obvious that with a slope of anything over 45 deg., a pitched roof with its flashings will make a window for the room above almost an impossibility unless its sill be at an unusual height from the floor.

The corbelled windows, to which we generally and perhaps incorrectly apply the term "oriel," are frequently covered with high-pitched roofs of masonry, but with this exception the bays of Mediæval, Renaissance and Georgian architecture, in fact, all the best bays of our ancient periods are covered with flat roofs, or with roofs so flat as to be invisible behind their parapets.

The roof in these cases being of no account architecturally it remains to be considered how the parapet is dealt with. Some of the best examples in this, as in other departments of architecture, are the quietest. I noticed the other day, in a remote East Coast village, a plain brick house, whose only challenge for attention was a front door and two bays. The bays were canted and very flat, and they extended to the whole height of the wall, in fact, their coping, a 3-inch York stone, was level with and identical with that of the main house wall. Our modern Georgians would have put a ball at each of the angles, and the balls would have looked very well, too. I should not blame them. The composition I am speaking of, simple as it was, did without the balls, and looked as nearly perfect as things of the kind can look.

It was as if a plain brick front, adorned only with its necessary openings and its equally necessary coping had been taken and bent in two places to form the bays which, with the door, were the only ostentations of the house. The roof, of course, ran straight, and the slight projections of the bays were covered by a lead flat, which was little more than an extension of the gutter of the main roof. In these cases we have the simplest treatment, which, however successful, is no argument for the suppression of all more ambitious conceits. Parapets in all ages have been things to play with, and the bay being the luxury-point on a house's front is not the feature to forego all license. Our old friend, the battlement, used even by the ancients as much for ornament as for the defensive objects which its warlike name implies, is a frequent infester of the tops of bay windows. He is not inadmissible, but he should be used with care. Too big he becomes gigantesque and ludicrous, too small he is liliputian and again ludicrous. Even when the proportions are sound he may break up indecently the horizontal continuity which I have spoken of earlier as one of the secrets of success in a bay. Open work of most kinds in the parapet involves piers, and these again, though very valuable in the canted bay as implying strength at the angles, may introduce an ill-placed verticality. Our modern trick of the festooned or swooping outline is sometimes happy but is better employed on the straight-sided bays than in the circular, and the same may be said of finials (balls or other forms) unless they occur with such frequency as shall cause an effect of series so as rather to carry the eye along the line we are emphasising than to interrupt that emphasis.

Where indulgence is taken in open-work parapets or in finials or other means of breaking the outline, it is still possible to maintain the emphasis of plan form by a cornice of some vigour. There is, especially in the circular forms of bay, a marvellous charm in the simple bending of a moulding, however unelaborate, to the selected form. Even a plain unmoulded band, say of stone, among brickwork has its value, and in cases where the bay is not mullioned, but pierced by large sash openings, it is difficult to overestimate the importance of all the horizontal bands in giving continuity to the form. A base will often help—even a simple plinth with the smallest possible projection; just enough to catch the light and continue, so to speak, the message of circularity.

It is time to say something of those bays whose form is not continued downwards to the ground level. The simplest way of treating such a feature is obviously to cut it off flat, and, strange as it may seem, there are many examples of such bays on a small and homely scale and in wooden construction which are singularly successful and happy in effect. The bare idea is contrary to one's notions of propriety, and the bald simplicity is helped in many cases by a slender wooden corbel or cantilever, which makes no pretence of really doing the work; but the fact remains that in many old villages, such as those which happily still surround London, there are small bays of this description with absolutely plain soffits which are not by any means unpleasing in their appearance.

The corbelled-out bay, to which, as I have mentioned before, some authorities restrict the name "oriel," is a more favourite feature in foreign architecture than in our own. If you look through the pages of those two monumental works on the Renaissance, I mean the Denkmähler Deutscher Renaissance and Mr. Gotch's book on our English buildings of the same period, you will be struck by the fact that, whereas bay windows abound in both, the German examples are very largely of the corbelled-out variety, while the English ones are almost invariably of the simple, solid, down-to-the-ground type. Where the Englishman broke loose was in his timber-work; his bays in wood-work are sometimes marvels of projection, but in stone the Briton was ever more modest than his foreign rivals. It may be said to the credit of the English that they have never been over-reaching in the matter of corbels. Visible stability, even in the wildest days of the Early Renaissance, has always been as much reverenced in English architecture as it was ignored elsewhere. There are nations whose natural impetus has led them in architecture to the production of portents. It has been their aim to make stone to look like a lace pocket-handkerchief, or to run it fine with corbels in real buildings as a child sports with gravitation in his box of bricks. These tricks have not been English tricks, and where they grow on English soil they are of foreign planting. We may be known by our bays and bows as by other things, and our solidity is something of a virtue. At the same time one must allow a certain beauty to even the extravagant German frolics. Those bays in particular which grow out of the angles of a building are sometimes of singular grace, and when they are of the square type are often so arranged as to do no violence to the sense of stability.

I had promised not to go into the construction question, but there are one or two points of appearance so closely allied to construction that I cannot conclude without a reference to them. First, as to the bays at the angle of buildings. It is a common fault, and a perfectly avoidable one, to so place a bay at the corner of a room that the carrying of the wall angle above it becomes to inquiring spectators a matter of conscious or unconscious anxiety. Of course one knows there is some jugglery of rolled steel joists going on out of sight, but there is no reason why the unconscious faculty which asks building construction questions on its own account should have been worried at all. It is perfectly easy to so plan a bay, circular, or square, or polygonal, that the normal wall angle shall be either upon or slightly outside the line of the bay. This gives no detriment to the effect within, and is a great relief to the spectator outside. To have anything so cardinal as the angle of a building apparently descending into the untrustworthy embrace of the lead flat over a drawing-room bay is, to well-ordered minds, a sin.

There is also sometimes a sin in the popular collegiate device of a corbelled bay over an entrance archway. It may be all right in appearance, as well as in construction, particularly if the corbelling is not pressed too hard on to the arch. If well arranged the corbel and its burden seem only to be paying a compliment to the stability of the arch, but if once you get anything approaching to a collision between the arch moulds and the corbel the result is measurably weak—at least in looks. If close quarters are essential some form of keystone treatment is the only possible expedient. One may make a Classic or semi-Classic keystone the base of a corbel where it would be impossible, on grounds of appearance, to let a corbel take liberties of trespass with a Gothic arch.

It is time for me to draw these rather rambling remarks to a conclusion, and I feel the lack of any great central doctrine or leading truth with which to pull the subject together. These bays of which we have been speaking grow more in the house than in the palace; indeed, the monumental styles of architecture find less opportunities for their use than the more strictly domestic. The bay has no place in the Palladian method, and though one may find here and there a Classic clubhouse whose smoking-room has an excrescent window claiming the name of bay, you will discover it to be disguised outwardly by some tortured colonnade whose insulted entablature seems to be only waiting for the time when it may be allowed to go back to the straight again. Gothic architecture and the freer Renaissance styles gave the opportunity of using bays even in buildings of size and dignity, but the bay as we have ordinarily to deal with it is the appendage of a house—of a home.

Its importance as part of a design can hardly be exaggerated. It is, if one may use a homely simile, like the nose on a face. Add 10 per cent. to its size, or take a degree from its flexure and you may ruin the countenance—I should say the elevation—to which it belongs.

A young architect not infrequently opens practice by "throwing out a bow" for a relation. The simple manœuvre is thought to be a safe task to entrust to an unrisen genius. Confiding friends! They little know the risks they run. To be sure, the money-hazard is less than that of the cost of a house, but they little understand the test to which they put their aspiring architect. You know Tennyson's poem of the flower in the crannied wall—

> "If I could understand," he says,
> "What you are, root and all, and all in all,
> I should know what man and God is."

The knowledge of the little is a test, a proof, of the knowledge of the great—of all.

So with your bit of a bay window. It isn't any fool's job. There is a task for eye and hand, a task for the senses of proportion and propriety, a task, in fact, for all the powers that go to make an architect even in the least of these trifles. Bays and oriels are not to be despised. If a man can design them it is, perhaps, a sign that he can design most things.

"Throw out your bays" by all means, and if you can do them worthily you are probably capable also of throwing up your town halls and your palaces.

Mr. Leonard Stokes, who proposed a vote of thanks to Mr. Waterhouse, said he was rather annoyed with the sympathy shown in the paper for the jerry builder. The villa bay did not give more floor space, and it seemed useless to apply bays to a row of houses the occupants of which often covered them with curtains. There was a kind of bay — the one in an angle—which might be called a gulf, and he advised all to avoid it, although in the past similar windows had often been successfully placed. Nor was an angle of 45 deg. a happy one. If the student could not design a bay, then perhaps it would be better for him to give up architecture. Simplicity of treatment was to be advocated whenever a bay had to be designed.

Mr. F. T. Baggallay, who seconded the vote, said all architectural and artistic ideas were inclined to relapse into a state of stagnation, and such a paper as they had heard that night was beneficial, as it helped to bring before them new and definite ideas. The question of the derivation of such words as oriel and bay windows was not of great importance, but it would be useful if there was a definite term for such bays as did not go down to the ground. Angular bays were very hard to do well, and resulted often in a disastrous effect on the whole building.

Mr. H. H. Statham said the question of the economy of space by a bay was one which rested chiefly with the client, who generally considered the room more commodious which possessed one. Segmental bays were good and often added a distinction to the house; a pleasing example was to be found in the narrow thoroughfare of Walbrook.

Mr. A. Payne said there were practical reasons why the bay window was used in London, and he thought their use would be even more common in the future. The introduction of the bay was the only way to overcome the difficult problem of frontage. The bay window could be used without encroaching upon the line of frontage, and thus avoiding dispute and the interference of district surveyors.

Mr. Thos. Blashill said he had hoped to hear a precise definition of what differentiated an oriel from a bay window. In cases of litigation which might arise it would have been advantageous to refer to such a definition. Bay windows added a variety to streets which otherwise would not have been obtained, and the builder's bay had many attractions for the small householder. Mr. Stokes, he said, had spoken about simplicity in treatment and proportion. Regarding the existence of the latter, he thought many were undecided. All things considered, the bay window deserved encouragement, more so perhaps when long street frontages had to be dealt with.

Mr. H. A. Satchell pointed out the advantage of bay windows at seaside houses. During the summer heat, when the south blinds would be drawn, a glimpse of the sea (one of the objects for which people went to the seaside) was still to be obtained at the eastern and western sides if the house had its bay window.

Mr. Fellowes Prynne summed up the discussion and put the vote of thanks, which was carried with acclamation.

Mr. Waterhouse briefly replied.

It was announced that the next meeting would be held on December 9, when Mr. Edwin T. Hall would read a paper on the "Position of Architecture among the Arts."

THE GLASGOW ARCHITECTURAL ASSOCIATION.

At a meeting of the Association held in the rooms, 187 Pitt Street, Mr. George S. Hill in the chair, a paper was read by Mr. Hunter Crawford (Edinburgh), entitled "Domestic Steam Heating and Hot-water Supply." Mr. Crawford pointed out and discussed the differences between heating by steam and heating by hot water. The extreme dryness of air caused by steam heating rendered it unhealthy, except where a good circulation of air could be obtained as in a hall or staircase. The rapidity with which the heat in a room could be raised by the steam was certainly one of the advantages possessed by the steam system over the hot-water system. The fact that water could be heated by steam to near boiling-point rendered this system of great use for domestic purposes in the kitchen and in the washing-house, &c. Mr. Crawford illustrated his paper by a finely-executed model, glass tubes being used in the place of iron piping, so that by means of coloured water the flow in the pipes was clearly indicated. Mr. Crawford, by means of the model, showed the several points which had to be borne in mind when putting in such an installation as was shown by the model, which showed a section of a house with radiators fitted into the different rooms, washing-house, boiler, &c., connected to a steam generator in the basement. Mr. MacGibbon, in moving a vote of thanks, which was heartily adopted, to Mr. Hunter Crawford, referred to the pleasure the Association had in receiving him as a delegate from the Edinburgh Architectural Association. The chairman intimated to the meeting the holding of a smoking concert in the rooms on the date mentioned in the syllabus, December 13.

ARCHÆOLOGICAL FORGERIES IN BERLIN.

From a supplement to the *Allgemeine Zeitung* we learn that Professor Furtwängler, who attacked the genuineness of the "Tiara of Saïtophernes" in the Louvre with such persevering valour that no one save, perhaps, on patriotic grounds, now believes in this too notorious diadem, has lately shifted the scene of his operations to Berlin, where, besides a large purchase of forged terra-cottas, a still more evidently counterfeit marble head has lately been acquired. It is a large female head over life-size, coarsely made up to a superficial likeness with the famous archaic priestesses or maidens from the Athenian Acropolis. The blue-veined marble and the obviously artificial nature of the crust of dirt which coats the head, alone show how gravely the present directors of the Berlin collections have allowed themselves to be misled. It would seem, to judge not only from recent purchases but from recent refusals to buy genuine antiques, that even Berlin must have yielded to the popular craze for the "æsthetically satisfying," as distinct from what can be scientifically guaranteed on historical or critical grounds. The scientific world was unprepared for the startling exposure of the new activity on the part of the forgers which Professor Furtwängler laid a few days ago before the Bavarian Academy. As in the case of the tiara, the new head in Berlin is assuredly not the sole product of its workshop. If, as hinted, "there are greater wonders there," the Bavarian Academy will be serving the highest interests of archæology by promptly publishing *in extenso* the opportune and important paper of which only the short *résumé* referred to above lies before the public at present.

GENERAL.

H.R.H. the Prince of Wales, president of the Imperial Institute, has, on the recommendation of the Executive Council, approved of permission being given for the twenty-first Annual Ecclesiastical and Educational Art Exhibition to be held at the Institute concurrently with the meetings of the Church Congress at the Albert Hall in October next. It is proposed to extend the time for which the Art Exhibition is usually open.

Painted Panels which were executed for the Pastoret Mansion, Place de la Concorde, Paris, and ascribed to Fragonard, have been sold by auction for 12,000 francs. In addition to allegorical figures were representations of "The Judgment of Paris," "The Crowning of Pan," "Hercules and Omphale," and "Cupid and Psyche." The mansion has been converted into an Automobile Club.

A Reproduction in bronze of the admired fountain known as "The Gooseman," in the market-place of Nuremberg (executed in the sixteenth or seventeenth century by Lobenwolf), has been lately erected in Fitzwilliam Square, Dublin, by the Commissioners, under the direction of Mr. L. McDonnell, architect.

The Election of a successor in the Académie des Beaux-Arts to the late M. Lenepveu, the painter of the "Joan of Arc" series in *The Architect*, will take place on the 17th inst.

Mr. W. T. Maud, the artist and correspondent to the *Graphic*, will read a paper before the Society of Arts next Wednesday on "Egypt and the Soudan in 1897 and 1898."

Sir A. M. Rendel & Son are to design the bridge which it is proposed shall cross the Nile by the Atbara for the railway to Omdurman. The foundations of the bridge are to be sunk by means of compressed air.

Mr. J. White, an Edinburgh builder, having offered 70,000*l.* for the two remaining plots of ground at the North Bridge—a sum which is 5,000*l.* below the sum originally fixed—the committee have recommended the acceptance of his offer.

The Duke of Cambridge, on Monday, opened a public institute which has been erected in Tooley Street by the united charities of St. Olave's and St. John's, and which consists of a large hall, a reading-room, a gymnasium, a library, a club-room and a billiard-room. In honour of His Royal Highness's visit, Tooley Street was gaily decorated with flags, banners, &c.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

BRADFORD.—Jan. 2.—Designs are invited for erection of a central fire-brigade station. Three premiums are offered, viz. 100*l.*, 50*l.* and 30*l.* Mr. George McGuire, town clerk, Bradford.

BURNLEY.—Jan. 14.—The Burnley School Board invite designs for a new higher-grade school and pupil-teachers' centre, to be erected in Ormerod Road, Burnley. Competition is limited to architects having offices within 60 miles of Burnley. Mr. E. Jones, clerk, Town Hall, Burnley.

HARROGATE.—Jan. 2.—Competitive designs are invited for erection of a pump-room, &c., the cost of which must not exceed 8,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* Mr. Samuel Stead, borough surveyor, Municipal Offices, Harrogate.

HULL.—Jan. 1.—Designs are invited in competition for a central public library in Albion Street. Premiums 50*l.*, 30*l.* and 20*l.* Mr. Sidney R. J. Smith, 14 York Buildings, Adelphi, W.C.

COMPETITION DECIDED.

YARDLEY RURAL DISTRICT COUNCIL.—In the limited competition for new public offices, depôt, fire station and mortuary to be erected in Stratford Road, Sparkhill, Birmingham, the assessor, Mr. W. Martin, has awarded the first premium to Mr. A. Harrison, 88 Colmore Row, Birmingham; the second and third premiums being equally divided between Mr. J. R. Nichols, 59 and 61 Colmore Row, Birmingham, and Messrs. Ingall & Son, 3 Temple Row, Birmingham.

CONTRACTS OPEN.

BANBURY.—For erection of a temporary annexe to the Exchange Hall, in the Waggon and Horses yard, for the Volunteer Bazaar. Particulars may be had by application to 38 High Street, Banbury.

BARNSLEY.—Dec. 12.—For erection of a tall chimney, and engine, dynamo and boiler house, storage-rooms and offices in Beckett Square. Mr. J. Henry Taylor, surveyor, St. Mary's Place, Barnsley.

BRADFORD.—For erection of six terrace houses at Aireville Road, Frizinghall. Mr. John Jackson, architect, Barry Street, Bradford.

BRADFORD.—For erection of shop premises, Westgate. Messrs. Isitt, Adkin & Hill, architects, Prudential Buildings, Bradford.

BRIDGEND.—For erection of a chapel at Blaengarw, near Bridgend. Mr. J. D. Salathiel, C.C., Blaengarw.

BRIDLINGTON QUAY.—Dec. 6.—For erection of four dwelling-houses and premises north side Horsforth Avenue. Mr. J. Earnshaw, architect, Wellington Road, Bridlington Quay.

BRIDLINGTON QUAY.—Dec. 8.—For alteration and additions to 5 Burlington Terrace. Mr. J. Earnshaw, architect, Wellington Road, Bridlington Quay.

BRISTOL.—Dec. 5.—For erection of a board-room and offices at Warmley. Mr. H. M. Bennett, Liverpool Chambers, Corn Street, Bristol.

BUXTON.—For erection of an electric-light generating station. Mr. W. R. Bryden, architect, 1 George Street, Buxton.

CAMBRIDGE.—Dec. 10.—For erection of residential hôtel and stabling near the Warren Hill station, Bury Road, Newmarket. Messrs. W. C. & A. S. Manning, architects, Rothsay House, Newmarket.

CAMBRIDGE.—Dec. 12.—For erection of a new dining-hall, chapel, kitchens, students' rooms and other additions to Girton College. Messrs. A. Waterhouse & Son, architects, 20 New Cavendish Street, W.

CANTERBURY.—Dec. 6.—For completion of the buildings at Kent College. Mr. Charles Bell, architect, 3 Salters' Hall Court, Cannon Street, E.C.

CARDIFF.—For erection of a Presbyterian Church of England, Roath Park. Messrs. Habershon, Fawckner & Groves, architects, Pearl Street, Cardiff.



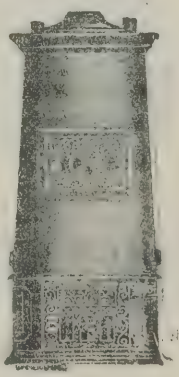
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CARLISLE.—Dec. 12.—For erection of seven dwelling-houses at Furze Street, Greystone Road. Messrs. Johnstone Bros., architects, 39 Lowther Street, Carlisle.

CORNWALL.—Dec. 10.—For erection of church schools and cottage at Troon, Camborne. Mr. Horace W. Collins, architect, Penryn Street, Redruth.

COVENTRY.—Dec. 6.—For laying a wood-block floor and providing and fixing a bath, together with connections for hot and cold water, at the nursery of the Coventry workhouse. Mr. James Arch, clerk, board-room, workhouse, Coventry.

COVENTRY.—Dec. 13.—For construction of five sub-stations for the Electric Light Committee. Mr. J. E. Swindlehurst, city engineer, St. Mary's Hall, Coventry.

CROYDON.—Dec. 7.—For erection of a new ward pavilion and additions to administrative block and corridor at the Borough Hospital. Mr. E. Mawdesley, town clerk, Town Hall, Croydon.

DARTMOUTH.—Dec. 24.—For ventilating, painting and repairing the Guildhall and offices. Mr. T. O. Veale, surveyor, Castle View House.

DEWSBURY.—Dec. 5.—For alterations and additions to two lock-up shops in Crackenedge Lane. Messrs. C. H. Marriott & Son, architects, West Park Street, Dewsbury.

DORKING.—Dec. 8.—For erection of labour shed. Messrs. Bargman & Benison, architects, 76 South Street, Dorking.

DUBLIN.—Dec. 5.—For erection of buildings for an electric-power station, brick chimney, &c., near Sutton railway station, co. Dublin, for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

DUBLIN.—Dec. 10.—For erection of an iron shed at the rear of North Clarence Street. The City Architect, Municipal Buildings, Cork Hill.

ECCLES.—Dec. 12.—For erection of a bowl-house and pavilion on land in Edison Road, Patricroft, and for the construction of a bowling-green on land in Edison Road, Patricroft. Mr. G. W. Bailey, town clerk.

EDINBURGH.—Dec. 12.—For erection of the new engine-house, traverser, paint shop, stores, offices, &c., at Henderson Row power station. Messrs. Colam & Cooper, 1 Parliament Square, Edinburgh.

ELGIN.—Dec. 9.—For erection of villa. Mr. Charles C. Doig, architect, Elgin.

ELGIN.—Dec. 8.—For erection of duty-free warehouse and drainage works at Parkmore Distillery, Dufftown. Mr. Charles C. Doig, architect, Elgin.

FULHAM.—Dec. 14.—For erection of a refreshment pavilion, Pryor's Bank, Putney Bridge. Mr. Chas. Botterill, Town Hall, Fulham.

FULHAM.—Dec. 14.—For erection of about 142 feet lineal of brick fence wall, 7 feet high above ground line, in Fulham Palace Road. Mr. Charles Botterill, surveyor, Town Hall, Fulham.

GLASGOW.—Dec. 5.—For erection of conveniences in various children's playgrounds in the city. Office of Public Works, City Chambers, 54 Cochrane Street.

GREAT GRIMSBY.—Dec. 8.—For erection of hotel, houses and shops, Blundell Street and Calthorpe Road; also hotel, Withernsea. Messrs. Croft & Bentley, architects, 21 Osborne Street, Great Grimsby.

HALIFAX.—Dec. 5.—For erection of twenty-five through houses in Queen Street and Middle Dean Street, West Vale, Greetland. Mr. S. Wilkinson, architect, Sowerby Bridge.

HALIFAX.—Dec. 5.—For erection of detached villa residence and appurtenances on the Greenroyd Estate, Skircoat. Messrs. G. Buckley & Son, architects, Tower Chambers, Halifax.

HAMMERSMITH. — For construction of underground sanitary convenience at the eastern end of Shepherd's Bush Green. Mr. H. Mair, surveyor, Town Hall, Hammersmith.

HARROGATE.—For alterations and additions to Victoria Hall, James Street. Mr. T. Edwd. Marshall, architect.

HEREFORD.—Dec. 28.—For erection of two new blocks and other additions at the Hereford County and City Asylum, at Burghill. Messrs. Giles, Gough & Trollope, architects, 28 Craven Street, Charing Cross.

HULL.—Dec. 5.—For erection of banking premises in Savile Street. Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowlalley Lane, Hull.

HULL.—For alterations and additions to the Imperial Hotel. Messrs. Walker & Dossor, architects, 2 Manor Street, Hull.

INVERNESS.—For erection of a hotel at Mallaig, the terminus of the West Highland Railway; additions and alterations to Traigh Lodge on the Arisaig Estate; and additions to Killichonate Lodge on the Inverlochy Estate. Mr. Dun. Cameron, architect, Inverness.

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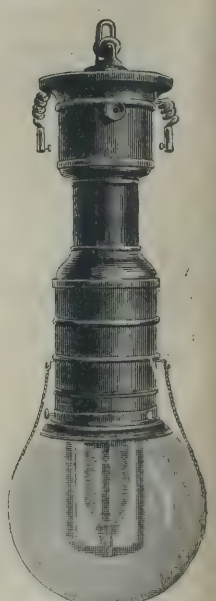


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IRELAND.—Dec. 7.—For erecting gate and piers and repairs of roof and tiles of Rathkeale cottage, Kyletaun. Mr. T. B. Naughton, clerk.

LANCASTER.—Dec. 13.—For erection of Nazareth House, to be built of stone. Messrs. Austin & Paley, architects, Castle Hill, Lancaster.

LEEDS.—For erection of eight scullery houses in Meanwood Road. Mr. Percy Robinson, architect and surveyor, 72 Albion Street, Leeds.

LEEDS.—Dec. 5.—For alterations and additions to the vagrant wards, porter's lodge, &c., at the Holbeck workhouse. Mr. Richard Wood, architect, Commerce Chambers, 3 Park Lane, Leeds.

LEEDS.—For erection of a cottage residence at Horsforth. Messrs. H. & E. Marten, architects, 5 and 7 Charles Street, Bradford.

LLANDRINDOD WELLS.—For erection of baths, lounge, dressing-rooms, &c. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport, Mon.

LLANELLY.—For alterations proposed at 16 Station Road and 14 Stepney Street, Llanelly. Mr. Wm. Griffiths, architect, Falcon Chambers, Llanelly.

LONDON.—Dec. 5.—For construction of underground public conveniences for both sexes in Broad Street, Golden Square. Mr. T. Hensman Munsey, vestry clerk, Vestry Hall, Piccadilly, W.

LOUGHBOROUGH.—Dec. 6.—For erection of infants' department at Rosebery Street schools, for the School Board. Messrs. Barrowcliff & Allcock, Mill Street, Loughborough.

MIDDLESBROUGH.—For erection of laundry at the workhouse. Messrs. R. Lofthouse & Sons, architects, 62 Albert Road, Middlesbrough.

MIDDLESBROUGH.—Dec. 5.—For erection of offices. Mr. Edward Whipham, architect, 59 High Street, Stockton-on-Tees.

MORECAMBE.—Dec. 10.—For alterations to 5 West View Terrace. Mr. A. Launcelot Lang, architect, 12A Pedder Street, Morecambe.

OVENDEN.—Dec. 9.—For erection of a pair of semi-detached villas on the Watkinson Hall Estate. Mr. Medley Hall, architect, &c., 29 Northgate, Halifax.

PENZANCE.—Dec. 15.—For erection of proposed orchestra, reseating and decoration of the Wesleyan chapel, Mousehole. Mr. Horace W. Collins, architect, Penryn Street, Redruth.

PETERBOROUGH.—Dec. 5.—For erection of a residence. Mr. J. G. Stallebrass, architect, North Street, Peterborough.

PETERBOROUGH.—For erection of six houses at Dogsthorpe. Mr. J. G. Stallebrass, architect, North Street, Peterborough.

PONTYPOOL.—Dec. 5.—For erection of a partition and other works at the Abersychan Board schools. Mr. Henry Blythway, clerk, Pontypool.

PRESTON.—Dec. 16.—For alterations and additions to the grammar school, Cross Street. The Borough Surveyor, Town Hall, Preston.

PRESTON.—Dec. 16.—For extension of cellars at the Regatta inn, Fishergate Hill. The Borough Surveyor, Town Hall, Preston.

PRESTON.—Dec. 16.—For alterations to cattle stage, Cattle Market, Brook Street North. Borough Surveyor, Town Hall, Preston.

RAINHAM.—Dec. 8.—For erection of a small chapel, boundary fencing, constructing road and paths for the proposed new cemetery at Rainham. Mr. C. J. Dawson, architect, Barking, Essex.

RUGBY.—Dec. 6.—For erection of a fire-brigade station and stabling in the Council Yard, Chapel Street. Mr. D. G. Macdonald, surveyor, Rugby.

SCOTLAND.—Dec. 6.—For erection of a villa in Station Road, Keith. Mr. George Sutherland, 52 Mid Street.

ST. PANCRAS.—Dec. 22.—For erection of two chapels at the workhouse, King's Road. Messrs. A. & C. Harston, architects, 15 Leadenhall Street, E.C.

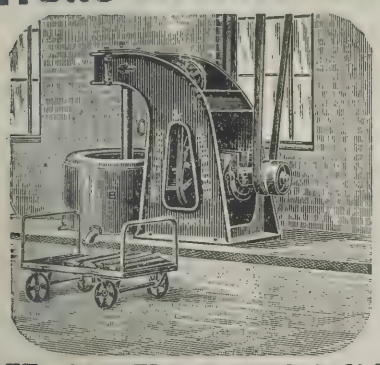
WALES.—Dec. 7.—For erection of a mixed school at Caegarw, Mountain Ash, to accommodate 250 children. Mr. T. W. Millar, architect, Oxford Street, Mountain Ash.

WALES.—Dec. 10.—For alterations and additions to Maesteg police station. Mr. T. Mansel Franklen, clerk of the County Council, County Offices, Westgate Street, Cardiff.

WALES.—Dec. 17.—For rebuilding the King's Head hotel, Tynewydd, Ogmore Vale. Mr. J. Cook Rees, architect, St. Thomas Chambers, Neath.

WALES.—Dec. 27.—For erection of county police buildings, Blaenau Festiniog. Mr. T. Taliesin Rees, architect, Hamilton Chambers, Birkenhead.

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WARRINGTON.—For erection of boundary walls, gates, chapel and bier-house, the formation of walks and drainage of proposed new burial ground at Burtonwood. Messrs. William & Segar Owen, architects, Warrington.

WEST HAM.—Dec. 13.—For erection of quarter-sessions court, police cells and mortuary, West Ham Lane. Mr. Lewis Angell, borough engineer, Town Hall, Stratford, E.

WINCHESTER.—Dec. 8.—For alterations and additions at the workhouse. Messrs. Cancellor & Hill, architects, 12 Jewry Street, Winchester.

WOKING.—Dec. 13.—For erection of a pair of cottages near Woking Park Farm. Mr. G. J. Wooldridge, surveyor, Bank Chambers, Woking.

WREXHAM.—For pulling-down the King's Head hotel, Bridge Street, and erection of new hotel and three shops, with dwelling-houses attached. Mr. Walter Slater, architect, 9 High Street, Wrexham.

THE Brussels correspondent of the *Morning Post* writes:—I have just had an opportunity of seeing a remarkable mechanical clock which has recently been completed by M. Noll, after five years of uninterrupted work. The clock, which is of enormous size, weighs 4,000 kilogrammes, and the whole of the works have been made by hand. It is built to represent a church, and there are forty-six mechanical figures which go through various evolutions. The clock indicates the seconds, minutes, quarters, hours, days, weeks, months, seasons and the years, together with the movable or fixed feasts for the next 104 years. Every hour the twelve apostles make their appearance, march past and bow before the Saviour, who bestows his benison on them. Among the other mechanical curiosities are the four ages of life, Death with his scythe, a bellringer calling to vespers, six Capuchin monks who enter the church, the seasons, a cockatoo, a shrill-throated cock, a night watchman sounding a trumpet or beating a drum, and the faithful listening to a musical mass. Each of these movements is seen at its appointed time, and the whole of them can be set in motion at any moment without disturbing the machinery of the clock.

TENDERS.

ABERTILLERY.

For constructing a new road from Abertillery to Aberbeeg, a distance of about two miles; and for widening an existing highway between Aberbeeg and Crumlin, a distance of about 2½ miles. Mr. JAMES MCBEAN, surveyor.

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Mainwairing	15,687 0 0
Wills	15,438 0 0
Bayley	14,347 0 0
Howells	14,275 0 0
Lewis	13,713 0 0
MONKS & PARFIT, Newport (*accepted*)	12,313 0 0

BARNSLEY.

For construction of streets, earthenware-pipe sewers, &c., on the Park Grove Land Society's Estate. Messrs. WADE & TURNER, surveyors, 10 Pitt Street, Barnsley.

Accepted tenders.

H. Burrows & Sons, sections 1, 2 and 3	£1,783 3 6
F. Walker, sections 4, 5, 6 and 7	138 9 2

BIRMINGHAM.

For plumbing-work and sanitary fittings for the Birmingham Eye Hospital. Mr. J. E. WILLCOX, engineer, Birmingham.

T. Sneath	£1,001 4 3
T. Rowbotham	947 11 5
G. Robinson	795 0 0
Scull Bros.	784 7 0
H. LEA, Burton-on-Trent (*accepted*)	711 4 0

BELFAST.

For construction of a covered concrete reservoir at the Horseshoe, Ballysillan, and the erection of an engine and boiler-house and other works at Oldpark.

H. LAVERTY & SONS, Cambridge Street (*accepted*).

BOGNOR.

For construction of sea-wall and esplanade, 487 feet in length. Mr. O. A. BRIDGES, surveyor, High Street, Bognor.

Grounds & Newton, Page Green Asphalte Works, Tottenham (*sole tender, not accepted*)	£2,667 0 0

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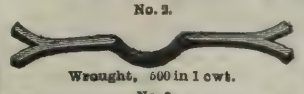
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BRADFORD.

For erection of seven houses at Pemberton Drive. Mr. ABM. SHARP, architect, Albany Buildings, Market Street, Bradford.

Accepted tenders.

E. Balmforth, Queensbury, mason.
Wilkinson & Kellett, Bradford, joiner.
W. Bolton, Bradford, plumber.
J. & W. Bates, Bradford, plasterer.
J. Smithies, Bradford, slater.
W. Priestley, Bradford, painter.

BUSHEY.

For additions to the Board schools. Mr. W. H. SYME, architect, Watford.

General Builders, Limited	£3,200 0 0
Andrews & Sons	3,150 0 0
W. B. Neal	3,120 0 0
F. Dupont	3,098 0 0
G. & J. Waterman	3,058 0 0
Webster & Cannon	3,055 0 0
C. Brightman	3,027 0 0
J. Darvill	3,000 0 0
W. Judge	2,971 0 0
T. Turner, Limited	2,956 0 0
G. Wiggs	2,939 0 0
Coulson & Lofts	2,867 0 0
H. B. Watkins	2,795 0 0
C. EAMES, Watford (*accepted*)	2,644 0 0

CARDIFF.

For erection of a fish market, &c., at the Hayes. Mr. W. HARPUR, borough engineer.

G. Griffiths	£15,058 19 8
H. Gibbon	14,937 12 10
Chubb & Co.	14,598 4 9
J. Thomas	14,363 0 0
Powell & Mansfield	14,325 4 6
Latty & Co.	14,140 0 0
Shepton & Sons	13,941 13 0
W. Thomas & Co.	13,786 0 0
Evans Bros.	13,739 15 10
J. Allan	13,698 13 9
W. T. Symonds	13,454 0 0
Rees & Thomas	13,285 0 0
TURNER & SONS, Cardiff (*accepted*)	12,988 0 0

CARDIFF *continued.*

For supply and erection of iron sheep and cattle troughs and wood troughs in cattle stalls and pens in Roath Market. Mr. W. HARPUR, borough engineer.

J. Allen	£232 15 10
H. Gibbon	223 7 9
W. H. Ingleson	220 6 0
Rees & Thomas	218 14 10
G. Griffiths	195 4 10
KNOX & WELLS, Bangor Street (*accepted*)	179 8 7

CASTLE BROMWICH.

For house drainage in connection with sewerage works.
H. LAW, Erdington (*accepted per schedule of prices*).

COCKERMOUTH.

For rearrangement of the apparatus for heating water at Flimby Lodge. Messrs. W. G. SCOTT & Co., architects, Workington.

Accepted tenders.

Emley & Sons, Limited, Newcastle-on-Tyne, heating	£75 0 0
H. Tinnion, Flimby, mason, joinery, plastering, painting, &c.	64 0 6

EASTLEIGH.

For construction of additional sewerage at the railway station.

J. Treherne	£69 5 0
Robinson & Co.	68 10 0
E. Hutchings & Son	65 1 3

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S. While & Son	1,599 0 0
H. Shardlow	1,530 0 0
A. C. Catley	1,496 0 0
Jenkins & Son	1,347 7 0
S. V. BOND, Ramsgate (*accepted*)	1,295 0 0

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For erection of a block of buildings at the corner of Academy Street and South Street. Messrs. A. & W. Reid & Wittet, architects, Elgin.

Accepted tenders.

D. Forsyth, builder.
A. & R. Dunbar, carpenter.
G. Ogilvie, slater.
J. H. Clark, plumber.
J. Brodie, plasterer.
J. Kintrea & Son, painter.
J. Johnson & Co., ironwork.
Macilwraith & Co., grates.

GRAYS.

For erection of stable, cart-sheds, stores, &c., in Stanley Road, and two blocks of latrines in proposed park. Mr. A. C. James, surveyor.

Stables.

W. White	£1,380 0 0
J. J. Lawrence	985 15 0
H. J. Carter	930 0 0
G. B. Rons	875 17 0
J. Brown, Grays (*accepted*)	843 0 0

Latrines.

H. J. Carter	305 0 0
J. Brown	303 0 0
G. B. Rons	242 5 0
W. White	202 0 0
J. J. Lawrence, Grays (*accepted*)	185 10 0

HARROGATE.

For supply of tunnel lining for the Scargill reservoir. Mr. E. W. Dixon, waterworks engineer.

Head, Wrightson & Co., Stockton (*accepted*) £790 0 0

KENSINGTON.

For erection of a small addition to Grove House, 93 Addison Road, for Mr. John Girdwood. Mr. Walter J. Ebbetts, architect and surveyor, Savoy House, 115 Strand, W.C.

J. M. Macey & Sons	£299 0 0
R. A. Yerbury & Sons	295 0 0
Campbell, Smith & Co.	294 0 0
J. J. Rayment & Son	289 18 0

KNUTSFORD.

For erection of a temporary fever hospital at the workhouse. Mr. Robert J. M'Beath, architect, Birnam House, Sale.

G. Ginger, jun., Longsight (*accepted*) £234 15 0

LEEDS.

For erection of fifteen through houses in York Road. Mr. J. W. Thackray, architect.

C. Farrar, Easy Road (*accepted*).

For erection of corn mill in Bowman Lane. Mr. J. W. Thackray, architect.

C. Farrar, Easy Road (*accepted*).

For erection of twenty-four houses in Bertha View.

C. Farrar, Easy Road (*accepted*).

For erection of eight houses in Sussex Street.

C. Farrar, Easy Road (*accepted*).

LITTLEHAMPTON.

For erection of girls and infants' schools, for School Board. Mr. H Howard, architect.

W. Wallis	£1,665 0 0
Linfield & Son	1,485 0 0
A. Burrell	1,470 0 0
Snewin Bros., Littlehampton (*accepted*)	1,453 0 0
Architect's estimate	1,500 0 0

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Brown & Harris	£2,395 0 0
Woodward & Co.	1,783 0 0
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Chessum & Sons	1,729 0 0
Todd & Co.	1,627 0 0
Goodall	1,625 0 0
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For providing and fixing sliding glazed partition and altering widths of stepped flooring, &c. (infants), Upper North Street.

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G. Barker	£177 0 0
A. E. Symes	156 0 0
Johnson & Co.	150 0 0
J. Kybett	139 0 0
Unsigned	125 0 0
S. H. Corfield*	114 0 0

For providing and fixing hot-water coils in two classrooms each, boys and girls' departments, and fixing four new S.B. stoves and two tubular boilers, Powis Street.

J. C. & J. S. Ellis, Limited	£122 10 0
Stevens & Sons	122 0 0
Berry, Campbell & Co.	08 10 0
Sharp, O'Brien & Co.*	82 0 0

For providing and fixing a hot-water coil, and fixing tubular boiler, Hamond Square.

H. C. Price Lea & Co.	£85 0 0
Stevens & Sons	47 10 0
J. Grundy	36 13 0
W. Simmons	36 4 0
G. & E. Bradley	33 5 0
G. Davis*	33 0 0

For providing and fixing apparatus for supply of tepid water to baths, Upton House.

J. C. & J. S. Ellis, Limited	£133 0 0
J. Wontner-Smith, Gray & Co.	85 15 0
J. & F. May*	78 0 0

For providing auxiliary heating in all departments, St. Paul's Road.

Strode & Co.	£398 0 0
E. Oldroyd & Co., Limited	284 0 0
A. Dougill & Co., Limited*	277 0 0

For cleaning interior, Caledonian Road.

F. Britton	£404 17 0
F. Chidley	183 0 0
STEVENS BROS. (*accepted*)	182 10 0

* Recommended for acceptance.

LONDON SCHOOL BOARD—*continued.*

For painting exterior and cleaning interior, Halford Road.

G. H. Sealey	£830 0 0
T. Gregory & Co.	458 18 0
W. R. & A. Hide	365 10 0
F. Chidley	363 10 0
W. Whiteley	341 14 0
C. Gurling	325 7 0
W. Hornett	325 0 0
F. G. Minter	324 10 0
F. T. Chinchen	293 0 0
W. Chappell	285 0 0
W. Hammond	282 14 0
BRISTOW & EATWELL (*accepted*)	203 4 10

For painting exterior and cleaning interior, Langford Road.

T. Gregory & Co.	£459 16 0
W. R. & A. Hide	392 17 0
E. Flood	380 0 0
W. Whiteley	361 7 6
W. Hornett	356 0 0
F. G. Minter	351 0 0
O. Craske	325 17 0
F. T. Chinchen	324 15 0
W. HAMMOND (*accepted*)	296 0 0
Bristow & Eatwell	221 13 11

For cleaning interior, Popham Road.

Gardner & Hazell	£230 0 0
J. Grover & Son	218 0 0
McCormick & Sons	212 0 0
W. Bunce	194 0 0
W. SILK & SON (*accepted*)	175 0 0

For cleaning interior, Richard Street.

J. Grover & Son	£238 0 0
W. Silk & Son	225 0 0
McCormick & Sons	214 0 0
Gardner & Hazell	205 0 0
C. & W. Hunnings	183 15 0
MARCHANT & HIRST (*accepted*)	118 15 0

For cleaning interior, Trinity Place.

T. Cruwys	£113 15 0
Snewin Bros. & Co.	89 0 0
Marchant & Hirst	78 15 0
G. WALES (*accepted*)	75 0 0

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LONDON SCHOOL BOARD—*continued.*

For cleaning interior, Calvert Road.

C. G Jones	£185 18 0
S. Musgrove	185 7 0
E. Proctor	185 0 0
F. R. Blaxton	179 15 0
W. Hayter & Son	150 0 0
C. Foreman	148 0 0
W. Banks (*accepted*)	135 19 6

For cleaning interior, Monson Road.

W. Akers & Co.	£340 0 0
C. S. Jones	331 10 0
W. V. Goad	327 0 0
E. Proctor	310 0 0
S. Musgrove	287 15 0
Holliday & Greenwood	279 0 0
Jones & Groves	254 19 0
H. J. Williams (*accepted*)	238 0 0

For painting exterior and cleaning interior, Pope Street.

C. Foreman	£277 0 0
T. Freeman & Son	258 5 0
C. S. Jones	230 10 0
J. Otway	198 17 0
G. Kemp	190 0 0
W. Banks	183 12 6
W. Hornett (*accepted*)	174 6 0

For cleaning interior, Catherine Street.

Gardner & Hazell	£326 0 0
McCormick & Sons	263 0 0
G. Wales	249 12 0
W. Silk & Son	247 0 0
T. Cruwys	218 0 0
W. Bunce (*accepted*)	203 0 0

For painting exterior and cleaning interior, Teesdale Street.

Johnson & Co.	£500 0 0
F. & F. J. Wood	481 5 0
Snewin Bros. & Co.	359 0 0
W. Shurmur	350 0 0
S. H. Corfield	312 0 0
G. Barker	309 0 0
J. Kybett	293 0 0
G. Wales	291 8 0
J. Haydon (*accepted*)	266 0 0

LONDON SCHOOL BOARD—*continued.*

For cleaning interior, Arthur Street.

Edwards & Medway	£299 0 0
W. V. Goad	271 0 0
H. J. Williams	220 0 0
H. Line	198 0 0
E. Flood	186 0 0
Jones & Groves (*accepted*)	143 16 0

For painting exterior and cleaning interior, Hollydale Road.

T. Freeman & Son	£536 0 0
W. Akers & Co.	483 12 0
H. J. Williams	418 0 0
H. Line	406 0 0
C. S. Jones	369 10 0
W. Banks	354 19 6
J. & C. Bowyer	348 0 0
C. Kemp (*accepted*)	330 0 0

For painting exterior and cleaning interior, Johanna Street.

T. Hooper & Son	£473 0 0
Edwards & Medway	410 0 0
Holliday & Greenwood	299 0 0
Lathey Bros.	277 0 0
H. & G. Mallett	258 0 0
G. Brittain	251 10 0
J. F. Ford	233 10 0
B. E. Nightingale	221 0 0
W. Hornett (*accepted*)	170 18 0

For cleaning interior, Raywood Street.

E. P. Bulled & Co.	£275 0 0
W. Johnson & Co., Limited	250 10 0
Holloway Bros.	217 0 0
Lathey Bros.	199 0 0
W. Chappell	160 0 0
C. Gurling	151 10 0
J. Garrett & Son (*accepted*)	122 0 0

For cleaning interior, Tooting Graveney.

Maxwell Bros., Limited	£341 0 0
R. S. Ronald	326 13 0
W. Johnson & Co., Limited	315 10 0
E. Flood	260 0 0
Rice & Son	254 0 0
J. Garrett & Son (*accepted*)	190 0 0

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LONDON SCHOOL BOARD—*continued.*

For cleaning interior, Albion Street.

Edwards & Medway	£504 0 0
W. V. Goad	327 0 0
E. Proctor	245 0 0
A. White & Co.	244 0 0
C. S. Jones	220 0 0
H. Line	216 0 0
W. Banks	184 19 6
W. BROWN (*accepted*)	140 0 0

For cleaning interior, Alton Street.

Johnson & Co.	£315 0 0
A. E. Symes	250 0 0
A. W. Derby	179 0 0
S. H. Corfield	148 0 0
J. T. ROBEY (*accepted*)	138 0 0

For painting exterior and cleaning interior, Chicksand Street.

Johnson & Co.	£728 0 0
F. & F. J. Wood	639 15 3
J. F. Holliday	594 10 0
A. W. Derby	583 0 0
W. V. Goad	493 0 0
G. Wales	424 11 0
G. Barker	422 0 0
J. Kybett	416 0 0
J. HAYDON (*accepted*)	300 0 0

For cleaning interior, Cubitt Town.

A. W. Derby	£136 10 0
W. Hayter & Son	135 0 0
W. Banks	125 19 6
W. Brown	119 16 0
Jones & Groves	117 12 0
J. T. Robey	113 0 0
J. KYBETT (*accepted*)	110 0 0

For cleaning interior, Oban Street.

A. E. Symes	£310 0 0
A. W. Derby	275 0 0
J. F. Holliday	231 10 0
J. Kybett	224 0 0
G. Wales	213 17 6
J. T. Robey	212 0 0
S. H. CORFIELD (*accepted*)	187 0 0

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For cleaning interior, Collingwood Street.

F. & F. J. Wood	£300 0 0
A. W. Derby	245 0 0
A. E. Symes	230 0 0
G. Barker	181 0 0
J. F. Holliday	180 0 0
J. KYBETT (*accepted*)	176 0 0

For cleaning interior, Dalgleish Street.

Jones & Groves	£218 7 0
W. Hayter & Son	197 0 0
J. T. Robey	195 0 0
E. Jackson & Son	182 0 0
G. Barker	169 0 0
A. W. Derby	137 0 0
S. H. CORFIELD (*accepted*)	129 0 0

For cleaning interior (iron buildings), Glaucus Street.

J. T. Robey	£63 14 0
G. Wales	48 7 0
J. Kybett	44 0 0
A. W. DERBY (*accepted*)	40 10 0

NORTH SHIELDS.

For formation of the following streets at Rosehill, for the Tynemouth Rural District Council, viz.:—Shakespeare Front Street, Shakespeare Back Street and Burn Terrace Back Street. Mr. JOHN WATERS, C.E., district surveyor, Long Benton.

J. Thompson	£612 4 0
Mullen & Murphy	545 1 3
Johnson	533 13 5
G. E. SIMPSON, Newcastle (*accepted*)	499 3 6
G. Maughan	497 17 7

RIPON.

For constructing underground lavatories and public conveniences in the Market Place.

Mitchel & Webster	£514 18 6
W. M. F. Blackburn	490 0 0
T. R. Bruce	437 15 0
A. TRESS, Ripon (*accepted*)	403 10 3

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STOCKPORT.

For erection of work cells at the workhouse. Mr. G. H. Brady, architect, 18 Little Underbank, Stockport.

J. Broadhurst	£116 0 0
H. Hallworth	98 10 0
H. Barckley	94 18 4
T. Hoe, 17 Hooper Street (*accepted*)	87 8 0

UXBRIDGE.

For erection of a mortuary at the joint hospital, Kingston Lane, Hillingdon East. Mr. Bertram Freeman, architect, 24 New Windsor Street, Uxbridge.

J. Pratt	£59 0 0
H. E. & G. Pratt	51 17 6
G. R. Brown	48 10 0
J. Ward & Son, Uxbridge (*accepted*)	45 15 0

The tower of the fine old church of St. Nicholas, Ashill, Norfolk, has been thoroughly restored by Messrs. Waters & Son, of Watton, under the direction of Messrs. Miller & Hall, architects, London. The old parapet has been taken down, and all loose and decayed work removed to a considerable depth. The walls were then levelled out and carried up and finished with battlement top in Ketton stone, with embrasures and quoins neatly filled in with flint-work, the whole being built in cement. There are two fine gargoyles, well carved, placed in line with new string-courses. The stone caps to the buttresses have also been thoroughly restored. The flint-work of the tower has received careful attention, and all loose stones reset and cracks filled in. A new roof of pine has been laid in and covered with sheet lead. The tower is surmounted with a large copper eagle—the crest of the Cotton family—as a weather-vane. The west entrance to the tower possesses a very fine specimen of an ogeed door, neatly worked with a large quantity of members and moulds. The bells, six in number, are to be rehung, and will be refitted entirely with all the latest improvements and appliances. Upwards of 3,000*l.* was spent upon the church by the late rector, and a new reredos and inner porch to the south door have been given by the present rector. The church is now in a good state of preservation, and is a typical village church, containing about 300 sittings, all of carved oak.

EDITH WESTON STONE.

We had a few days since occasion to visit the extensive quarries, or rather mines, which Major Braithwaite has recently opened in close proximity to the famed Ketton Quarries, and found them being worked under the supervision of a competent mining engineer and with the aid of all the most modern labour-saving appliances. The venture is quite a new one, dating only from some eighteen months or two years back when Major Braithwaite, who is an extensive landowner in Rutland, whose property includes the pretty and prosperous village of Edith Weston, whence the quarries derive their name, knowing that the old Ketton quarries were about worked out, and thinking from the lay of some of his land which adjoins the estate on which they are situated that the same strata should underlie it, had the ground opened, and was gratified to find that his expectations were amply realised, and that he had a valuable bed of excellent freestone, some 4 feet in depth, underlying at least 30 acres of his property. Being fortunately untrammelled by pecuniary considerations, and fully recognising the value of his discovery, Major Braithwaite at once set to work to exploit it in the most up-to-date manner, procuring the best modern machinery and appliances, and engaging a competent staff. The result is, so far, eminently gratifying; large quantities of the stone have been got out, and it proves to be of very fine texture and uniform quality, very easy to work when newly quarried, but becoming extremely hard on exposure to the atmosphere. Its colour, too—a warm cream—leaves nothing to desire. Although the enterprise is so young, Major Braithwaite, finds some difficulty in meeting the demand, which, local at first, is rapidly extending to the surrounding counties, and the stone only requires to be widely known to be in general request. It is being exclusively used, *inter alia*, in the erection of the Hospital for Infectious Diseases, Leicester, and the Lincolnshire Banking Company's premises at Nuneaton. As, however, the supply may be said to be unlimited, it is only a question of increased plant, and this is being put down with all expedition, so that orders of any magnitude can be promptly complied with. We may mention that the stone is being largely employed, apart from building, for monumental and ornamental purposes, for which it is eminently adapted, owing to its colour and ease in working, to which we have already referred, and it is a not unimportant point that it can be obtained in blocks of any size up to several tons in weight.

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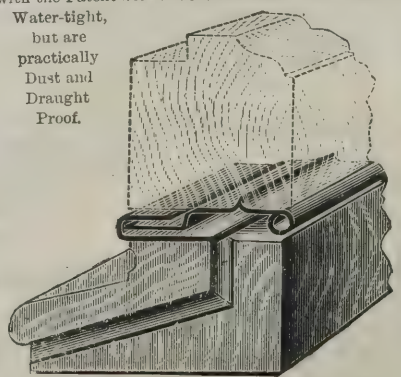
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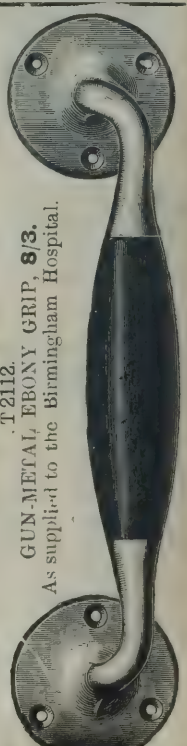


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NEW CATALOGUE.

Mr. A. E. Thornton, of St. Mary's Street, Manchester, has sent us a copy of his new catalogue of drawing and surveying instruments, photo and tracing materials, &c., which has been considerably enlarged, entirely rewritten and revised, and many of the items in which are reduced in price. It contains particulars of new and original lines in nearly every department of the trade, and gives full details of all innovations and specialties to date. Many improvements in drawing instruments are illustrated, and a large amount of useful information given.

ELECTRIC NOTES.

The Walthamstow Urban Council have applied to the Local Government Board for sanction to borrow 36,490*l.* for purposes of electric lighting. It is intended that there shall be 320 arc lamps, and it is anticipated that the price for the improved illuminant will not exceed that now paid for gas, which is 3*s.* 10*d.* per 1,000 feet.

The Teignmouth Urban District Council have decided to obtain a provisional order for electric lighting. Messrs. Taylor & Field, consulting engineers, of Westminster, are advising in the matter.

Telephones are to be placed in the wards of one of the Paris hospitals within reach of the bed-ridden patients, so as to enable them to communicate with their friends outside. There will also be an arrangement whereby the telephones may be switched on to a wire connected with a concert hall, so that the performance may be enjoyed by the invalids.

At a special meeting of the Bolton electricity committee, held on the 24th ult., the proposal to extend the Halliwell Road main into the Smithills district was referred to the chairman and vice-chairman, and it was resolved that an electric main be laid for the purpose of supplying Messrs. Edge and Son's works in Raphael Street. An application for the extension of the electric-lighting system to Lostock Lane and Burnthwaite was deferred until the work for the laying of the feeder mains for the tramways in that district are commenced. The question of putting down mains in Swan Lane was deferred until it is ascertained what the probable number of consumers will be. The tender of Mr. J. Booth for an iron roof at the electricity works was accepted, and Messrs. Musgrave and Sons' tender for the supply of foundation-plates for the two new 1,000 horse-power engines at the works was accepted. The tender of the British Thomson-Houston Company for an extension of the new switch-board at the electricity works was also accepted.

Two companies have just deposited with the authorities plans in regard to the powers which they ask Parliament to grant for exercise in a large area of Lancashire and Cheshire. One of these is the South Lancashire and Cheshire Electricity Company. It is to have one generating station at St. Helens, and the range of its operations will be Bootle, across the Mersey to Hoylake, Chester, round by Davenham, Tatton Hall, Altrincham, Eccles, Bolton, Wheelton, Farington, Much Hoole, Southport and by coast to Bootle. The other undertaking is called the Lancashire Electric Power Company, and it proposes to take a circuit including Liverpool, Southport, Preston, Burnley, Rochdale, Oldham, Stalybridge, Macclesfield, Knutsford, Northwich, Helsby, Neston, Hoylake, New Brighton by coast to Widnes and Liverpool. The generating stations are to be at Wigan, Earlestown, Radcliffe (near Bolton), and Salford.

BUILDING AND BUILDERS.

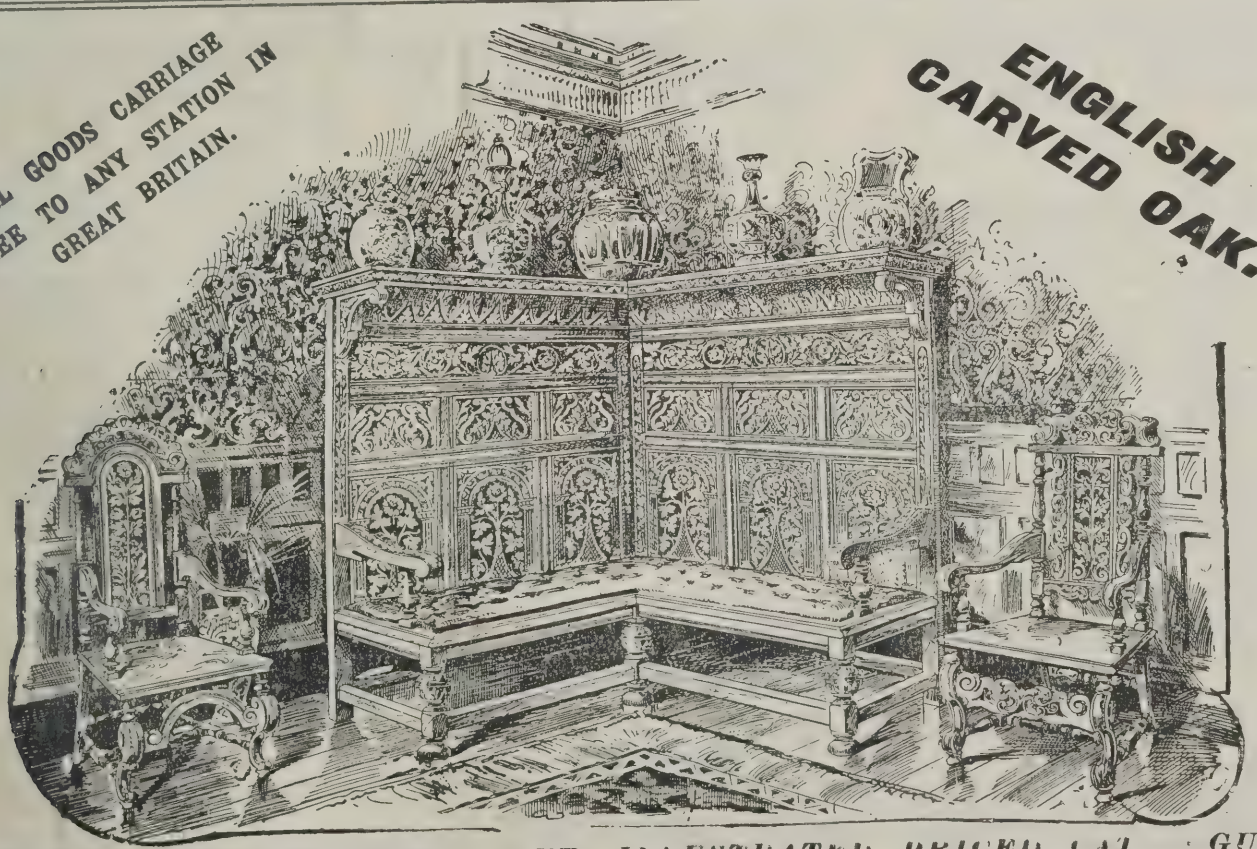
At last week's meeting of the Campbeltown Town Council it was agreed to apply to the Local Government Board for sanction to erect an additional hospital at a cost of about 500*l.*

A new parsonage is being provided for the parish of Carnforth. A site has been secured at a cost of 160*l.*, and it is estimated that the house will cost at least 1,600*l.*

It leaked out during the hearing of a case of disorderly conduct against brickyard labourers at Peterborough police court that the men engaged in the local brick trade were in the habit of subscribing to a fund out of which any fines for offences against the law were paid.

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Estate Department.—Auctions and Private Sales, Valuations, Lettings, Surveys, Repairs, and Decorations.

The Victoria Pier and Pavilion Company have accepted the tender of the Widnes Iron Company, amounting to 40,000*l.*, for the construction of the proposed pier and pavilion at Colwyn Bay.

A movement is on foot to erect at Preston a hall and commodious buildings as a memorial to Mr. Joseph Livesey, leader of the temperance cause there. A favourable site has already been secured, and it is anticipated that the cost will be not less than 8,000*l.*

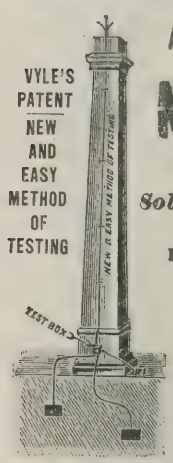
A man employed as a painter by Messrs. R. Neill & Sons was admitted to the Manchester Royal Infirmary suffering from severe injuries to the head. He was engaged in painting the outside of the parcels post office in Morton Street, Strangeways, when the scaffold on which he was standing collapsed and he fell to the ground.

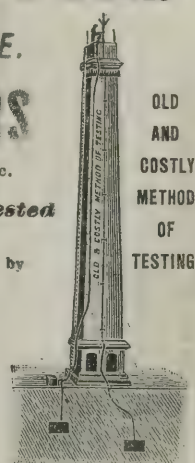
The memorial-stone of the Baptist church which is being erected at the south corner of Dewar Street and Woodhead Street, Dunfermline, for the new Baptist congregation was formally laid on Saturday afternoon. The new church is being erected from plans prepared by Mr. Andrew Scobie, architect, Dunfermline. The building will be seated for between 500 and 600 persons. The Gothic style of architecture has been adopted. The building is planned in such a way that side and end galleries can be conveniently erected when these are required. The main entrance will be from Woodhead Street, and the pulpit and baptistery are to be situated at the west end of the building. There will be a vestry and two retiring-rooms at the back. The retiring-rooms are to be divided by a sliding partition, so that they can be converted into one large room for the use of the Bible class or Sunday school. The church is to be heated by hot-water pipes on the low-pressure system. The building is estimated to cost about 2,000*l.*

A special meeting of the Colchester Town Council was held on Wednesday, the mayor, Alderman E. J. Sanders, presiding. The new town hall committee reported that the original estimate for the erection of the new town hall was 32,000*l.*, with another 1,000*l.* for fittings, making a total of 33,000*l.* The lowest tender for the erection of the building in Bath stone was within this amount, being 30,890*l.* The architect (Mr. Belcher) had, however, always hoped to have the façades executed in Portland stone, in which case the lowest tender was 34,214*l.*, being only 1,214*l.* above his original estimate. This excess was practically due to the general rise in prices for labour and materials. The additional cost of the building, if carried out in Portland stone, would be 3,324*l.*, and Mr. Belcher strongly urged the advisability of spending this additional amount. In consequence of the hope that some generous benefactor might offer a marble hall and staircase, a sum of 5,000*l.* had been placed in the bill of quantities for the information and guidance of the contractors, although such decorative work did not come within the scope of the design to be carried out. As no offer had been made, it would be necessary to add about 750*l.* to the contract prices, for the provision of details for an ordinary stone staircase. The committee had resolved that the Council be recommended to accept the lowest tender—that of Messrs. Kerridge & Shaw, of Cambridge—for the execution of the work in Portland stone, at an extra cost of 3,324*l.*, making a total of 34,214*l.* The report was carried unanimously.

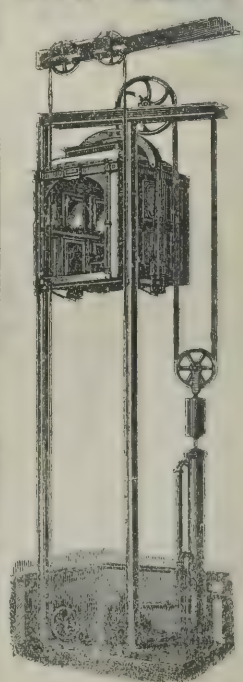
A new model lodging-house is in course of erection at the corner of Bruce Street and Chapel Street, Dunfermline. Advantage has been taken of the fall on the site towards Bruce Street to have a roomy basement, facing that street, containing washing-houses for the establishment and for the lodgers, repairing-room, &c. Two hot-air radial drying-houses are provided with steel-clad stove and all the usual conveniences. The main floor is at the level of Chapel Street, where is situated the women's entrance—the men entering from Bruce Street. Arrangements have been made for the accommodation of both men and women, but the sexes will be kept entirely separate. This has necessitated the planning of the administration department along the centre line of the building, so as to work both sides with one staff and yet give no intercommunication except for the staff. On the main floor there are superintendent's office and staff scullery, kitchens and sitting-rooms for men and for women, and the necessary lavatory accommodation. The hot-plates are in a projecting chamber, with opening sky-lights to carry off the fumes. From this floor starts the double staircase, giving access to the other floors. On the first floor are dormitories for men and for women, and the superintendent's dwelling-house, with direct communication to main building, for the purpose of supervision. The second and third floors are occupied entirely by dormitories, with lavatory arrangements on every main landing. Accommodation will be provided meantime for 141 adults and a fair proportion of children; but, if necessity should arise, about 200 persons could be lodged without making any structural alterations, the directors having considered it expedient to provide an excess of cubic air space over what is required by law. Hot and cold water will be intro-

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duced throughout, including a fire service, the hot water being provided by copper boilers in the hot plates. The building will be warmed by open fires in sitting-rooms, and elsewhere by low-pressure hot water from a boiler placed in the basement. The materials and workmanship will be substantial throughout, and it is the intention of the directors to make the new lodging-house up to date in every respect. Mr. Harbourne Maclennan, of Dunfermline, is the architect.

TRADE NOTES.

WE are glad to learn that Mr. Samuel Saunders, the well-known heating and ventilating engineer, of Upper Moss Lane, Manchester, has taken into partnership his late manager, Mr. Christopher W. Taylor. The business will in future be carried on under the style of Saunders & Taylor, Limited.

THE Bower schools, Norton, Malton, are being warmed and ventilated by means of Shorland's patent Manchester grates.

A LARGE clock has been erected in Wilshamstead Church, Bedford, by Messrs. John Smith & Sons, Midland Clock Works, Derby. It has a 5-feet dial, facing eastwards, and strikes the hours.

WE hear that Messrs. W. Scupham & Sons, Limited, of Leeds, have just been appointed agents in the North of England for a large firm of Austrian manufacturers of bentwood furniture.

A THREE-LIGHT east window has just been placed in Rhodes parish church, near Middleton, Lancashire. The subject is the "Baptism of our Lord by St. John the Baptist," which is placed in the centre, and the side openings are filled with life-sized figures of Elijah and St. Philip. The figures are standing on bases, and are surmounted by canopies of Gothic treatment. The work has been designed and carried out by Messrs. Cundiff & Pointer, of Manchester. This is the second window this firm has executed for the same church, the other being a two-light window, subject, St. Paul and Melchizedek, representing the Old and New Testaments.

MESSRS. THORPE & SALTER, engineers and contractors, of Red Lion Street, E.C., have just introduced a novel little gas-engine which is known as the "Ruby, a perfect little gem." It is only a small thing which does a surprising amount of work. One of these engines was shown at the recent Brewers' Exhibition, connected to a small centrifugal pump, and attracted a considerable amount of attention, pumping water at the rate of 600 gallons per hour with a 4-feet lift and three-quarter delivery. There is no difficulty in starting the engine, and once started it will run for hours with little or no attention. The amount of trouble and patience required in starting and running small gas-engines has hitherto been a drawback. This is, however, entirely overcome in the "Ruby." The engine is well made to stand hard wear, works on the "Otto" cycle principle with tube ignition, and should be useful for all purposes where a small reliable motor is required at a low cost. The gas consumption works out about ½*d.* per day of ten hours. One of the features of the engine is a neat form of inertia governor, very sensitive in action, and adjustable while the engine is running.

VARIETIES.

THE new theatre which has been erected at Luton at a cost of 19,000*l.*, will be opened on Monday, December 12.

THE Northwich Rural Council have approved of resolutions adopted by the Northwich Urban Council as to a joint scheme for the sewerage of Castle Northwich. The scheme will cost some 30,000*l.*

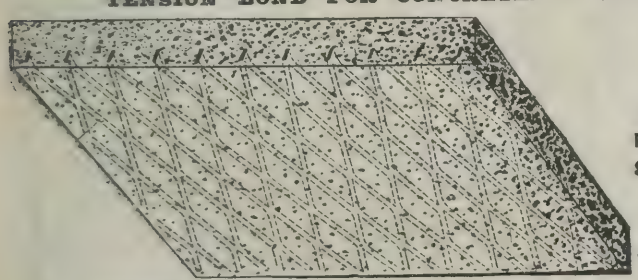
THE next ordinary meeting of the Society of Engineers will be held at the Royal United Service Institution, Whitehall, on Monday, December 5, when a paper will be read on "Bacterial Treatment of Sewage," by Mr. George Thudichum, F.C.S.

OWING to the dilapidated condition of the parish church at South Whitam, Lincolnshire, the Bishop of Lincoln has consented to its being closed, and has issued a license enabling the rector to use the new parish-room as a temporary church.

A NEW Primitive Methodist chapel was opened at Lazonby on the 24th ult. It is built of red and white Lazonby stone and in the Gothic style of architecture. It has a tower at the west end in which is the staircase leading to the gallery. The part under the gallery has been so arranged that it can be partitioned from the chapel to serve as a Sunday school, and is capable of accommodating about fifty children. Altogether the chapel has sittings for 200 persons. The benches are of pitch pine and the pulpit of carved oak. The total cost is about 327*l.*

SIR JOHN T. BRUNNER, Bart., M.P., has recently presented to Essex Church, Kensington, a handsome organ case, designed

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PRICE LIST AND ESTIMATES ON APPLICATION.

by Mr. Howard Chatfeild Clarke, in the style of the fourteenth-century screen work, and carried out in oak left in its natural colour. The organ is placed in the south-east angle of south aisle, and shows on two sides to the church, which are divided into bays with open and cusped arcading surmounted with a carved cornice. This forms the main stage of the organ case, all the spaces being filled in with burnished metal speaking pipes. The upper portion above cornice is arranged into gables with traceried panels and corbelled portions carrying a further tier of speaking pipes, and finishing in panelled pinnacles and crockets, the whole forming a pleasing feature to the interior of the church.

THE small town of Perosa Argentina, situated about thirty miles from Turin, was on the 27th ult. the scene of a terrible disaster. Several bishops and other Church dignitaries had assembled in the town for the purpose of taking part in the ceremonial opening of a new college. The main part of the inauguration ceremonies was arranged to take place in the great hall of the college, and here the bishops and a number of priests and distinguished laymen had assembled, when, without the slightest warning, the hall collapsed and fell upon those gathered within. A large number of persons were injured and several, it is feared, were killed outright. Amongst the more seriously injured were three bishops, and one of these prelates has since died.

WITH a view to ascertaining what assistance the North British Railway Company would give in the providing of proper harbour accommodation at Kirkcaldy, a deputation from Kirkcaldy Town Council waited upon Mr. Conacher, manager of the railway company. The deputation reported that the people of Kirkcaldy would almost unanimously support a harbour if it could be provided with a guarantee not exceeding 6*d.* per 1*l.* on the rates. They explained that the valuation of the burgh was increasing very rapidly, and although one penny would at present only yield a little over 500*l.*, a proper harbour would cause an enormous increase in the valuation. Mr. Conacher asked to be supplied with a return showing the valuation of Kirkcaldy for the past ten years, which would enable him to judge of the increase. It was understood that the selection of the site of the harbour was to be left entirely in the hands of competent engineers to judge which would be most suitable.

A NEW theatre, to be known as The Queen's, is in course of erection in Leeds, and is to be ready for opening on Boxing night. The site is an advantageous one, occupying a prominent corner position at the junction of Meadow Road and Jack Lane. It is quasi-triangular, the apex being semi-circular. A handsome dome surmounts the whole. The position has enabled the architect to provide a system of exits of the most convenient and elaborate description. The house will accommodate some 3,500 people, and the pit and gallery are constructed to seat 1,500 each. The grand circle is divided nto two differently priced sections, and orchestra stalls and pit stalls are provided in front of the spacious pit. There are half a dozen boxes, three on each side of the house. The Queen's has been constructed on the cantilever principle, which does away entirely with pillars and posts, and the view to be obtained of the stage from any part of the house will be uninterrupted. Electric light is being installed in addition to a gas supply, and the ventilation of the house will be found in every respect satisfactory. Gold will be the predominating feature of the internal decorations. The stage is of considerable dimensions, both in depth and width, and will be more than adequate to deal with any of the pieces that may chance to offer. Sixteen well-lighted and well-ventilated dressing-rooms are provided. With the exception of a couple of shops, which have been included in the scheme, the whole of the site is occupied by the theatre.

AT a meeting of the restoration committee held at the Town Hall, Stratford, the Rev. G. Arbuthnot, vicar, presiding, it was reported that upon the work already carried out, including the cost of the new oak benches in the aisles, there was a deficiency of nearly 1,800*l.* A fresh appeal was being made with the object of paying this off, towards which Sir Arthur Hodgson had subscribed an additional 100*l.* The Chairman said Dr. Nason, Sir Arthur and himself had become guarantors at the bank for an over-draft of 500*l.* to enable some of the accounts to be paid, and he (the vicar) had now arranged for the new seats to be paid for forthwith, as he would make himself responsible for the amount (544*l.*) until such time as funds were subscribed for the purpose. A discussion took place as to the payment of other accounts, when Mr. A. D. Flower undertook to become guarantor for another 500*l.* at the bank, so as to discharge the same.

AT Messrs. Armitage's quarries at Robin Hood, between Leeds and Wakefield, a terrible accident took place on Tuesday. Five men were quarrying an immense block of stone, weighing perhaps 200 tons, when the stone slipped and the men fell 25 feet to the bottom of the quarry. The rock then broke, and a

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large fragment of about 20 tons fell off on to the men below. Its fall was slightly broken, but was not prevented. George Brown, aged fifty-two, of Clayton's Fold, East Ardsley, was killed before his body could be extricated. Oney Endersby, aged forty-five, of Lawns, near East Ardsley, was found with both legs fractured, and he expired with only time enough to say, "I'm done for." Richard Priestley (34) and Ben Rhodes, of Brighouse, sustained serious injuries. Rhodes, who had a cut on his head, was removed to his own home; and Priestley, who sustained a severe shock to the system, was conveyed to the Clayton Hospital.

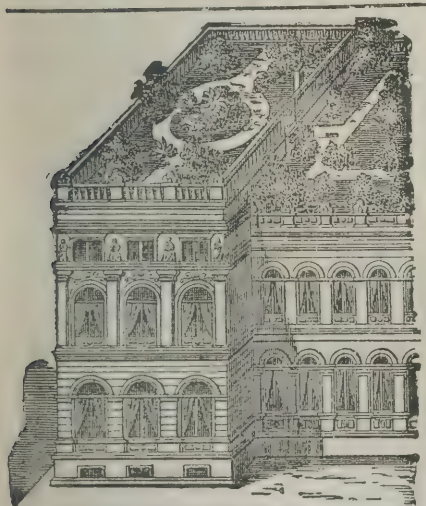
THE new buildings of the Brighton, Hove and Sussex Throat and Ear Hospital, a large and lofty square block on Church Hill, immediately north of the parish church, and having a clear outlook over the town and the sea, were opened on Wednesday by the Duke of Norfolk. The cost has been about 6,000*l.* After the chairman of the hospital committee (Mr. G. de Paris) had sketched the history of the institution, which began in a small way in 1878, the Duke of Norfolk highly commended the work done in the hospital, mentioning that the average yearly number of out-patients treated during the past twenty years had been between 900 and 1,000, and that the number of in-patients had also been very large. A little girl who had been treated in the institution afterwards put in the Duke's hand a purse of nearly twenty guineas subscribed towards the funds by patients. Two other very small children handed him respectively a bunch of flowers and a list of the contributors of the purse. After the ceremony of opening the Duke was entertained at luncheon in the Royal Pavilion. Contributions to the hospital, given or promised as a direct outcome of the opening ceremony, amounted to considerably over 300*l.*

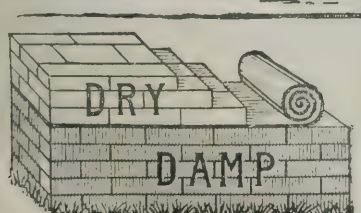
THE parish church of Mettingham, near Bungay, was reopened last week by the Right Rev. the Lord Bishop of Norwich. The church has been restored by the vicar, the Rev. W. Boyce, who is head-master of the Grammar School at Bungay, two miles distant, and the cost has been, says the *Nottingham Guardian*, about 600*l.* New seats have replaced the old pews, whitewash has disappeared from the walls, in two places disclosing colour, one of these upon the south wall showing a large nimbus with cross rays, the other beside the north porch exhibiting portions of three figures, the centre one holding a naked sword. Three very pretty piscinæ have been uncovered, and a skeleton found under the stone slab of what has every appearance of being the founder's tomb, has been covered up again where it was. The round tower at the west end of the church is strongly banded with iron as a protection against a tendency to bulge, and the Gothic tracery of the windows has been carefully restored. Curtains adorn the east end; the retable has brass cross and candlesticks. The font is a mutilated specimen of a type very usual in the district: an octagon with alternate lions and angels bearing a plain shield upon the faces, cut in bold relief and standing upon a stem ornamented with four hairy animals, like dogs. The tower has a peal of bells. There is a very good Norman arch with zigzag mouldings at the north door of the nave of the church. This door was for the exit of the funeral procession, which entered by the porch on the south side; it is usual in East Anglian churches, and is frequently ornamented, but there are not many specimens remaining in as good preservation as that at Mettingham. Service has been held during the work of restoration in a spacious barn adjoining Mettingham Hall. Mettingham Hall must not be confused with Mettingham Castle, which is a very handsome ruin in excellent preservation. It was in its day an enormous piece of work; the fine gateway of stone is still standing, and a great quadrangular tower. It stands overlooking the lovely valley of the Waveney river, two miles from Bungay and four from Beccles. John de Norwich obtained leave in the reign of King Edward III. to convert his house into a castle, and there he founded a college for women, and it was dedicated to the Blessed Virgin. The glaring brick house which has been built on the site is still called the college, but it does not harmonise with the surrounding sober, solid stone ruins. Few ornaments of the Plantagenet times in East Anglia can vie with Mettingham Castle in interest and picturesque beauty.

CORONET THEATRE, NOTTING HILL.

THE number of suburban theatres round London has been increased by the erection of one at Notting Hill Gate, after the plans of Mr. W. R. G. Sprague. It was opened on November 28. The building, which is faced with Monk's Park stone, is in the Italian Renaissance style and occupies a capital site, being noticeable owing to the height of the hill upon which it stands from a great distance. The interior is in cream and gold. The decorations and furnishing are carried out by Messrs. Waring in excellent style. The sanitary arrangements were entrusted to Mr. Twyford. The electric lighting is by Mr. Sax Latter, the gas work by Messrs. Vaughan & Brown,

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the heating arrangements executed by Messrs. Strode, hydrants and fireproof curtain by Messrs. Merryweather. The builder is Mr. Walter Wallis, of Balham, who recently erected theatres at Kennington, Balham, Deptford and Rotherhithe, or enough to make a specialty of such work. Mr. F. J. Thomas acted as clerk of works.

SURVEYORS' FEES.

The case Clarkson *v.* Grout, which was tried before the Lord Chief Justice on Monday, is interesting, as it deals with surveyors and solicitors' costs. The original was an action of ejection to recover possession of thirty-nine houses held by four different leases. At the hearing the Lord Chief Justice instructed Professor Banister Fletcher to make a report to the court. This report showed that dilapidations existed to the extent of 198*l.* 12*s.* 3*d.*, and that work had been done since the issue of the writ to the amount of 117*l.* 16*s.* 9*d.*

The case had stood over to enable the defendants to execute repairs according to a schedule to be prepared by Professor Banister Fletcher. The works had now been done, and he had so reported to the court. The question was, upon what terms the relief should be granted? Defendant's counsel, Mr. Dickens, Q.C., argued against the claim of 107*l.* for surveyors and solicitors' charges, and contended if any costs were to be allowed, much less should be. He based the excessiveness of the charges on the fact that Professor Banister Fletcher, who had prepared the schedule, superintended the work and made reports to the court, had only charged forty guineas. Mr. De Witt, Q.C., having replied, his lordship remarked that probably he would not have so much work to do, but his low charge was much to his credit. In his judgment he allowed 2*l.* 2*s.* a house for surveyor and solicitors, but only the cost of one writ, not four, and in addition, the defendant to pay Professor Banister Fletcher's fees.

ST. STEPHEN'S NATIONAL SCHOOLS, WESTBOURNE PARK.

The Bishop of London, in the presence of the vice-president of the Committee of Council on Education, the Right Hon. Sir John Eldon Gorst, M.P., Q.C., opened on Thursday, November 17, the completed National schools of St. Stephen's, Westbourne Park. The opening of the newer portion of these schools took place on October 30, 1897.

The work of completion has consisted in carrying over the old building (erected in 1858) a new storey of a similar character to that of the newer portion of the schools built in 1896-97, and of some considerable alterations of the older structure necessary for the working together of the old and new schools.

In carrying up the new storey only the external walls of the old structure have been raised, forming an L shaped boys' schoolroom, 56 feet by 20 feet in the long arm, and 48 feet by 24 feet in the short arm of the L, by about 17 feet to the collar of the semi-open timbered roof. The internal walls of the old first floor below are replaced in this second floor by folding screens, so that besides forming one large room the new floor area is also divisible into three classrooms with a wide corridor.

The interior of this room is finished with stock brickwork and stone-mullioned windows; the timber trusses and half-timber filling above the screens are all left the natural colour of the wood, while the plaster is finished with the wood float.

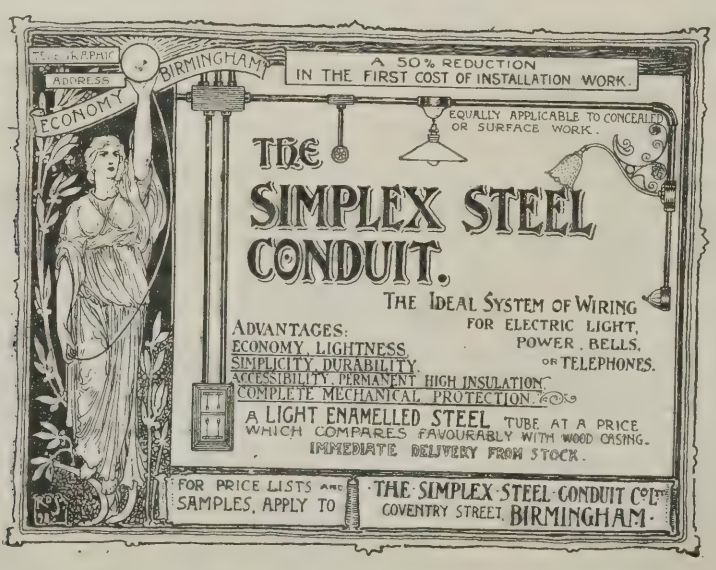
The floor is laid with wood blocks on a steel and concrete floor covering the old building.

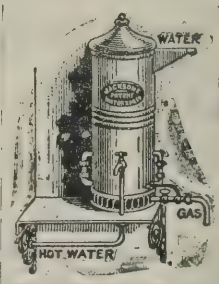
A coal lift has been constructed from the old basement up to the new storey, the well being utilised for the electric mains.

The necessary alterations of the old building below have included the shifting of the chimney-breasts and fireplaces to the opposite wall (new breasts being built up from the bottom), the cutting through of a new window for the ground floor schoolroom, and the opening up of a large arch connecting this and another room together so as to form a hall for parochial purposes; to which end new entrances have also been made with doors opening outwards. The roof of one of the two rooms thus united has been stripped, boarded, felted and reslated, while the interior has been decorated in colour.

Externally the old masonry (being badly decayed) has been restored by Messrs. Dreyfus with their patent cement, the old closed area along the front has been opened up, and the railings of the newer portion completed for the whole length of the frontage. One of the two old entrances upon the street has been built up, while the other, the infants' entrance, has been opened out and fitted with a wrought-iron gate with grille over. The passage here leading through to the playgrounds has been vaulted in concrete as well as the open logia, in which it terminates towards the south.

Other works, in connection with strengthening the walls and

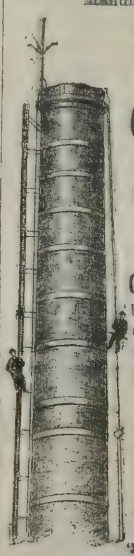




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floors, have also been undertaken, so that a considerable share of the money now expended (about 2,700*l.*) has been devoted to this part of the work. The total cost of the whole building has been 7,000*l.*, exclusive of the cost of the site, architect's fees and other expenses, the whole scheme having cost about 10,750*l.*

The work from first to last has been very well carried out by Messrs. Rudd & Son, of Grantham (general foreman, Mr. Plenning; foreman of bricklayers, Mr. Bennett). There has been no clerk of works employed, the work being under the direct supervision of the architect.

The other firms employed have been:—

For Masonry.—The Bath Stone firms; imperial green slating, Roberts, Adlard & Co.; wood-block flooring, Turpin & Co.; folding screens to architect's design, Peace & Norquay; coal lift, Waygood & Co. Architect, Arthur T. Bolton, A.R.I.B.A., 2 The Sanctuary, S.W. Surveyors, Messrs. Widnell & Trollope.

NATIONAL REGISTRATION OF PLUMBERS.

The Edinburgh and East of Scotland district of the National Registration of Plumbers opened their session on the 24th ult. in Dowell's Rooms, George Street, Edinburgh (Professor Crum Brown presiding), when the inaugural lecture was delivered by Professor Hunter Stewart, D.Sc., M.B., professor of public health in Edinburgh University, who took for his subject "The Relation of Plumbers' Work to Sanitation." At the outset Professor Stewart drew attention to the danger to public health caused by the insanitary arrangements which prevailed in many houses. The dangers arising from defective plumbing-work were so very obscure that they did not attract the same attention as other perils which were more conspicuous. To his mind the chief province of the plumbing trade was to see that the water is delivered to the community as pure as when it left the main. The lecturer also referred at some length to the question of sewage, comparing the water system of carriage which prevails to-day with the more antiquated methods. He then proceeded to deal with the various micro-organisms which exist in the air and water. The air in Edinburgh, for instance, contained in wet weather twenty microbes per cubic foot; in dry weather, 120 per cubic foot. After wet weather the air had been washed, and they had fewer microbes. The air of London contained 118 microbes per cubic foot; the air in the London sewers 110 microbes per cubic foot. This was a little surprising, and might seem paradoxical; but he quoted the case of Paris, where fewer microbes were invariably found in sewer air than in the air outside. In 15 drops of Edinburgh water there were 60 of these microbes, but the same quantity of Edinburgh sewage contained 2,200,000. In clay taken from the High Street at a depth of 6 feet no microbes were found; but in soil taken from near a leaking sewer, 15 grains contained 888,000 of these organisms. By means of a lantern and screen, the lecturer gave illustrations of the typhoid, cholera, diphtheria and other micro-organisms, including that of tubercle. Professor Stewart, in concluding, drew attention to the importance of the plumbing trade and the confidence reposed in it by the community. He was not going to lecture them on fittings, but he strongly advocated the abolition of certain insanitary appliances in common use at present. On the motion of Mr. Paterson, Elm Row, the lecturer was cordially thanked for his address.

MANCHESTER ASSOCIATION OF ENGINEERS.

At the weekly meeting of the Manchester Association of Engineers at the Grand Hotel on Saturday, Mr. Edward Wood read a paper on "The Use of Steel in Buildings." Mr. H. Webb, president of the Association, occupied the chair. In the course of his paper Mr. Wood said that in the opinion of many persons the English were behind the Americans in the use of steel for buildings. In America the high buildings were constructed almost entirely of steel, with the floors and walls filled in afterwards. English architects and engineers were now falling into line, and the American system was being largely adopted. The difference in the practice of steel construction between the American and the English system was accounted for to a large extent by the difference in the conditions. The architects in each country were bound by the respective building laws, and whereas what was considered fireproof buildings in England would not very likely be passed in America, it was almost certain that the authorities would not allow buildings to be erected in Manchester of twenty or thirty storeys, or, as they were called, "sky-scrapers." Mr. Wood proceeded to adduce reasons showing why steel was the best material for use in the constructional parts of warehouses, manufactories, engineering works and similar buildings, and also described the most recent



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adaptation of steel as applied by some of the leading architects and engineers of the day.

A discussion followed the reading of the paper.

A NOVEL COLONISATION SCHEME.

At the last meeting of the Royal Colonial Institute, the Rev. Alfred Honner (of Adelaide, South Australia) propounded a scheme of colonisation, the main feature of which was not so much the settlement of an agricultural population as the formation of new towns. In illustration of his scheme, the author advocated that application should be made to a colonial Government for a grant of 11,000 acres in a suitable locality, to be surveyed in 1,000 township allotments of one-sixth of an acre, and also 1,000 suburban blocks of eight acres each, with parks, market square and reserves for public buildings. The Government would further be asked (1) to conserve the water, (2) to fence the roads, (3) to provide a small and convenient landing place, if on the coast; (4) to compile a hand-book giving full information as to climate, the soil of each allotment or block, rainfall, coast soundings, fish, minerals, vegetation, &c., for the value of which they would hold themselves responsible. A syndicate would then be formed with a capital in proportion to the number of towns to be colonised—say 100,000*l.* for a town of 1,000 adults. The syndicate would (1) select the settlers in this country; (2) provide each adult with a house of iron or wood made on the same model, costing a maximum of 24*l.* and capable of erection in 24 hours; (3) convey the settlers and their effects to the port nearest their location; (4) establish a store and bank in the township from which all raw materials can be obtained and payments made; (5) allow each adult 2*l.* 10*s.* for tools on the day of location, and also 10*s.* a week for the first year. The manager of the bank and the storekeeper might be the responsible officers of the syndicate in each township, and the syndicate would hold each colonist's land and house on mortgage as security for the money advanced. No payments would be made until the colonist could show that a corresponding amount of work had been done. After the first year a rent would be charged, say in the second and third years 3*s.* 6*d.* per week, and in each of the remaining seven years 4*s.* 6*d.* It was computed that in ten years this would give the syndicate a return of 100,100*l.*, and for the purchase money of the allotments at 1*l.* each and the suburban blocks at 1*l.* per acre a further 9,000*l.* may be added. The sum advanced to the colonists being 52,500*l.*, there would be 56,600*l.* to cover interest and expenses, without taking into consideration the profits that will accrue to the syndicate from the monopoly of trade and banking business. The success of the town would mainly depend on the selection of the settlers, and great care would have to be taken not to have too many persons of one craft. Surplus labour could be absorbed by other towns. Produce would find a ready market in the town, which would largely depend on its own resources. In each of the newly formed towns 500*l.* a week, derived from the syndicate, would circulate for the first twelve months, in addition to the private means of settlers. Churches, schools and public buildings would soon be wanted, and would bring work and capital to the town. For the first ten years the colony would be a "protection" settlement, nothing but raw materials and articles that could not be made by its own people being admitted free of duty. After ten years, when accounts had been squared with the syndicate, free trade would be the order of the day. When once the model of one township was clearly drawn out the same system could as readily be applied to 300,000 persons as to 1,000. In London alone there were thousands who were completely crowded out—enterprise, energy, ability and pluck thus lying dormant and only waiting for a chance. Men who at home had no means of existence after a short time in a British colony had risen to the top of the tree. Disparaging and untruthful accounts of the colonies had deterred many from there seeking new fields, but they offered a paradise to the honest working man and a harvest field for capital. It was an outrage on common sense to say that a country, for example, like South Australia, with a splendid climate, an area exceeding 900,000 square miles, and a small population of 360,000, did not offer greater advantages to labour and capital than these overcrowded isles.

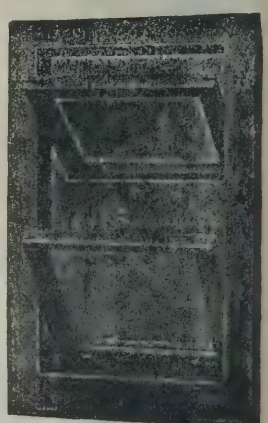
HOMES FOR THE POOR.

Many facts have recently shown beyond question, says the *Daily Telegraph*, that even skilled craftsmen earning good wages experience the utmost difficulty in obtaining dwelling accommodation. And if this be the case with those whom one may fairly describe as "the aristocracy of labour," how much worse is the state of the unskilled, the casual and the ill-remunerated toilers in our midst? It is impossible for the State, through its various popularly elected bodies, whether

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these be county councils or local vestries, to recognise any system of housing which does not provide against overcrowding and insanitation, costly though these must needs be under present conditions. Equally it is becoming impossible for the humblest grades of our hewers of wood and drawers of water to pay rents commensurate with improvements that have been effected. Whatever improved education and technical training may do for the rising generation, we have still in our midst a very large population who are unable to fulfil more than the lowliest avocations, yet whose right to family life and a home of a sort none dares to call in question.

In 1862 Mr. Peabody gave that first instalment of 150,000*l.* towards the half million sterling which he presented and bequeathed with the aim "that within a century the annual receipts from rents for buildings of the improved class hereby authorised may present such a return that there may not be a poor labouring man of good character in London who could not obtain comfortable and healthful lodgings for himself and his family at a cost within his means." So pressing, however, became the need of more dwellings in the earlier days of its institution that in order to secure sites advantageously from the defunct Metropolitan Board of Works the trustees—of whom the Earl of Derby was chairman—borrowed extensively. Thanks to excellent financial management, all debts have now been completely cleared off, the last instalment having been paid within very recent weeks, and the trustees, with the Duke of Devonshire as their present chairman, hope soon to be in a position to build yet more blocks. Already the completion of its Stamford Street property, by two, though not large, blocks, has been undertaken. At the present time, according to information readily supplied by its secretary, Mr. J. Crouch, it possesses 5,121 separate dwellings, of which 828 are single rooms, and has a population of just 20,000 upon its estates. Like the Guinness Trust, it gives a preference to poor applicants with large families, and is not over strict when a tiny arrival causes an excess over its nominal "two occupants to a room." Rents here vary from 2*s.* a week for a single room in Shadwell to 3*s.* in Whitechapel, from 3*s.* 3*d.* in Islington for two rooms to 5*s.* 6*d.* in Orchard Street, from 4*s.* 9*d.* in Blackfriars for three rooms to 7*s.* 6*d.* in Pimlico, the average working out at 2*s.* 2*d.* a room, or 4*s.* 9½*d.* a tenement. In last summary of the tenants' occupations no less than 673 are entered as labourers, 513 as porters, 283 as carmen, 194 as warehousemen, 267 as needlewomen and no less than 372 as charwomen.

No less interesting, as it has done its work on a simple business basis, independently of charitable benefactions, is that of the Artisans, Labourers and General Dwellings Company, and no one has had a longer or more practical acquaintance with the difficult question of providing cheap dwellings for the people than Sir Richard Farrant, its deputy chairman and managing director. This great Association, with its capital of three millions, has spent two-thirds of that sum in building operations, and at the present time has in round figures 7,000 paying tenants and houses 50,000 persons. For the better-to-do working people are its cottage estates at Shaftesbury Park, Battersea, Queen's Park, Harrow Road, Noel Park, Wood Green, and it is now developing a property of 66 acres at Streatham. But for the poorer classes it has numerous block buildings—in Lisson Grove, Marylebone, Clerkenwell and other crowded quarters—and in erecting these the directors, who include the Earl of Portsmouth, Mr. Nevil Story Maskelyne, Mr. Mark H. Judge and the Hon. Cecil Ashley, had public-spirited ideas to carry out, as well as to do their duty by their shareholders, to whom a 5 per cent. dividend has been paid for the past twenty years.

"The conditions required, if you are to house large, poor families at the lowest rates, are the advantageous acquisition of sites, well-planned buildings making the most of the ground space, and construction as cheap as is compatible with sound work," said Sir Richard, discussing the subject. As to the difficulties of obtaining sites large enough to be useful, he had much interesting information to give, and is of opinion that the London County Council in its methods in this direction has greatly checked private enterprise. The view, however, that Sir Richard lays down as the fundamental principle that should underlie all dealings with this difficult question is one that he expressed with all vigour and directness before the town holdings committee, to the effect that a landlord has no right to say he will only have a given class of house and occupant. This, as he further pointed out, has actuated the Duke of Westminster in the most honourable and statesmanlike degree, though his Grace has acted so quietly and as a mere matter of course in carrying it out that scarcely any even of those who have directed real attention to this subject are aware of what he has done. But between Oxford Street and Grosvenor Square, near Eaton Square, in Belgravia and in Pimlico, he has set aside plots for working-class accommodation which this company to a small extent, and others in larger degree, have secured for 2*d.* a foot, or from one-twelfth to one-sixth of what might have been obtained for fashionable flats or mansions.

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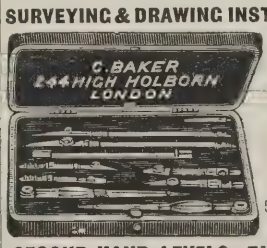
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Great as the Duke is as a London landlord, he is not the only one, and if others would follow so notable an example in developing their properties, a material contribution would be made to the solution of this most pressing problem.

At 2*d.* a foot, it is practicable to erect huge block buildings of six or seven storeys upon a big scale, to work out a ground rental (exclusive, of course, of building, taxes and other details) of 3*d.* a room. It is relatively much cheaper to control one vast building than two smaller ones, inasmuch as one rent collector, one building inspector, carpenter and so on can look after it. With some slight modifications Sir Richard declares the Peabody Fund's system of building the best of this kind, and drew attention to the fact that it was far better to construct the staircases so as to be entered from inside the central court and not from the street, inasmuch as one night-porter then sufficed to prevent unauthorised persons from entering, to the saving of expense and the hindering of drunken persons or tramps from occupying the staircases. The average rent of these block buildings is half a crown a room. There are single rooms reserved for women, which may be shared by a mother and daughter or two sisters, in the Lisson Grove buildings, but the greater part of them is planned in two and three-room tenements. The same regulation as that of the London County Council, permitting no more than two to each room, is strictly ordained throughout the dwellings, and young children count equally with adults.

As to the cost of building, it must be borne in mind that materials and wages have risen enormously of late. On this aspect of the matter Mr. Thomas Wilkinson, secretary of the East-end Dwellings Company, had specific figures to give, and mentioned that the cost of the brickwork of the Lolesworth and Katherine Buildings erected in 1885 in Commercial Street, Spitalfields, had been 11*l.* per rod, whereas their last contract, which had recently been signed, was for 16*l.* 10*s.*, and cement, ironwork and woodwork were proportionately dearer. Masons and others worked for shorter hours, and much longer time was taken over building operations. This company provides more single-room tenements than any other, and has some 5,500 residents under its various roofs in East London and in the vicinity of King's Cross. Like the Guinness Trust, its efforts are only restricted by the scarcity of land, as it could furnish capital to any amount for extension, and never wants a tenant for a day.

Meantime the County Council has resolved to build upon a site in Poplar, which will involve some cost upon the rates. It is an altogether new principle, for it has hitherto been a cardinal point that such dwellings should show a nominal 3 per cent. on the outlay. Possibly it may mark an intention of extended activity on its part, and there are not wanting expert critics who think that it might be desirable for the Council to act upon its powers under part 3 of the Housing of the Working Classes Acts of 1891, and put up blocks of buildings wherever it pleases, irrespective of any clearance of insanitary areas.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

23966. Frank Bunker Gilbreth, for "Mixer for concrete cement and other substances."

24151. Henry Brasington and Herbert Brasington, for "Improvements in ventilators applicable for buildings and the like."

24188. Max Villaret and Joh Baptist Wahlen, for "Improvements in drying and transporting the vices for bricks and the like."

24281. David Janzi, for "Improved cement step."

24285. The United Asbestos Company, Limited, and Joseph Alfred Fisher, for "An improvement in fireproof ceilings and partitions."

Specifications Published.

28842. Gruner, for "Composition for the manufacture of artificial stone, cement and the like."

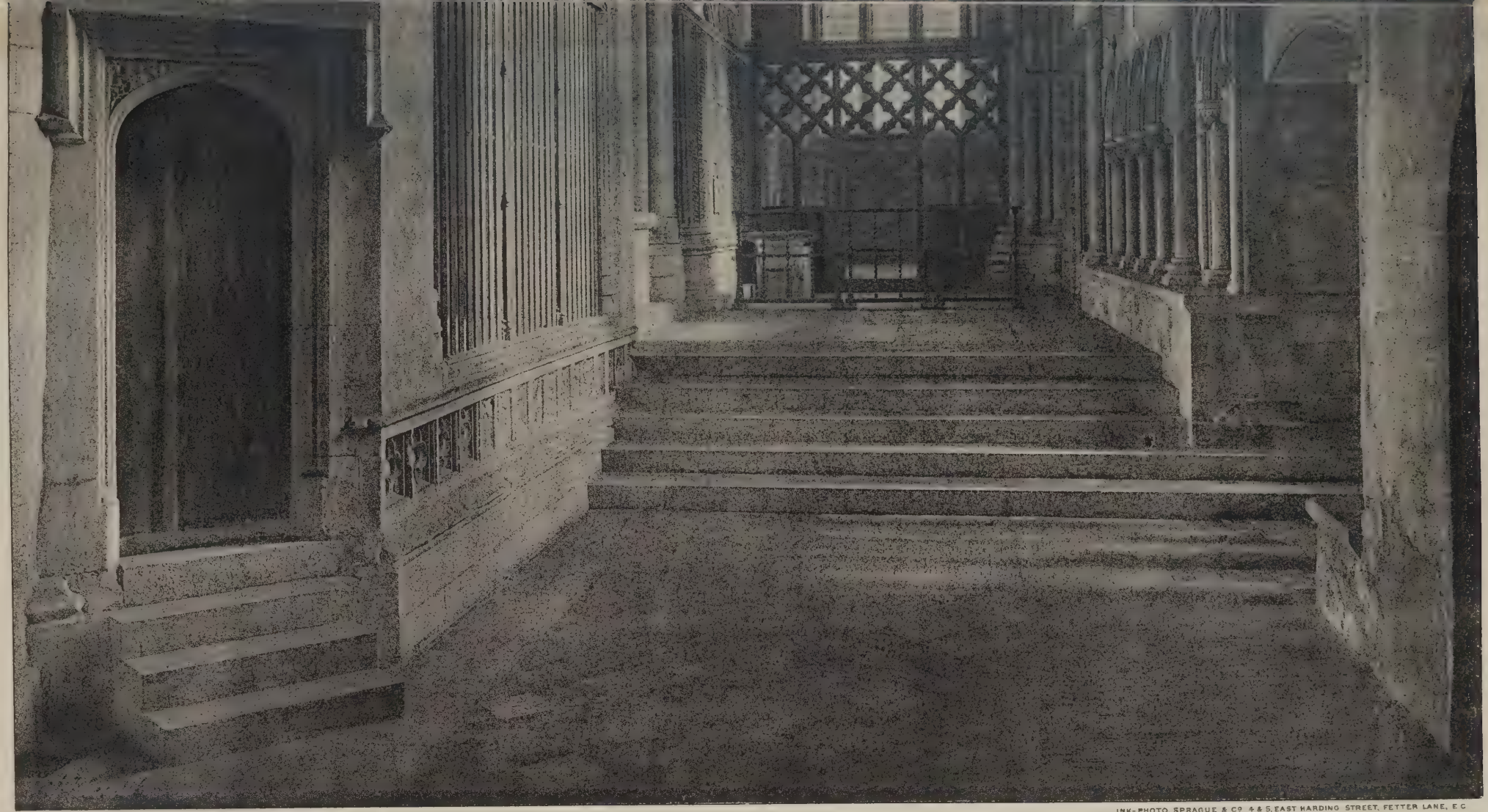
593. Blackman Ventilating Company, Limited, Wardlf & Tattersall, for "Appliances for moving soft undried bricks."

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The Architect.

THE WEEK.

It was inevitable that Miss Ethel Mary Charles would be elected as an associate of the Institute on Monday night. With such sponsors as Mr. Ernest George, Mr. Brydon and Mr. Graham, it would have been an offence against decorum to reject her. Besides, Miss Charles had already complied with the prescribed regulations, having passed the three examinations successfully. It is true the tests are inadequate to discover architectural skill, but they are supposed to be efficient in other cases, and why should there be an exception? But if we look at the matter from another point of view than that of Conduit Street, the election could not be well opposed. Ladies have succeeded in painting and in sculpture, why should they fail in an art like architecture? There are lady musicians and writers, while they have succeeded in the management of business establishments, including those of builders and architects. It was also evident to the members that voting against Miss Charles's admission would not be an obstacle to her successful practice as an architect. Any lady can open an office and accept commissions for the erection of buildings although she may have never passed an examination, and there is no law to prevent anyone from giving commissions to lady architects. The Institute ought therefore to be grateful to Miss Charles for the compliment paid in recognising its existence, and, no doubt, sooner or later a reward will be given to the new member, whose only advantage from the election can be the consciousness of a victory over prejudice.

The Corporation of Dublin on Tuesday revealed more good sense than they were supposed to possess. It was proposed to formally accept Mr. Pemberton's tender for the erection of a fire-brigade station. That might be considered a very simple affair, but it was made to assume novel aspects. One of the Councillors declared that the contractor was a member of the Master Builders' Association. In Dublin that is considered to be a crime, and accordingly it was moved as an amendment "That such portions of the tender as are covered by painting, decorating, &c., of the proposed new buildings be deleted and fresh tenders be solicited from the master painters of the city, so as to secure employment for the members of the recognised painters' societies of Dublin." It was not alleged that Mr. Pemberton had ever paid lower wages than other employers, and by the Corporation by-laws it was necessary that qualified workmen should be employed at a standard rate of wages. The intention of the amendment was that painting should be confined to members of the Painters' Society, and of course the same rule would have to be applied to other trades, and in that way the Corporation contracts would be entirely in the hands of trades union men, working or idling as their officers decreed. An instance was cited to show what that signified. In a recent case an attempt was made to compel a Dublin builder who had a contract in an outlying district to avoid employing local workmen, but that he should bring men from Dublin, pay them Dublin wages, to which the district wages should be superadded. That transaction, which was related by Alderman Meade, a builder, was enough to open the eyes of all parties of the Corporation. Only fifteen members showed their indifference to economy and fair play by voting for the amendment, whilst no less than thirty-one ranged themselves on the side of honesty and common sense.

In October last the County Council advertised for a superintending architect, to succeed Mr. Thomas Blashill, at a salary of 1,500*l.* a year. It is remarkable that only twenty-seven applications were received. That was a lower number than was anticipated. The indifference to the opportunity may have been caused by the prosperous condition of the profession. A London architect having an average amount of practice can look forward to a larger income; moreover, it is more agreeable to deal with private clients than with a miscellaneous body like the County Council. Many architects also, we suppose, held back because they declined to lend themselves to the transactions which are inevitable with the works committee intent on demonstrating at all costs the superiority of amateurs to practical builders. It is to be regretted that the general purposes committee are wanting in sufficient courage to explain that the post of superintending architect is, from the constitution of the Council, not altogether desirable. On the contrary, they say that the architects who aspire to the post are not altogether eligible. According to their report, "the applications having been carefully considered and nine of the candidates having been seen, we regret to have to report that we cannot see our way to submit the names of any of the candidates as possessing, in our opinion, the qualifications necessary for so important a position. We are considering what course should, in the circumstances, be taken with a view to filling the appointment." If London was properly governed an architect would be proud to hold such an office, for it would afford him opportunities to increase the amenity of the most important city in the world; that would be scope enough for the greatest architect's ability. But able men know that if they attempted to make the Metropolis worthy of its position they would be hampered by those who should encourage them. The office has therefore to be considered simply in its financial aspects, and as 1,500*l.* is not adequate remuneration for the toils and troubles which are inevitable, superior men act wisely in being deaf to the County Council's invitation.

Another decision has been given on the important question, What does 30 feet high mean under the Workmen's Compensation Act? A labourer claimed compensation from Mr. Goodall, a builder, for injuries which he suffered while working at a building in Bermondsey. In the course of the evidence, it was ascertained that at the time of the accident the height of the building was only 26 feet from the basement level, although it was 35 feet from the lowest part of the foundations. Judge Atkinson, Q.C., was of opinion that foundations were not to be reckoned. The height was to be 30 feet from the level of the basement, and, as the building was 4 feet short of that dimension, judgment was given for the builder. Mr. Goodall did not seek costs, and generously offered to keep the man in his employment. Judge Atkinson took the opportunity of pointing out the mischief which was caused by inserting an appeal clause in the Act, which was alike oppressive to rich and poor. In the case just heard the man was five weeks out of work, and if he had been successful he could receive no more than half his usual wages for three weeks, while for the remaining two he could not be paid. It is now becoming evident that the Act is a white elephant for workmen.

It is no easy work to prepare plans for a large hospital in a hurry, and if it were a private venture the speculators would recognise that extras were inevitable. In work of the kind moments are precious, and an architect must sometimes assume the risk of acting on his own responsibility instead of insisting on the usual procedure of written orders. Considering the size of the Brook Hospital, and the circumstances under which it was undertaken, a sum of 1,300*l.* is not an extraordinary expenditure to have incurred "without any justification whatever." For it is only about one-half per cent. of the total cost. Many cases could be cited where a far larger outlay had to be incurred by the architect. There is nobody who has had experience of works of the kind but will agree that Mr. Aldwinckle has had reason to remonstrate in still stronger language than he has used for the way in which the expenditure on the Brook Hospital has been brought under public notice. Only in an official sense were there grave irregularities, and that phrase has been so often applied to trifling differences in accounts that it has lost its value. When it is admitted by a Government inspector that the architect was only actuated by a desire to produce a "hospital of the best possible type and fitted with all the newest improvements," it is not fair to allow it to be implied that he was incited to extravagance in order to increase his commission. Are all Government buildings completed without the introduction of extras?

BOHEMIANISM AND ARCHITECTURE.

If anyone asked Schaunard, or one of his gay companions who are depicted in Henri Mürger's "Vie de Bohême," whether architects were artists he would be sure to reply in the negative. He would maintain that the artistic temperament was displayed in the wild life he and his friends followed, and from which architects were excluded. Accordingly, he would confine art, in the highest sense of the word, to painters, sculptors and musicians, with an occasional relaxing of the rule in favour of some poet who was appreciated by infallible judges like himself. The real Schaunard did not do much for French art, and after several years' indulgence in dreaming about the greatness he was to attain and his superiority to other men, he wisely condescended to inherit a business and settle down as a commonplace representative of the bourgeoisie. Many other Bohemians who have followed him would be prepared to draw the line like Schaunard. It cannot be said their classification is of no value. It has been adopted not only by professors of æsthetics, but by organisers of international exhibitions. According to some of these, architecture is the first of the useful arts, but owing to its peculiarities it cannot be comprised among the fine arts or beaux-arts.

It is always difficult to say by what process conclusions are arrived at. We all profess to be directed by the dry light of logic, and although we may not adopt the syllogistic form, yet we flatter ourselves that our thoughts are as systematically arranged as if they were expressed by symbols. But impressions, remembrances, associations are not without their influence, even when we say, "No B is C, All A is B, therefore No A is C," or form any of the ratiocinative figures. As in Paris students of all classes are drawn together in their youthful days, they act and react on one another. It is therefore easy to understand why so many, when they have attained maturity and should be serious, retain an affection for bohemianism, although they were only allowed glimpses of it in their youth. If they become professors or administrators, authors or ministers, they cannot when they are reasoning with apparent rigour escape from the old prepossessions. When they were young they found students of architecture to be a class apart, and the prejudice remains. Consequently the French architects have often occasion to complain that in the Chamber and in the press they are not treated with the same tolerant consideration as other followers of art. There is little mercy for them. From what is said it might be imagined the architect was more of a notary than of an artist.

It is well there should be one important peculiarity about architects which distinguishes them not merely from painters and sculptors, but from most classes of men. They have the disposal of money which is not their own, and consequently they have responsibilities and liabilities which are not common. In France, for instance, an architect can be compelled to keep a building in a sound condition during several years; his acceptance of a commission is taken to be a guarantee of the success of whatever he plans. In the Code there is no mention of similar responsibilities for musicians, painters, sculptors, poets or littérateurs. In other countries there may not be the same exactness in defining duties. In England it is possible to bring an action against an architect whenever he is not supposed to have acted to the best of his ability, but corresponding actions against painters or musicians would hardly be advised by any trustworthy lawyer.

The painter and sculptor in the majority of cases are, however, speculators and assume all risks. They produce their works how and when they please, and offer them to the market. Who cares by what process they are produced so long as they are pleasing? The artist might be in a state of intoxication whilst engaged on them, or most desultory in his practice; he might be surrounded by bad companions or alone in the cell of a prison; it is not the history of the picture or statue the public seek, but something that will gratify the eyes of a purchaser as often as seen. But how different is architecture. The initiative rarely comes from the author or artist. If he is not in a proper condition during the preparation of his plans, the client is likely to suffer in several ways. It is not, then, to be expected that an architect's office can be made the theatre of those joyous scenes which, according to the popular belief, are very common in the studios of all countries.

When Thackeray was thinking of becoming a painter he lived in Paris, and he has recorded the manner in which men of that class pursued their calling. The young artist, he says, arrives at his atelier at a tolerably early hour, and labours among a score of companions as merry and as poor as himself; "the pictures are painted in the midst of a cloud of smoke, and a din of puns and choice French slang and a roar of choruses, of which no one can form an idea who has not been present at such an assembly." As for the artists, Thackeray said they were indescribable. Yet he owned that "in France the honours to be acquired by art are only inferior to those which are gained in war," and that painters comported themselves towards sober citizens "as the military man during the Empire did to the *pékin*: from the height of their poverty they look down upon him with the greatest imaginable scorn—a scorn, I think, by which the citizen seems dazzled, for his respect for the arts is intense." There could not be that sort of conduct in England even if the arts were more worthily prized among us. Nor in France could an architect dare to produce his plans amidst such boisterous surroundings. In England the attempt would be disastrous. Accordingly, if a multitude of people believe that the artistic spirit is only to be displayed amidst clouds of smoke and roaring choruses, then it must follow that architects are deprived of it. It is, however, in that way the world argues, and consequently architecture ceases to be a fine art. People in general cannot separate art from the artist, and as the artist who creates fine buildings cannot resemble the painter, sculptor, composer in his manner of production, it is perhaps allowable to suppose he is the inferior rather than the superior of those engaged in the arts for which the public have most admiration.

If any architect should be discontented because he is not classed among the men who are ordinarily accepted as artists, he can console himself by remembering that in all times his art remained "aloft in awful state." The feeling towards architecture may be judged from Vasari's account of himself. The majority of readers do not realise he was an architect. "Messer Giorgio" was an honest man, who did not wish to make himself out to be in any way superior to the majority of the artists of whom he wrote. So practised a writer could easily make capital out of his buildings. But he passes quickly over them, and underrates his skill as an architect. He assures his contemporaries that if it were not for Michel Angelo he probably should not have attempted the study of architecture; that his work for Duke Cosmo was undertaken "rather in obedience to his commands than as having any great hope I should succeed," and that in all cases his architectural work was forced on him. All Vasari was ambitious to prove was that he was one among painters, and that he made no claim to the manysidedness of the great Renaissance masters. His designs at Lille, which he prepared for Michel Angelo, almost give the lie to his autobiography, for they testify to fine architectural skill. But the honest artist knew what it was to be an architect, and, like Tennyson's shepherd, asked, "What pleasure lives in height, in height and cold, the splendour of the hills?" He was content to be an average artist, and in his time that did not signify an architect. As if to make his position more plain, Vasari announced he did not do his work single-handed, for he said:—"As architects cannot always be at work, it is of the utmost advantage to them to have a faithful and friendly assistant, and if no other ever knew this, I know it well, and that by long experience." From Vasari's words about himself we can realise the position of architects in his day, and the reverence with which they were treated.

Vasari had good reason to have some misgiving of his competence to undertake the duties which were assigned to architects in Italy, for they appeared to be without limit. When we read that Cosmo de' Medici sent Brunelleschi to the Pope as a man who was competent to move the world, it would seem as if the art must have been considered as having magical powers. If, therefore, Leon Battista Alberti, who was accepted as the arbiter of taste by his contemporaries, had declared that painting and sculpture were not true arts, the connoisseurs of the age

would have bowed to his decision, and who can say whether it would not still prevail? When we find Giuliano da San Gallo, Baldassare Peruzzi and others defying Popes, and that cardinals and bishops were treated as inferior beings, it is evident that the architects must have been convinced they were on account of their talents elevated above ordinary men. Some claimed to have power that was almost divine. It could not be expected that they would take part in those scenes which were incidental to the lives of the majority of painters and sculptors of the Renaissance period. It is recorded of several of the architects that they lived like nobles, conducted themselves as grandees, and were loved by princes as if they were brothers. When Andrea Contucci failed to satisfy Lorenzo de' Medici, and excited the ire of the master of Florence, the King of Portugal was proud to interfere in order to make peace between the architect and the prince.

It was not to be expected that men who were so prized should be the associates of the painters and sculptors, who were so numerous they were classed with mechanics. Still less was it becoming in them to share in the practical jokes and buffooneries of which there is relation in the histories of the Renaissance period. Architects were expected to respect themselves. That the law on the subject survived long after the decadence is suggested by the remark of Milizia, who, when describing Martino Longhi, said, "His general character was too depraved to admit the possibility of his being a good architect." In other words, Longhi was too much of a Bohemian to be a skilful designer.

If we could have the testimony of the artists who shared in Longhi's revels, we may be sure they would declare he was more of an artist than his serious contemporaries. Men who have only their own interests at stake can afford to take life as a pastime, and naturally assume that dissipation and inspiration go together. Unfortunately philosophers too often have taken the same view of artistic production, and have supposed that those who, by a resolute will and a sense of duty, escaped temptations were not entitled to be considered as artists.

AN ARTILLERYMAN AND ARCHÆOLOGIST.

SOME people were surprised when they found that Lord Kitchener was able to speak with precision about affairs which are usually supposed to be within the province of specialists only. His lordship's calculations about the cost of a railway in the Nile Valley might have come from an engineer who lived in Great George Street, Westminster. More recently his estimate of the amount required to set up the Gordon College in Khartoum was not disputed by educationists, who are of all men the least disposed to accept figures from amateurs, whether civil or military. The fact that Lord Kitchener carried out a war for a smaller sum than he had estimated is enough to compel City men and others to have faith in his figures. His financial skill is, however, only what was to be expected from a Royal Engineer. That most useful branch of the army to which Lord Kitchener belongs is a capital training school for any one who desires to be taught the meaning of the saying, "Take care of the pence and the pounds will take care of themselves." It is only necessary to look at one of the schedules of prices prepared for Ordnance contracts to realise the exactness which is employed in dealing with building works. There are no officers in the army who have to endure more scrutiny from civilians in the examination of accounts than Royal Engineers. It is usually an exasperating process, but it has at least the advantage of compelling the sufferers to realise the value of money and to be exact in their calculations.

It would, however, be an error to suppose that the Corps of Engineers has only one extra subject in its instruction, viz. finance. The versatility of both officers and men is hardly to be measured. There are politicians who still say that Lieutenant Drummond, the inventor of the limelight, who on an emergency was asked to fill an under-secretaryship in the Irish Office, was the most practical of all the statesmen who planned schemes for the regeneration of the unhappy island, and that whatever improvements were since realised were due to him. Several years afterwards another officer who was charged with the superintendence of the engraving of Ordnance maps was appointed under-secretary in Ireland, and he became as able an administrator as if all his life were spent in training for governing. No statesman doubted the aptitude of the corps to undertake the most diverse duties, with one important exception—that of commanding an army in the field. It was not until the Abyssinian war that a Royal Engineer was permitted to have the charge of a campaign.

We do not intend to force an eulogium of the services of that branch of the army on our readers. But when we see and hear all that is being done to express satisfaction with the efforts of an illustrious officer, it is difficult to resist thinking of his predecessors who laboured so well for England, but who were without the satisfaction of knowing that their services were appreciated by their countrymen. We wish to notice one of them whose name is not unworthy of comparison with Lord Kitchener's, and for several reasons should have particular interest for architects and archæologists; in other words, we mean to glance at the services of William Martin Leake.

For Leake it can be claimed that he was the first of the numerous nineteenth-century explorers of Greece. He was the pioneer that Cockerell, Barry, Inwood, Angell and others were proud to follow. In the present day, when excursions throughout Greece can be arranged in London, and on as definite terms as an excursion to any part of England, it is not easy to realise that when the century dawned the country was almost as inaccessible as a remote region of Africa. During three centuries only an occasional traveller was to be seen in Athens after long intervals, and it seemed as if the nineteenth century was likely to send few men from the West of Europe. In February 1688 the Venetians who invaded Greece decided on the destruction of Athens, and the Council of War could have offered as an excuse that no civilised people had the slightest care for the city and its temples. James Stuart and Nicholas Revett did not appear in Athens until 1751. Although the first volume of the "Antiquities of Athens" when published in 1762 was a revelation which surprised scholars, yet they could not screw up their courage to visit the nursery of European arts and literature. There could not fail after Stuart and Revett's work was completed to be an increased interest in the remains of Grecian art. It must have been widespread in this country, for it was in 1799 that Harrison, the architect, when he heard of the appointment of his client, Lord Elgin, as ambassador to Turkey, explained to his lordship the advantage of having casts of the remains for the use of English artists. Acting on the suggestion, Lord Elgin engaged a party of architects, draughtsmen and modellers, in Rome, for the purpose of securing drawings and casts of the most interesting remains. They were provided with formal documents authorising them to erect scaffolding around the Temple of Idols, as the Parthenon was then called, to take copies in gypsum and plaster of the figures, and to remove pieces of stone with old inscriptions or figures thereon.

About the same time William Martin Leake appeared on the scene. He was an artillery officer, for in those days sappers and miners, or Royal Engineers, had not an independent existence. He belonged to an old Essex family, and was born in 1777. Having a turn for scientific warfare, after training at Woolwich he obtained a commission in the Artillery. It was as an officer he found himself in Greece. At the beginning of the century France was sending out emissaries of civilisation, and then as now it was considered the duty of England to oppose them. Then as now Egypt was expected to become a theatre of war, and as the Turk seems always destined to be in a state of tutelage, it was decided to send English officers to drill the men for serving cannon in Egypt. One of the instructors was Captain William Martin Leake. As everything at the time was chaotic in Turkey, it was difficult to define the duties of the English officers or to determine how they could best carry out their mission. To study the country was considered to be one of the earliest duties. Accordingly, Leake formed one of a party that was sent in 1800 overland on a roundabout journey from Constantinople to Cyprus—a journey

that was usually undertaken by sea. He returned by the Archipelago in a sailing vessel. It was his duty to make observations along both routes. But while he did not neglect to study the strength and weakness in a military sense of that part of Asia Minor, he was able to lighten his task by recalling some of the events which were transacted there and of which he had read when a boy at school. He was next sent to Syria, and then to Egypt to undertake a survey of the Nile Valley as far as Assouan.

From Egypt he was ordered to Athens, to superintend some of the operations which Lord Elgin had undertaken. The operations of his lordship gave occasion to the Turks and Greeks to remove fragments without authority, and there was a risk that Lord Elgin's spoils would not be respected. To remove the large pieces of sculpture which are now in Bloomsbury along ill-formed roads was not an easy task, especially with improvised conveyances. Leake was, however, able to see them on board the *Mentor*, an English copper-bottomed yacht. But she foundered off Cerigo. That brought new trouble, for it was difficult to find divers and more difficult to raise the heavy blocks of marble. The sculpture was at last recovered and again despatched to London. Leake followed, but he had no sooner arrived than he was sent in haste to make a military survey of the coast of Albania, and to give the Turkish officers the benefit of his advice about strengthening the weak points. An attack by the French was anticipated, while Russia was expected to aid the Ottoman. In that case Leake was to supply the Russian army with any information he possessed. As if military surveying, fortification and strategy were not enough to occupy the hours of a man, he was instructed to obtain accurate information about the character of the country for use by the Government in England.

The whirligig of time revolved quickly in that age, and the foes of one day were friends the next. Leake was taken prisoner by the Russians he was deputed to advise. On his release he was sent on a secret embassy to Ali Pasha, whose position was equivocal. The French were also endeavouring to make a tool of the despot, and in fact, as Byron says, men of every clime made a resort of Ali's palace. Leake was successful in winning his confidence, and remained with him in an official position.

But it is only on occasions like the present, when Russians, Turks, Egyptians, French and English are again engaged in a game of politics, that Leake's military and diplomatic feats can be recalled. Ali Pasha of Janina is now remembered chiefly from Byron's tribute to his power (he was the original of Lambro, the father of Haidée), and from the description by another Haidée of his murder in "Monte-Cristo." The services of Leake are not celebrated in poems or romances, and must therefore be unknown to another generation. Records of them are, of course, entombed among the archives of the Foreign Office, but he would be a brave man who would seek to exhume the documents. His services to archæology merit a more general acknowledgment. Leake brought to the study of the subject all his skill as a military surveyor. He believed in measurements, and he applied them with a care for which he could have no precedents. In his surveys he was not satisfied with noting what he looked on ; in his mind's eye he could also behold a place or object as it appeared to an ancient Greek, and by his comparisons of measurements he attained identifications which were not possible by any other process. It is true that the conclusions he drew from some of his surveys have been disputed, but there is a wide difference in the satisfaction which a later enquirer derives when confuting a precise statement and that one has with overthrowing a vague assertion. In one case we are dealing with a plan, in the other with a sketch. Leake's "Topography of Athens," in common with his series of travels in Asia Minor, the Morea and Northern Greece, cannot be considered as adapted for those who run and read. They have too much the character of official documents or terriers prepared by a sworn surveyor, but as books of reference they are invaluable. They supply information which he alone among ancient and modern travellers was at the trouble of preparing, and, as far as can be judged by the dispositions of men in our time, they are never likely to be superseded by a more detailed or more exact information. His immense labour has something pathetic in it when we compare it with the results. As Hettner says, "We know almost nothing of what ancient Athens really was, for, in spite of all that has been done, the site and circumference of the Agora remains uncertain."

Leake remained in the Artillery until 1823, when he retired, having attained the rank of lieutenant-colonel. He had nearly forty years of leisure before him. That time he devoted to the preparation of his various books of travel. Another favourite study of his was Greek coinage, and during the latter part of his life his happiest hours were devoted to it. He lived until 1860. If the readers of his books are not numerous they are at least most loyal to his memory, for they see in him a type of those who have an infinite capacity for taking pains—men who cannot write a sentence unless with the conviction that they are recording a truth.

THE BROOK HOSPITAL.

On Saturday last a meeting of the Metropolitan Asylums Board was held. Mr. E. Galsworthy presided. The most important part of the proceedings was the reading of the following letter from Mr. T. W. Aldwinckle, architect of the Brook Hospital, *apropos* of the report of Mr. Knollys, inspector of the Local Government Board :—

"December 2, 1898.

"Sir,—I am duly in receipt of your letter of the 21st ult. enclosing copies of letter from the Local Government Board of the 7th and 10th ult., together with a copy of the inspector's report referred to in the former of the two letters, all relating to the recent inquiry as to the expenditure on the erection of the Brook Hospital.

"I have carefully read Mr. Knollys's report, and, although not agreeing with all the conclusions at which he has arrived, cannot but recognise his manifest desire to be fair to me, although he would appear to be strongly prejudiced against me in the matter of the Fountain Hospital (somewhat unnecessarily introduced into his report), my action in connection with the erection of that hospital having been fully endorsed and approved by the Managers.

"In his report on the Brook Hospital Mr. Knollys has very fairly considered the points and figures which I laid before him at the inquiry, and he has very carefully classified all those items which were authorised by or executed with the knowledge of the Managers or the committee, leaving only 12,000*l.* to be accounted for. Of this amount he states that a considerable part, although not authorised by the committee, 'was necessary, or at least very desirable, in connection with the erection and fitting-up of the buildings,' and he only mentions two items, viz. 655*l.* for teak flooring and 663*l.* for ward stoves, as having been ordered by me 'without any justification whatever.' While not agreeing with him that these were unnecessary, I would point out that this is a very small matter in connection with an expenditure of over a quarter of a million.

"There is nowhere in Mr. Knollys's report any suggestion that there has been any waste of public money, or that the Managers have not received full value for their expenditure ; but he speaks strongly—somewhat too strongly, I venture to think—as to some of the work having been ordered by me without the authority of the committee. I have never suggested that, in this respect, I adopted the right course ; but I have always said, and still maintain, that the Managers' interests have not suffered thereby. I am glad to have the inspector's opinion that in acting as I did I was actuated by the desire to produce a hospital 'of the best possible type, and fitted with all the newest improvements that medical or architectural science had advocated,' and I believe that in the Brook Hospital I have achieved this.

"Mr. Knollys states in his report that I resented his calling my attention to the fact that I should have exercised particular care as regards the increase of expenditure because the amount of my fees might be influenced thereby. I am quite sure that he would not intentionally offer an offensive suggestion, but at the inquiry I indignantly repudiated, and still do so, any suggestion that I increased the amount of work in order to augment my fees. The Managers' experience of me is, I think, in a contrary direction, as I voluntarily surrendered 2,200*l.* of fees which were legitimately due to me in connection with the erection of the Fountain Hospital.

"I wish that I could find in the two letters of the Local Government Board evidence of the same fair spirit as displayed by Mr. Knollys. No allowance is made in these letters for the very short time in which the plans had to be prepared, nor for the very great and exceptional difficulties presented by the site ; difficulties which could not possibly have been adequately realised by anyone in the short time at my disposal, and language of extreme censure is employed, for which there is no

adequate justification. The expression 'grave irregularities' should not be used in relation to an architect of my professional standing, and who has done so much important public work (chiefly under the control of the Local Government Board), simply because some items have been ordered by me without authority, while no suggestion is made that public money has been wasted thereby.

"The paragraph of the Board's letter dealing with the resolution of the sub-committee as to the expenditure of more than 50*l.* at one time without authority is ungenerous. I did not receive notice of this resolution for the simple reason that it was never sent to me. If it had been sent it would have been in the form of a letter, and a press copy would still be in the possession of the Managers, but such does not exist. If I had received such a communication I should not have attempted to deceive Mr. Knollys. I have endeavoured to be perfectly frank to him, and this, I believe, he quite realises. The Board state in their letter, 'There was either neglect in not communicating the resolution to Mr. Aldwinckle, or a failure to keep proper record of the communication addressed to him on the subject.' I indignantly repudiate the unworthy insinuation contained in the latter part of this paragraph.

"Adverting to the second letter of the Local Government Board, dated the 10th ult., making a deduction from my fees of the sum of 375*l.*, I can only observe that, while quite indifferent to the pecuniary loss, I feel that such an act on the part of a great public Department is too trivial to cause resentment, but carries the sting which can give pain. That there has been no waste of public money is clearly proved by the fact that, after making allowance for the additional expenditure caused by the nature of the site, the cost of the Brook Hospital is not above that of the other two hospitals recently erected by the Managers. The extra expenditure due to the site was put by Mr. White's committee at 53,000*l.* I think this is somewhat under the mark, but even with this deduction, the ordinary cost has been 215,000*l.*, which is not, I think, in excess of the other two hospitals.

"At the same time it is admitted on all hands that the Brook Hospital, although the pioneer of hospitals of this class, with no precedents to guide me in its design, is a good hospital, completely finished in all respects and worthy of London. During the two and a half years since its opening no defects have appeared in the buildings, and the hospital stands now without a flaw. The precautions taken by me in providing the foundations have been so efficient that, even during the recent severe drought, so injurious to buildings placed upon a clay soil, and especially when on the slope of a hill, not a trace of any settlement or fracture has appeared. The work throughout the buildings is good, of the highest class, and of a distinctly permanent character, while many details of construction, notably the ward floors and ward stoves, have been adopted by other hospital authorities. Although I have been for the past eighteen months the subject of many attacks, I have never wavered in my belief that the Managers either recognise now, or will do so in the immediate future, that I have done justice to them in the design of this hospital, and estimate at their true value the difficulties which I have had to encounter. I am, and shall always be, proud of being the architect of the Brook Hospital, and long after the criticisms of the Local Government Board shall have been forgotten, the hospital will remain as a monument of good work done under circumstances of exceptional difficulty.—Yours faithfully,

"(Signed) THOS. W. ALDWINCKLE.

"Mr. T. D. Mann."

On the motion of the Chairman, seconded by Sir Douglas Galton, it was resolved to enter the communication on the minutes, to forward a copy to the Local Government Board, and to circulate it generally.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening at Conduit Street, Professor Aitchison, R.A., president, in the chair.

The following gentlemen were elected fellows of the Institute:—Messrs. Robert Lockhart McCowat, William White Cooper, M.A., Henry Thomas Hare and William Henry Duffield.

Fourteen candidates were elected associates:—Messrs. J. C. Baines, C. W. Surrey, Albert Herbert, Louis Moore, P. C. Blow, James Stockdale Harrison, A. R. Gough, Charles Riddey, V. Evans Bösher, R. W. Carden, A. W. Vercol, Alexander Cowie, Gerald McMichael and Miss Ethel Mary Charles. The election of the last-named seemed to cause excitement and some opposition. Miss Charles was a probationer in 1892, student in 1895, and qualified in 1898. Her election was proposed by Messrs. Ernest George, J. M. Brydon and Alexander Graham.

Sir Alexander Binnie was elected an hon. associate.

Mr. H. D. Searles-Wood read a paper by Mr. R. W. Gibson (New York) on

Fireproof Construction of Buildings in the United States.

Mr. Gibson's paper commenced with a brief sketch of the development of fireproof construction in the United States, showing that the first efforts had been disappointing through lack of perception of the difference between incombustible materials and fireproof materials. The exposed iron systems had failed signally, collapsing to the heat of burning fittings, furniture and stored goods. The modern system had developed from these experiences upon an ancient pattern of floors composed of wooden beams buried in masonry, using steel and iron instead of wood, and perfecting and systematising fireproof protection. The latest phase was the entire elimination of the combustible materials hitherto used for doors, floors, architraves, &c.; the selection of materials fire-resisting as well as incombustible, and the use of these to protect others which must not be used unless so protected. Materials most available were steel or iron for strain-bearing purposes, and brick or terra-cotta and plaster to clothe and protect the metal. Masonry materials required careful selection, some granites and marbles being liable to destruction at the earliest blasts of a severe fire. Fireproofing must be such that, when the fire occurs it will not be washed off by the heavy torrents of water thrown upon it by the modern fire-engine. Of the several classes of fireproofing accumulated experience pointed to the infinite superiority of fire-resisting terra-cotta, which had always performed the duty required of it. Probably 95 per cent. of existing fireproof work was of terra-cotta construction. The structural ironwork might be divided into three classes, suited to as many types of fireproof buildings. First, the building of ten storeys or less, erected by the old methods of supporting walls and superimposed columns carrying floors and roof, and with only small beams and girders or occasional independent trusses. Secondly, the building of more than ten storeys, which accumulated such strains upon its walls that they must be reinforced by posts to carry the girder loads, and in which the walls required such mass in their lower parts to support their own upper parts that the metal first introduced to support the floor girders was reinforced and called upon to support the upper walls. This was the so-called skeleton construction. At a height exceeding twelve storeys, or when exposure to wind and other strains was great even at this height, the ordinary attachment of columns and girders was abandoned, and horizontal stability supplied by rigid rivetting of all connections of posts one upon the other, and of girders to posts and beams to girders, and by the addition of bracing in ties and struts and gusset brackets, thus developing the so-called cage construction, wherein the steel receives and transmits all loads to the foundations; and the walls have become mere panels, not only without vertical loads, but without transverse bracing strains. Thirdly, an intermediate type of building where all the internal structure and all the floor loads were supported upon columns, some being placed in the outside walls, the outside walls being made of self-supporting thicknesses in cases where architectural treatment demanded sufficient mass for the purpose, and where the foundation presented no difficulty. In buildings of the third type, erected in many storeys and let for business purposes, almost perfect fireproof qualities had been achieved. In such buildings there was no danger to life from fire, or of the fire spreading from the room where it first occurred. This type had become systematised by custom and experience, so that its structure was uniform throughout the country. The floor loads are supported upon columns of rectangular shapes of rolled steel, the outer columns being set in the outer walls in grooves, close-fitting but without bond, so as to permit of unequal movements and settlements and contraction. Girders are of rolled steel, built and rivetted for large sizes, and of I-beams for smaller (24 inches and under); they are all rivetted to the side columns, so that these may be continued right through the height of the building in practically one length. Bracing is done with gusset plates and angles. Beams supporting the floors are small (8 or 9 inches) rolled steel I-beams, laid 4½ feet apart. The size of the beam and spacing arise from the use of the terra-cotta arch, of from 8 to 10 inches in thickness. These arches, which are very economical, very adaptable and elastic in their application, are made of hollow terra-cotta blocks, with joints inclined at a fixed angle. The blocks are of three patterns, viz. the springer, which rests on the flanges of the floor-beam; the intermediate blocks, which are all cut to the same inclination; and the key-block, with the sloped joint on both sides. The work is set upon a centering consisting of simple scaffold boards hung 1½ inch below the soffits of the iron beams; upon this centering the arch-blocks are laid, and then jointed and flushed in cement. When the work is set the centering is removed to a new panel, so the work goes on continually. Upon the arches a layer of cinder concrete is deposited, and upon this the finished floor, consisting of paving

or tiling, or a composition of a concrete nature, or sleepers and wooden floor. For buildings having floors weighing from 75 lbs. to 95 lbs. dead load per foot, and supporting live loads from 75 lbs. to 150 lbs., the distance between the main girders would be between 14 and 18 feet, which being a convenient size for a single office is also taken as the unit of room width and the space allotted in the outer walls to a pair of windows. The roof is constructed with arches, the same as the floors, except that sometimes the steel beams are laid to the necessary pitch of about half an inch to the foot, so as to avoid the weight and expense of filling, which would be necessitated by level beams and arches. The thickness of the walls is about two-thirds that required for walls supporting the floor loads, and they are secured to the metal framework so as to receive its assistance in resisting horizontal wind pressure. Thicknesses of walls for buildings of varying height and construction were quoted. The thickness necessary to resist the weather is found to be 12 inches at least of brickwork, with terra-cotta interior furring. The furrings are hollow terra-cotta slabs or tiles 2 inches thick and 16 inches by 8, or other convenient sizes, built up against the inside face of the wall and secured with iron where necessary. The interior of the steel frame is protected over all its exposed surfaces by 2 inches of terra-cotta furring. The girders are protected by slabs of terra-cotta, secured with hooks and bars and wiring, and usually getting their outer form by means of metal lath upon light iron bracketing to receive the finished plastering. The lower portion of walls and columns are frequently finished with marble slabs 1 inch thick, or with tiling. Those methods are preferable which place the fireproofing material close to the metal and preserve numerous and frequently broken air spaces in their own substances. A greatly improved and considerably cheaper column protection can be made by using one coat of metal lath and cement in contact with the column, and a second coat furred out from the first upon metal lath upon light iron bars, so as to preserve an air space between the two thicknesses of cement. This protection is finished with hard plaster, proof against the fire-hose. Partitions are built after the structural steel is protected. The best are of terra-cotta blocks, 4 inches thick for average heights, 3 inches for moderate heights, and 6 inches for great heights of storey. They may be stiffened with angle-iron framing, but show extraordinary strength when well set in Portland cement. Minor partitions, and sometimes all the partitions except those next corridors, are frequently built by using light angle-iron posts or quarters covered with metal lath, and plastered either like the old-fashioned wood-plastered partitions, or sometimes with very thin posts and one sheet of metal lathing only, so as to make a solid plaster partition about 2½ inches thick. Three-inch tile partitions dry quicker and cost only a little more. So far the building has nothing combustible in its construction, and the tendency is to more and more reduce the amount of woodwork admitted after this stage. Wooden floors are permitted, but doors and architraves should be of sheet metal, wooden cores being tolerated. Window architraves and jambs should be of hard plaster, and window frames and sashes of chemically-treated fireproof wood or of metal. Windows in internal partitions and doors should have wired glass. Office furniture should be non-combustible, *e.g.* metallic bookshelving, desks, cabinets, letter files, &c. In ordinary fireproof buildings, halls, stairs, corridors and elevator shafts are entirely incombustible. The author next discussed the principal sources of fire, and the manner in which it spreads—the latter a point but little understood, except by firemen; the effect of heat upon metal; an alternative system of steel construction; various forms of floors in use, and the merits of porous terra-cotta, a material preferred by many experts. In conclusion the paper dealt at considerable length with the principles to be applied in calculating the strength of beams, girders, columns and foundations in proportion to the loads required to be borne, quoting the building regulations respecting the matter in New York and Chicago, and the differences of opinion and practice existing among architects there in regard to column and foundation loads. The author's own calculations for a first-class bank and office building designed by him and recently erected in Syracuse were given as follows :—

Load on all beams	= total dead load + 70 lbs. per ft. live load.
Load on all girders	= total dead load + 60 lbs. per ft. live load.
Load on columns of three upper storeys	= total dead load + 60 lbs. per ft. live load.
Load on columns of remaining storeys	= total dead load + 40 lbs. per ft. live load.
Load on foundations	= total dead load + 20 lbs. per ft. live load.

Among a large number of illustrations to the paper were a set of working drawings and specifications and strain and load diagrams of the Syracuse bank designed by Mr. Gibson, which afforded an interesting example of this class of practice in the United States. Photographs showing the building in course of erection at various stages were shown by the lantern. These were followed by a series of lantern slides reproducing details of construction of a thirty-storey building which appeared recently in *Engineering*.

Mr. Gordon Smith, chairman of the science standing committee, who proposed a vote of thanks to Mr. Gibson for his paper, said that when read carefully and at leisure the paper would be found useful to all. There was an immense amount of interest in the subject to those concerned in controlling such constructions.

Professor Unwin made a few remarks, pointing out the importance of iron construction as carried out in America. Although in Chicago they had one of the worst possible difficulties to contend with for such buildings—namely, the poor character of the bed for foundations—yet this system of construction had developed to an enormous extent. The question as to whether they were to build vertically or horizontally was more a matter of custom than anything else.

Mr. W. Solomon, who seconded the vote of thanks, gave an account of a specification which Mr. Gibson had prepared. The American style of drawing out a specification had many points which might be adopted with advantage in this country.

Mr. R. J. G. Read drew a comparison between the English and American method of arranging ironwork.

Messrs. Langton Cole, C. H. Brodie, E.O.Sachs, Max Clarke and Delissa Joseph also took part in the discussion.

DROESHOUT PORTRAIT OF SHAKESPEARE.

In a letter to the *Times* Sir J. C. Robinson says that the Droeshout portrait is neither more nor less than a fraudulent production, like all the other *soi-disant* Shakespearean portraits, whose name is legion. Two or three years ago this picture was submitted to the Society of Antiquaries for the judgment of the members, and the verdict was conclusively against it.

Primâ facie, it might quite reasonably be expected that the original painting or drawing from which Droeshout's print must have been taken would come to light, and so apparently genuine a character was this particular "claimant" that the members of the Society of Antiquaries were at first strongly inclined to believe in him, but this was in the evening after dinner, when people are often inclined to see things in the most favourable light. Usually, however, the evening light was not sufficient to enable any certain judgment to be formed as to the pros and cons of this dark and dirty oil picture.

A reinspection, however, in the full light of day threw quite a different complexion on the matter. It was then soon perceived that the picture was of precisely the same class as the majority of the other *soi-disant* Shakespeare portraits—that is to say, it was substantially an ancient sixteenth or seventeenth-century portrait, painted in oil on panel, which had been fraudulently repainted and vamped up in various ways—metamorphosed, in fact, into a portrait of the great dramatist, probably towards the end of the last or beginning of the present century.

Apparently the original portrait was that of a lady, for the leading forms and details of the work could still be discerned in many places by a practised eye piercing through the fraudulent envelope.

There was, moreover, one other damning circumstance. The picture was painted on a substantial white wood panel put together in the Italian manner, an almost certain indication that the original work was that of an Italian master, doubtless working in his own country. Had it been a genuine contemporary portrait of Shakespeare, on the other hand, painted in this country, the material on which it was executed would just as certainly have been a thin oak panel, simply glued up in the usual English manner of the sixteenth and seventeenth centuries. No doubt was left in the minds of the members of the Society of Antiquaries who were interested in the question as to the fraudulent nature of this "Droeshout" portrait.

The owners of the picture, however, thought differently. They were nevertheless invited to submit the picture to an infallible test, namely, to allow some small portion of the surface paint to be removed by the application of a solvent, the effect of which would be either to disclose again the original surface of the picture or to prove that it was a homogeneous and so genuine work, and consequently really and truly an ancient seventeenth-century portrait of Shakespeare from which the famous engraving might have been made; but this crucial test was declined.

Mr. Sidney Lee, author of a Life of Shakespeare, writes :—

Sir Charles's unqualified assertion that all connoisseurs regard the portrait as spurious is in conflict with the fact that the President of the Royal Academy (who is also director of the National Gallery), the keeper of the prints in the British Museum, and the director of the National Portrait Gallery have all stated grounds for their belief that the portrait is genuine.

Last May Mr. Lionel Cust, the director of the National Portrait Gallery, made, with myself, a careful re-examination of the picture in the gallery at Stratford-on-Avon, where it now hangs. In presence of the portrait I read the argument against its genuineness that was published last year in Mr.

F. S. Robinson's volume entitled "The Connoisseur." Sir Charles Robinson's view, as stated in your columns to-day, is identical at all points with that expressed by Mr. F. S. Robinson in his book. When I read Mr. Robinson's remarks in presence of the picture, I reached the conclusion that Mr. Robinson's case rested on rash assumptions which a detailed study of the picture confuted.

Among Shakespearean scholars Sir Charles Robinson will find, I think, few supporters. Last Thursday I happened to meet Sir Theodore Martin, a Shakespearean scholar of great experience, and a special student of Shakespeare's portraits. He expressed to me with much enthusiasm his satisfaction at my choice of the "Droeshout" painting for the frontispiece of the new "Life," and declared himself convinced 'that that painting was the basis of the far-famed engraving by Martin Droeshout, which appears on the title-page of the first folio edition of Shakespeare's works.

Since writing this letter the director of the National Portrait Gallery has sent me the accompanying note, which he gives me leave to publish. Mr. Cust writes :—

National Portrait Gallery, St. Martin's Place, W.C. :
December 3, 1898.

Dear Lee,—I observe in the *Times* for to-day a letter from Sir J. C. Robinson on the subject of the portrait of Shakespeare at Stratford-upon-Avon. The objections made in it by Sir J. C. Robinson, some of them much to the point, have been carefully weighed and considered during the three years which have elapsed since he first made them, with the result that the belief in the authenticity of the portrait has been increased instead of diminished.

The authorities at Stratford-upon-Avon will no doubt be quite ready to reply to Sir J. C. Robinson on each count of his indictment, should he care to address himself to them.

The controversy is already an old one, and likely, as it would appear from Sir J. C. Robinson's letter, to become crusty. It will never probably be settled to the satisfaction of everybody. Sir J. C. Robinson is entitled to his own opinions, and so are other people, like yourself, who may be considered as also capable of forming some critical judgment of their own in a case like this.—Yours very sincerely, LIONEL CUST.

Sidney Lee, Esq.

INTERIOR DECORATION.*

IT is difficult for a decorator, as indeed it is for one in any calling, to divest himself of the interest he has in his work sufficiently to stand aside and judge of its importance and place in relation to other things. And yet I am convinced that in many minds there exists such an erroneous conception of the functions of decoration as to justify a more emphatic assertion of its importance than is usually made. I imagine that few even among architects would consent to the proposition that a certain room or hall should be designed mainly for the display of decorative treatment, and yet many of the best known buildings and apartments in the world are of little use except for the display of their decorations, and were primarily designed for that purpose. The Sistine Chapel, Loggia of the Vatican, portions of the Louvre and Versailles, the palace at Augsburg and many others suggest themselves. This at once gives dignity to the art. One hears continually of the necessity for making decoration a background for something else, such as pictures, furniture, dresses, people, and in many cases it is desirable, but by no means in all. It would manifestly be impossible to apply a purely decorative treatment to even a moderate proportion of the work undertaken, yet in a modified degree it should be applied to every work of any importance. The ceiling of the room may always be treated purely for decorative effect. Consequently in standard work we find the most elaborate decoration applied there. Nothing interrupts the view, nor is the ceiling so much within the ordinary range of vision as to weary one. But there are rooms in which the walls may be treated almost as elaborately as the ceiling and with satisfactory results. The plea for the pictures is in most houses such a hollow one as not to be worth serious consideration. I have seen the greatest care taken in the selection of a wall-paper for a room both as to pattern and colour with reference to the pictures, and afterwards have seen the walls hung with the most inartistic pictures imaginable. One of Morris's, or Crane's, or Shand Kydd's bold designs would have been infinitely preferable.

I speak of wall-papers because they are of necessity the almost universal covering material for walls. Of comparatively modern invention (no trace of them existing previous to the sixteenth century), no other material has offered itself nearly so satisfactory for transferring design and colour to wall surfaces. And the material itself must be completely ignored, the most successful paper being that in which behind the design and colour there is no thought of paper. To conceal the material in this case is perfectly legitimate, as it is only a means for transferring the design to the wall. On this account we are free to draw upon a great range of other materials, and while there need be no attempt at deception, the fine qualities of silk, tapestry, leather, &c., are obtained at a cost which makes decoration possible.

As in most other work, simplicity is the keynote of decoration. I do not mean by this weak colour or the absence of design. Ordinarily there is neither time nor opportunity for a special planning of each scheme that presents itself for arrangement. So that in most cases a general rule must apply. I have found this to be safest. Allow one colour to strongly predominate in the room. The other and smaller mass should be an analogous colour. Any other colour should be contrasting and small in quantity. Simplicity in colour is obtained by this means. Then ornament should not be weakly scattered over the surfaces but massed in parts. Large plain surfaces are always grateful to the eye. Such decoration as the Moorish or Japanese diaper is no exception to this, for their repeated patterns become really plain surfaces. The decorator's task is made much more difficult by the variety of lines he sometimes meets. Among the most trying rooms to treat are those in which the architect, without apparent reason, has made several heights for doors and windows and has placed these openings without regard to the spaces on the walls. This indifference to spacing of the walls and lining of doors and windows gives no end of trouble in the after decoration and destroys the repose of the room. In fact, the only safe road when such conditions exist in a marked degree is to cover the whole wall with one treatment and thus dodge the difficulty. It is well also to avoid inharmonious colour schemes in the fixed materials, such as woodwork, tiles, &c., not only with each other, but with the probable after treatment of the room in harmony with its character.

Rich colouring is almost indispensable to successful decoration. Even where light tints are used, plentiful use of gold should take the place of colour, for gold itself is very rich and satisfying. As to the use of various colours little can be said in a paper of this nature, but a few suggestions may be of use. Stronger colours may be used on the walls than might be thought possible with good results. The lighter blues are receding and the deeper blues are useful in an over-lighted room. Reds are nearly all assertive, but the strongest reds can be introduced into the colour scheme with happy results. The same may be said of the yellows, some of which will bring positive sunshine into a northerly room. Combinations of blues and greens so often seen in the best designing give a very natural colouring to the wall and consequently freshness. The quieter tones of green alone are also very pleasant, but some of the stronger greens which nature uses are impossible in a room where the other outdoor conditions do not exist. As to balance of colour such combinations as we sometimes see of two-thirds of a wall red and the other third blue are always disturbing, and no room so treated can be restful. Greens with certain shades of brown are usually grateful to the eye. Yellow also forms a happy combination with green.

As to patterns it is an axiom with designers that large patterns are most suitable for very large and very small rooms. You can let the medium-sized rooms take care of themselves. Of course the uses of the room govern the choice of pattern, and the eye naturally selects that most suitable. But it is a mistake to suppose that a large pattern necessarily reduces the apparent size of a room. When due attention is given to the colouring (avoiding contrasts) the reverse is the case. But in a large room small patterns should never be used except as practically plain surfaces, forming a background for something more important. A great deal might be said about adapting the decoration to the habits, tastes and more important still, the purses of clients. But this leads into other topics not within the scope of this paper.

* A paper read by Mr. W. H. Elliott before the Toronto Chapter of Architects.

LANCASHIRE AND CHESHIRE ANTIQUARIAN SOCIETY.

A MEETING of the above Society was held at the Chetham Hospital, Manchester, on Friday evening. Mr. C. W. Sutton presided. Mr. W. Harrison laid upon the table a draft map of Lancashire in the Mediæval period, prepared by him in accordance with the scheme for such county maps laid down by the Society of Antiquaries of London. The map showed by various symbols the monastic and collegiate churches, parish churches, chapels, castles, manor-houses and other features of the county existing at the time in question. It was accompanied by a list giving the authority for the insertion of each item. A paper followed by Mr. Thomas Kay, entitled "A Visit to Two Picts' Eirde or Earth Houses in Aberdeenshire." Mr. Sutton afterwards read some notes on the Domesday Survey between the Ribble and Mersey. This last paper was the work of Mr. W. Farrer.

NOTES AND COMMENTS.

Although the new Opéra-Comique in Paris has not received general approval, the architect, M. Cassien-Bernard, has been selected as successor to Charles Garnier to take charge of the opera-house. He is in the prime of life, having reached the half-century. He was a pupil of M. Questel and M. Pascal. Among his works are the theatre of Montpellier, the Ecole des Ponts et Chaussées, and the National Bank, Bucharest. He was one of the premiated competitors for the Opéra-Comique in 1887, and eventually his design was accepted. He was also among the fortunate architects who pleased the judges for the International Exhibition of 1900, and in connection with M. Cousin was entrusted with the bridge across the Seine which is to be called after Alexander III. M. Cassien-Bernard is plainly in the tide which leads to fortune.

Like most cities, Paris has to be enlarged. The tendency in France, as elsewhere, is to undergo sacrifices in order to settle in the capital. The consequences may not be always satisfactory, but they cannot be presented. Social gravitation is as true to the centre as that of matter. Paris is, however, not at present adapted for extension. The fortifications which Thiers had constructed at a most enormous cost are a sort of barrier which in one sense cannot be passed. People go beyond them and are happy in villas north, south, east and west of Paris. But the Municipal Council does not derive much benefit from those emigrants. Accordingly for years past there have been schemes for utilising the ground occupied by the useless fortifications, but without any definite result. At last the end appears to be approaching. It was agreed between the State and Municipal Council to have a valuation prepared of that part of the line of fortifications which lies between Auteuil and Saint-Ouen. As is the case everywhere, the vendors' figures came out higher. The Government valuers calculated the amount at 192,400,000 francs, or about 770,000*l.*; while the Municipal valuers declare the sum to be 133,500,000 francs, or 534,000*l.* The difference is serious, but there is no need of splitting it in this case, for the Government are prepared to accept the amount declared by the Municipality.

In the paper which Mr. Francis Fox read at the meeting of the Institution of Civil Engineers on Tuesday he commented on the inconsistency of keeping houses clean, streets swept and sewers flushed with the object of preserving the air in a pure condition while allowing it to become absolutely foul and putrid for want of proper ventilation. Air passed through human lungs had been well designated "air-sewage." It was highly poisonous, and the breathing of it over and over again was fraught with the gravest consequences to health. It had been asserted by Dr. Ransome, F.R.S., that 70,000 deaths occurred annually in Great Britain from tuberculous disease, nearly all of which could be saved were the subject of fresh air both understood and acted upon by the community. Competent medical authority considered that the quantity of carbon dioxide in the air of rooms should not exceed 10 parts per 10,000, equivalent to about 16 cubic feet per head per minute. In French hospitals 50 cubic feet per patient per minute was allowed. Mr. Fox considered that 20 cubic feet per minute would be sufficient for ordinary purposes. Tables were given of the impurity in the air of schools, with different systems of ventilation, of that in dwelling-houses and of that in sewers, from which it appeared that the latter was the least impure of the three. The fact should not be lost sight of that the air in a room might be quite cold and yet very foul; whilst, on the other hand, it might be warm and yet perfectly fresh. To avoid draught the air should enter through a large number of small orifices so as to thoroughly diffuse the current. This was done by gratings, but unfortunately these seriously diminished the volume of air passing through owing to the friction of the bars. The same remark applied to extracting-flues. No large building could be successfully ventilated without some mechanical force furnished by steam, electricity, falling water, or other such agency. Then, fans could be worked with certain results, whereas automatic extractors not infrequently became inlets, thus reversing the whole system. The inlets should be by Tobin or similar tubes, about 5 feet above the floor. In one American State Legislation building the warmed fresh air entered on the level and in front of the desks of each member.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: THE SCREEN.

NEW CLARIDGE'S HOTEL.

This hotel is built in the style of the English Renaissance, freely treated. The exterior walls are of red brick, of which a considerable portion is rubbed and gauged, with dressings of red Mansfield stone. The entrance is wholly of this stone and dark Shap granite. A special feature is made of the long ranges of cast-iron balconies. The roof is covered with green Westmoreland slates. The entire construction of walls, partitions, staircases, floors and roofs is of fire-resisting material. All casements throughout the building are of mahogany, and the staircases are marble. The building is arranged on plan with a central square courtyard lined with tinted glazed bricks, and a wide corridor runs completely round the building, the centre of which is occupied on the ground floor by a winter garden, opposite the main entrance. The public rooms consist of a salle à manger, restaurant, billiard-room, smoking, drawing and reading-rooms, arranged around the winter garden. On the floors above the rooms are in suites consisting of sitting, bed, dressing and bath-rooms, each suite having its own hall and connecting corridors, all arranged so that any number of rooms can be added to a suite as required. In addition there is on each floor a large dining-room, which may be used privately or in connection with any suite. The kitchens are in the basement. The service includes all the most modern appliances for the comfort and convenience of visitors. Electric passenger-lifts and luggage and service lifts have been provided, and there is a fire staircase from the top floor to the street in rear. On the first floor, at the Brook Street corner, there is a royal suite, comprising a set of rooms extending along the Brook Street and Davies Street fronts, and having a second entrance in Brook Street. A separate entrance in Davies Street gives access to the salle à manger and restaurant, and another entrance in Brook Street leads direct to one of the lifts and staircases, obviating the necessity of going through the more public parts of the hotel. The entire building is warmed by hot water and lighted by electricity. Another and more general view of Mr. C. W. Stephens's hotel appeared on November 25.

ROYAL HOSPITAL FOR CHILDREN, EDINBURGH.

VILLA RESIDENCES, GROVE PARK, CHISWICK, W.

This design is one of a series of eight detached residences about to be erected on the estate of the Duke of Devonshire, Spencer Road, Grove Park, Chiswick, W. The fronts are to be executed in red brick and pale yellow rough-cast. The half-timber work will be stained with Stockholm tar, the roofs will be covered with red Broseley tiles. Messrs. Palgrave & Co., of Victoria Street, S.W., are the architects for the work.

PREMISES, NO. 46 BALDWIN STREET, BRISTOL.

This illustration shows the new front to existing premises as being carried out by the Bristol Corporation under their engineer, Mr. Thomas Henry Yabbicom, Assoc.M.Inst.C.E. The lower portion of the building from pavement-level to window-sill on first-floor is in Pennant stone from the Hanham Quarries, the remaining portion being in brickwork with Bath stone bands and dressings. The work is being carried out by Mr. William Church, contractor, of Bristol.

SUMMER HOLIDAYS AMONG FRENCH CATHEDRALS.

By the Author of "Ecclesiologia Germanica," &c.

(*Continued from page* 364.)

V.

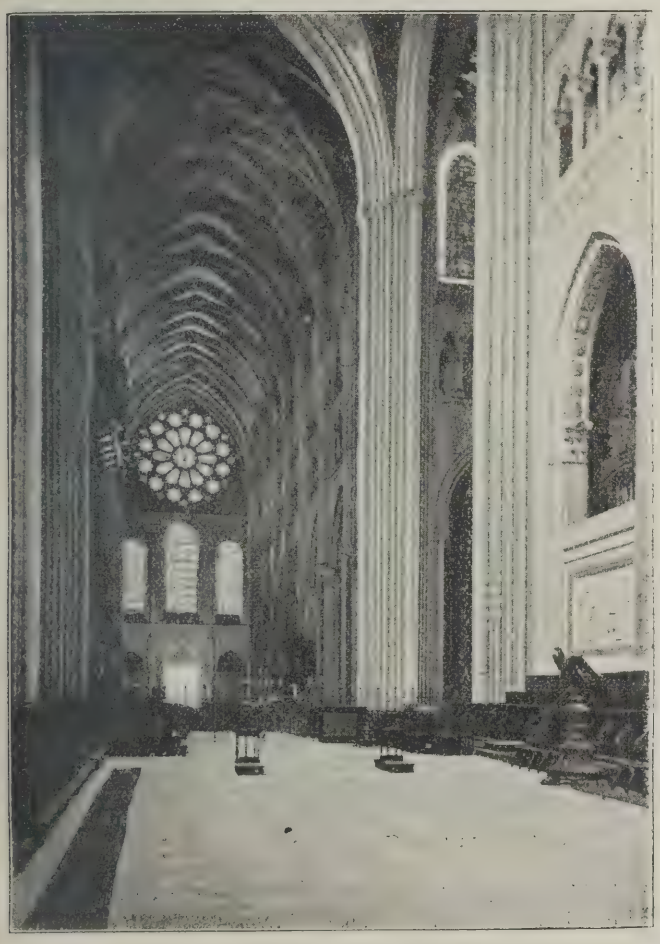
Chartres.

NOTRE-DAME at Chartres being at once parochial and cathedral, there are two sung Masses on Sundays and all great feasts—the parish Mass at nine, and the chapter Mass, carried out with greater pomp and circumstance, preceded and followed by the Offices, at half-past ten. On the occasion of our visit the parochial one—a Missa Cantata, at which, however, incense is offered—presents but few features of interest to the ecclesiologist, ritual or musical. There is a tolerably large congregation, made up chiefly of women and children—as almost everywhere in France—a few men occupying stalls in the choir, the other parts of the cathedral most favoured at this Mass being the procession path commanding a view of the high altar and the nave in the immediate vicinity of the pulpit. At the sermon all those hitherto seated in and around the choir adjourn to the nave; some, bringing their chairs with them, dispose themselves about the centre alley of the nave, or as near the pulpit as they can get in the side aisles in a very picturesque and elastic manner. Opposite, in the *banc d'œuvre*, upon whose ledge two candles are burning on either side the crucifix, we find the celebrant and his assistants comfortably "y-park'd." Not only are the preliminary notices almost inaudible, but also the subsequent discourse, which, however, has the merit of brevity. So we give up the attempt to listen, and occupy ourselves with the extremely picturesque scene presented by the nave on this occasion—one which Prout or Wild would have loved to paint had they lived now instead of when they did. Dwelling upon the glorious old thirteenth-century windows,

> Each the bright gift of some mechanic guild,
> Who loved their city, and thought gold well spent
> To make her beautiful with piety,

but particularly upon the great south transept one, in which the four major Prophets appear, each bearing upon his shoulder a minor Prophet in very quaint fashion, we reflect upon the centuries of suns and storms which have successively glorified or expended their fury upon this marvellous wall of colour. Throughout the whole Office there is nothing but an uninterestingly monotonous plain song, without a single tune that one can catch and store in the memory ever after to afford relief. It is only on the great feasts that one hears a grand swinging melody such as the *Laudamus cum superis* on the Assumption. "Madame, à quelle heure commencent les offices capitulaires?" we ask of the old dame who is setting chairs straight at the conclusion of the parish Mass, an occupation in which this particular class of old Frenchwomen seems to pass a considerable portion of its existence. "A dix heures vingt, Monsieur," is the polite response. There is no time for a lengthy ramble about the city, so we sit about quietly under the trees in the precincts, and listen to the great bells "banging," for the French have no idea of chiming and ringing, or stand—

> Before the triple northern port,*
> Where dedicated shapes of saints and kings,
> Stern faces bleared with immemorial watch,
> Looked down, benignly grave, and seemed to say,
> "Ye come and go incessant; we remain
> Safe in the hallowed quiets of the past;
> Be reverent, ye who flit and are forgot,
> Of faith so nobly realised as this."



Chartres Cathedral: the Choir, looking West.



Chartres Cathedral: portion of Screen round Choir.

Already those who are to take part in it are dropping into their appointed places for the great Office of the day. First, "les enfants du chœur" in scarlet cassocks, lace surplices

* In his lecture on the thirteenth-century architecture of France, delivered February 28, 1881, to the students of the Royal Academy, the late G. E. Street descanted enthusiastically upon these great transeptal porches at Chartres, in which the architect "has shown such a mastery over delicate detail as has seldom been seen, and this with an originality of design and a fertility of invention which cannot be too much praised. Both porches are generally similar in outline, but extremely different in the detail of their planning, which, in the case of the northern one, is very varied and beautiful. . . . It is as if the architect had felt himself tied and bound in his scheme for the church, and found himself breathing freely again when he had to complete the porches." The three western doors, or Port Royale, have seldom been excelled for the finished beauty of their workmanship. They are

confined at the waist by a pink sash, scarlet skull caps and slippers, file slowly in with folded arms by the gate on the south side of the sanctuary. Forming in a double line before the high altar, they make a most profound genuflexion—indeed, the "bowings and scrapings" all day at Chartres, from the most juvenile choir boy to the most venerable canon, were simply perfection. Some short devotions concluded, at a given signal they rise, face the west, bow to such of the cathedral dignitaries as are present, and proceed in single file to their deskless stools on either side of the choir. Anon the cantors, in black cassocks and ugly sleeveless surplices, arrive and take up their positions by the lecterns, on which rest the big noted books. Then a few more canons drop in, next a small procession of about a dozen seminarists; the organist takes his seat, strikes a keynote on the *orgue d'accompagnement*, and off they all start upon Terce, with the *Pater Noster, Ave Maria, Deus in adjutorium*, and the sublime Office hymn, *Nunc sancte nobis Spiritus*. The choir organ is silent during the long Psalms, but at the versicles following the Capitulum proper for the Transfiguration (*Salvatorem expectamus*, &c.), and while the six great candles are being lighted, it accompanies a boy whose limpid soprano voice rings through the vast building with an effect most thrilling because so unexpected. *Gloriosus apparuisti in conspectu Domini, Alleluia! Alleluia! Alleluia!* sings the boy to the *Jam lucis*—that loveliest of plain-song melodies. *Gloriosus apparuisti* is then repeated by the whole choir, accompanied by both organs. Again the clear soprano is heard alone, singing *Proptera decorem induit te Dominus, Alleluia! Alleluia! Alleluia!* *Gloria Patri* follows from the same boyish treble to another touching melody. The whole choir unite again in the *Gloriosus apparuisti*. Once more the solo breaks forth, *Gloria et honore coronasti eum, Alleluia!* to which the whole chorus answers *Et constituisti eum super opera manuum tuarum, Alleluia!* Amid this last grand burst of melody the officiant and his assistant ministers, in gorgeous vestments of white and gold, sweep in from the sacristy, the choir rulers, in copes, take their places at the lectern in the centre of the choir, and the chapter Mass begins with the "Asperges," sung as we have rarely heard it sung before. On this occasion the congregation under the crossing, though by no means vast, is larger than at the parish Mass, and, we may add, a thought more *à la mode*. Papa, mamma and two boys enter by the south transept door. Mamma takes the boys *chapeaux de paille* and her seat in front of the choir gate; the boys follow papa into the north choir aisle, as we thought, to pay devotions to the Black Virgin; but no, they reappear presently, aforesaid papa in cassock and surplice, and bearing a trumpet, the two boys with him, and so they all go into the choir, evidently to the no small pride and gratification of the juveniles. A few people of the *ouvrier* class are lounging over the wooden partitions thrown across the transepts, and people whose dust-covered boots proclaim that they have tramped in from the country are circulating in the choir aisles the whole time; but generally speaking they behave with reverence, and perhaps derive more scriptural knowledge from the glorious old glass and the matchless parcloses than from the elaborate music and ritual now going on in the choir. While the Kyries are being sung to one of the plain-song arrangements of Dumont, with loud and somewhat harsh interludes between each from the great organ pendant above our heads, in the last bay of the nave, two damsels, in dresses really so very boufféed that we tremble for the propriety of their appearance, enter the choir, preceding the pain bénit, with tall lighted candles. However, all passes off with the greatest decorum; the bread, looking like a small Tower of Babel, is carried by two red cassocked and surpliced youths on a species of litter, and having been placed upon a toilet-table like credence, the damsels, doubtless proud as peacocks at the important part they have borne in the ceremonies of the day, retire into the bosom of their family circle. The officiants again advance to the altar, "Gloria in Excelsis" is sung, and then follows the Collect for the day, the Epistle being read from a lectern "in medio chori." During the singing of the Gradual this piece of furniture is moved towards the entrance to the choir (facing north) for the singing of the Gospel, one of the most imposing features of the service, accompanied by the lights, and with the incense rising in a column before the old painted windows. The Credo follows, and then comes the Offertorium. Much happens at this point. We dive into our pockets for the sous requisite to satisfy the demands of the aforesaid old dame for our appropriation of a chair. On this occasion it is, "Dix centimes, s'il vous plaît, monsieur; vous avez aussi un prie-dieu." Dix centimes! It is worth a franc at least. Anon come the canons on their eleemosynary round, when our addition of a small silver piece to the rich vein of copper already lining the interior of the alms-bag evokes the sweetest of smiles, the politest of bows, and a "Merci bien, monsieur." The next excitement is the distribution of the pain bénit, handed round by a capped and gowned verger, followed by a rather sulky-looking chorister, forming a procession of two. We all take a small piece. Some, we observe, eat it at once, first crossing themselves with it; others place it on the chair-ledge in front of them to take home afterwards, but for some occult reason the unfortunates in the nave behind the barrier get none at all, upon which the faces of some juveniles who have been



Chartres: the Cathedral from the Basse Ville.

looking most anxiously for the advent of the basket, and hoping that it may reach them, fall several degrees. All this time the great nave organ plays a very quiet Offertorium, during which we have leisure to glance round us. Again the nave, looking westward, wears a most picturesque aspect. Several of the front rows of chairs are occupied by religieuses in tall white caps. One aged sister particularly attracts our attention by the way in which she follows the solemn music and ritual. Her face might be that of a Mater Dolorosa or St. Anna; it has a history in itself. Poor old thing! Perhaps her only comfort is this glorious building and its services.

Except at the commencement of the canon, the congregation remain seated. Kneeling at the Incarnatus in the Credo is far from general, nor is there anything approaching congregational singing. You hear a faint chirping every now and then from some ladies, but anything like our hearty mode of joining in the various items of the service does not seem to be thought of. Mass concluded, a grand rush takes place to-

quite a hundred years older than the transeptal porches, and as specimens of richest Romanesque may be compared with the north and south doorways at Bourges, the south door of the nave at Le Mans and one in St. Benigne at Dijon.

the chapel of Notre-Dame du Pilier. Here is quite a long queue of women, many of them holding babies, awaiting their turn to kiss its pedestal. We remain to hear Sext, occupying a chair close to the low iron screen at the entrance to the choir, and where we are somewhat surprised at the presence of a fashionably-dressed lady and her little daughter—we say surprised because the chapter Offices are not attended by the laity. The object of Madame, who is stout and wears glasses, in attending this Office soon becomes apparent, for at its conclusion and while the five-and-thirty choristers are making their obeisance to the high altar, we hear her say, while adjusting the pince-nez to her nasal promontory, "Can you see him, Angélique?" Angélique, a sharp little girl of about ten years of age, "spots" the mysterious "him" after a short inspection. "There he is, mamma," she says, in a sort of stage whisper; "let us go round to the psallette* and catch him." So off they go. We go off too and get some *déjeuner*, for we feel a desire to fortify the inner man. Everybody goes off, and the vast church is left untenanted, save by the priest whose turn it is to guard the precious black image.

On our way to the afternoon Offices we encounter numbers of young girls in white dresses and diaphanous veils hurrying from various directions, in some instances accompanied by a *bonne*, towards the cathedral. For this being the first Sunday of the month, a solemn procession of members of the Confrèrie de la Sainte Vierge is to take place immediately after Benediction. Arrived at the cathedral we find the south aisle of the choir occupied by these girls, who, under the surveillance of several nuns, fill it with a billowy expanse of lawn-like purity. One young damsel is very late, and comes tripping across the transept quite on the "light fantastic" to some airy music at that moment proceeding from the great organ as one of the interludes to *Magnificat*. The congregation is not very large this afternoon, and some of the "enfants du chœur" have rather a post-prandial air about them; but the Offices, which embrace None, Vespers, Compline and Benediction, are all carried out with the same dignified ritual that accompanied the chapter Offices of the morning. The officiant and his assistants are all vested in copes, and the scene during the censing of the altar, clergy, choir and congregation at *Magnificat* is very impressive. Like most French choirs, that at Chartres is now only separated from the rest of the building by a low iron grille, so that all the various ceremonies are well seen from the nave. Shameful to relate, the Classic hand has been very heavily laid upon this part of the cathedral. For during the episcopate of Bishop Fleury (1746-80) its piers and arches were transmuted into a sort of Corinthian Renaissance of the Louis XV.-XVI. type under Le Sieur Louis, architect to the Duke of Orleans. Fortunately those portions facing the aisles have escaped this vandalism. Above the stalls on either side are solid walls built into the arcades, and backed in the choir aisles by the matchless sixteenth-century screens already alluded to. In the choir, these walls—enriched with large bas-reliefs, four on either side, ranging from the Conception of the Virgin to the Deposition of Nestorius at the Council of Ephesus in 431—are continued right round the apse behind the high altar, which, backed by a mountainous mass of sculpture—an Assumption—has its six tall candles arranged upon a gradine to the right and left of the table.

In making the circuit of the choir-aisles at Chartres an advancement in style is very perceptible. The foliaged ornament in the caps of the clustered piers supporting the main arches, as well as that of the cylindrical ones belonging to the eastern fringe of chapels, is characterised by greater delicacy; besides, the fenestration indicates this. Here, instead of single lancets, we find them coupled beneath a round discharging arch, with just a soupçon of tracery in the shape of a very small circle. This very exceptional case of finding the later and richer work in the eastern portion of a French cathedral is explained by the fact that after the fire in 1194, in which the nave had suffered less than the choir, attention was directed first of all to the rebuilding of the western portions, partly because there was much remaining which could be made use of, and partly because those portions which it was possible to use at once could be put in repair, leaving such as needed entire rebuilding to be done after, and if in the nave the work bears marks indicative of haste, it was the very pardonable fault of a city which could not endure to see its cathedral in ruins a day longer than was absolutely necessary.

(To be continued.)

* Song school.

THE LATE MR. HAMILTON BEATTIE.

THE announcement of the death of Mr. William Hamilton Beattie, architect, Edinburgh, will be received with surprise and regret, says the *Scotsman*, not only by his friends and acquaintances but by all with whom he had business relations. He had been in ordinary health, and on Tuesday in last week was at his office as usual, where, on his return from a business run to North Berwick, he spent some time in dictating instructions to one of his clerks. Shortly after half-past six he went home, and when sitting at dinner with his sister, suddenly raised his hand to his head and almost the same moment expired. The immediate cause of death is believed to have been the bursting of a blood-vessel in the brain. Mr. Hamilton Beattie came of a family the members of which have been builders and architects in Edinburgh for nearly half a century. He was a son of the late George Beattie, who first came into prominence in his profession by securing by competitive design the commission for the erection of the Craiglockhart Poorhouse, the adjudicator, it is interesting to recall, being the late Mr. Bryce. The designs, as is invariably the case in such competitions, were sent in under mottoes, and Mr. Beattie selected the appropriate inscription, "Comfort for the poor, with care for the ratepayers." In the carrying-out of those plans Mr. Hamilton Beattie was associated with his father, and from that time dated his first entry into the firm. Since then he has accomplished an immense amount of work, and many monuments of his architectural skill remain to adorn the streets of the capital. A man of most exceptional industry, ceaseless energy and constant activity, Mr. Hamilton Beattie very seldom laid aside the carès of business, and those who knew him best incline to the belief that he took far too much out of himself in connection with business matters. In later years his services have been much sought after as an expert and skilled witness in connection with local and Parliamentary inquiries and valuations, and he proved so strong a man in this capacity that he came to be looked upon as indispensable in a reference of any consequence. It was largely due to him that the Caledonian underground railway scheme was thrown out by the Parliamentary committee. In all questions of compensation arising in arbitrations, as well as in all matters of valuation of properties, his ability and experience were unique, and, gifted with an exceedingly retentive memory, he was able to furnish from recollection references which at a moment's notice might be demanded. Coupled with this, he had such a clear grasp of the intricate legal principles involved in compensation cases as made him invaluable when important matters were under dispute. He has been the chief expert adviser to the city of Edinburgh all through the North Bridge Street arbitration, and only three days before his death he was engaged for several hours giving evidence in one of these cases. When the discrepancy in the figures of the proposed Usher Hall sites was discovered a few weeks ago, he was called in to make an independent valuation, and mainly owing to the statement he laid before the Council, the High Street site, which previously had been greatly favoured, was set aside. But these are only some of the more recent cases in which he was employed. For many years he undertook similarly important duties, not only for the Corporation, but for the North British Railway Company, who engaged him as their chief adviser in numerous arbitrations. His attainments were varied; a remarkable feature in his character was the facility with which he could acquire knowledge on a new subject, and could make himself acquainted, for instance, with scientific facts which had a particular bearing on any case he might happen to have on hand. His power to concentrate his mind upon the business he had on hand, his ability to adapt himself with readiness to any special set of circumstances, his untiring diligence and never failing application, and his consistent courtesy made him a very successful man of business. As an architect devoid of "fads," and with a sound commercial understanding of his business, he held a high position in the country. On Princes Street there are several notable examples of his work, among which it is only necessary to mention the Royal Hotel, the Clarendon Hotel, the Central Hotel, Charles Jenner & Company's handsome pile of buildings, and the new North British Station Hotel, in process of erection. He was also architect for the northmost section of the new Commercial Bank Buildings in North Bridge Street, and his elevations for the blocks to be erected by Mr. White, the builder, on the same side of the street, shown for the first time in the Council Chamber on the day of his death, drew forth the admiration of the Corporation. The Royal Insurance Buildings, George Street, the Imperial Hotel in

Market Street, the Marine Hotel, North Berwick, and Pattison's bonded stores at Bonnington were built from his designs, and the Waterloo Hotel has been reconstructed as railway company offices from his plans. Now that a system of cable traction is being carried out through the city, it is interesting to recall that it was largely owing to Mr. Hamilton Beattie the cable system was first introduced into Edinburgh, for he was not only the engineer of the first line to Goldenacre, but he, along with Mr. Mann, S.S.C., was the original promoter of the company. Mr. Hamilton Beattie, who was fifty-five years of age, was a widower. He leaves one son, who is at present at Rugby.

SOCIETY OF ANTIQUARIES OF SCOTLAND.

THE annual general meeting of the Society was held on the 30th ult., Reginald Macleod, C.B., in the chair. Before proceeding to the ordinary business of the meeting, Sir Arthur Mitchell, referring to the recent decease of Mr. J. R. Findlay, said he believed he was safe in assuming that the thoughts of every one present turned to the loss which had recently fallen on the Society through the death of Mr. John Ritchie Findlay, and he hoped they would allow him, before they proceeded to the transaction of business, to attempt to give expression to those sorrowful thoughts. Mr. Findlay's connection with the Society was long and close, and it had more sides than one. On every side, however, he stood always before them as a most loyal and useful friend. Perhaps the chief work of the Society lay in its efforts to add to the knowledge of the unwritten history of Scotland, and in that direction, though Mr. Findlay did not himself to any large extent make contributions of original research, he was constantly stimulating and helping others in such work, not only by a deep interest in what they were doing, but also by intelligent criticism and wise counsel. Being an office-bearer continuously for a quarter of a century, he had a full and minute knowledge of all the more important work that was proposed or undertaken by the Fellows. He was elected a member of the Council in 1872, and remained a member till his death, filling various offices in the course of that period. For six years from 1882 to 1888 he acted as secretary, and he was twice vice-president, first from 1878 to 1880, and again from 1888 to 1890. From 1891 he held his place on the Council as a representative of the Board of Manufactures. The executive and purchase committees never had a more active and valuable member. In all these positions he showed a zeal for the prosperity of the Society, and greatly aided in securing it by his sagacious advice and by the exceptional power he possessed of stating a case in a clear, convincing and forcible manner. All that, or much of it, might possibly be said of other Fellows of the Society; but Mr. Findlay was able in a special way to prove his interest and friendliness. He had wealth. He might have had that without evidence of it in the progress of the Society. But he had more than the mere possession of wealth. He had the power of giving it away—of spending it on objects which he thought good. By splendid gifts he brought into existence institutions of a national character which helped to give to Scotland—the country he loved so well—a fitting place in our Empire, and which would send on his name with gratitude as well as honour to future generations. A leading motive in much of his public generosity seemed to have been the desire to supply to students of the history and pre-history of Scotland what might be useful to them. They owed it to his munificence that they met in that spacious and well-furnished library, and that their great national collection of antiquities was so fitly accommodated there for public exhibition. It seemed to him that the first act of a new session should be a request to the secretaries to prepare a statement showing how deeply they felt their loss, to be entered in the minutes and to be transmitted to Mrs. Findlay and her family, with an expression of their warmest sympathy. But he had a further suggestion to make. He thought it would give real pleasure to all of them if they had as a frontispiece to the next volume of the "Proceedings" of the Society a well-executed engraved portrait of Mr. Findlay, which the Board of Manufactures might allow them to take from the painting about to be placed in the Scottish National Portrait Gallery. Distinguished Fellows and benefactors of the Society had thus appeared in former volumes, and if effect was given to his suggestion, each of them would possess a portrait of the Society's best friend, to be a reminder of his all-round generous and liberal nature, of his great benefactions to the nation, of his sagacity, directness and courage, of his shrewd, witty and scholarly utterances—never unkind—and of his large-hearted hospitality. He ventured to ask that meeting of the Society—the first which had taken place since Mr. Findlay's death—to give their approval to the suggestions he had made.

The Chairman expressed his cordial concurrence in the terms in which Sir Arthur Mitchell had referred to the loss the Society had sustained in the recent death of Mr. John Ritchie Findlay, and the meeting unanimously agreed to adopt the suggestions made.

Among other business, the election of office-bearers for the ensuing year was made as follows:—President, the Marquis of Lothian; vice-presidents, Major-General Sir Robert Murdoch Smith, the Hon. John Abercromby and the Hon. Hew Hamilton Dalrymple; councillors, Sir George Reid and Sir Arthur Mitchell representing the Board of Trustees; Gilbert Goudie, Reginald Macleod, Sir Herbert Maxwell, John Horne Stevenson, Alexander J. S. Brook, J. Balfour Paul and John Findlay; secretaries, D. Christison, M.D., and Robert Munro, M.D.; foreign secretaries, Thomas Graves Law, LL.D., and James Macdonald, LL.D.; treasurer, James Henry Cunningham; curators of the museum, Robert Carfrae and Professor Duns; curator of coins, Adam B. Richardson; and librarian, James Curle, jun.

DEMOLITIONS AT FLORENCE.

THE following memorial has just been addressed to the Marchese Torrigiani, syndic of the city of Florence, in reference to the extensive demolitions which the municipality are understood to contemplate in the quarter of the city between the Piazza Vittorio Emanuele and the Ponte Vecchio. An influential and distinguished Florentine committee, with Prince Corsini at its head, has been working for some time past in order to obtain a reconsideration of the scheme; and it is not with any gratuitous purpose of interference, but in order to support the efforts of this committee, that the memorialists have ventured to make their appeals:—

"To the Marchese Torrigiani, syndic of Florence, &c.

"We are informed that the proposed continuation of the Via Pellicceria from the Piazza Vittorio Emanuele to the Ponte Vecchio involves the immediate destruction of the Palazzo Canacci and Giandonati, and of the other ancient houses in the Piazza di San Biagio; and that the prosecution of the scheme will entail the destruction not only of the church of San Biagio itself, but also of the 'Residenza' of the Arte della Seta, and a large portion of the Palazzo di Parte Guelfa.

"We ask to be allowed to draw your attention to the inestimable artistic and historic value of these buildings. The Palazzo Canacci and Giandonati is an admirable example of a Florentine palace in the style of the earlier Renaissance, with a well-preserved façade covered with 'sgraffiti,' and surmounted by a loggia. The group of buildings comprising the Gothic church of San Biagio, the Palazzo di Parte Guelfa with its hall and ceiling, the work of Filippo Brunellesco, the Arte della Seta with its fine Donatellesque relief of the arms of the Guild, and its charming loggia of Vasari, forms one of the historic monuments of Florence; their beauty and significance are known and esteemed by every student and lover of her arts and history. We venture to protest in the most emphatic manner against the irreparable injury which is threatened by the proposed demolition of these buildings to a city whose annals and monuments are of so much more than local interest.

"The scheme for the continuation of the Via Pellicceria further involves the demolition of the Palazzo Baldovinetti, the ancestral house of the great painter, Alessio Baldovinetti, the tower of which is one of the best preserved in Florence, of the greater part of the ancient Via Por Santa Maria, and of the remarkable early towers adjoining the Ponte Vecchio. The construction of an unsightly and ill-placed piazza in front of the church of Santa Stefano, and the formation of a new street from the Piazza della Signoria to the Ponte Vecchio, will sweep away other historic houses, including the Palazzo Bartolommei; and the continuation of the Via Vaccherecia to the Piazza di Santa Trinità will make away with the ancient Via della Terme. One of the oldest, the most historic and most picturesque quarters of Florence, which has hitherto remained untouched, will thus be completely destroyed; and not a few vestiges of a part of the city which Dante knew, and to which he alludes in the 'Inferno,' xiii. 144, will vanish. We cannot but apprehend that this wholesale demolition may prove the preliminary step towards the destruction of the Ponte Vecchio itself and the ancient houses in the Via de' Bardi and the Borgo San Jacopo, beyond the Arno.

"The unsanitary conditions which led to the demolition of the Mercato Vecchio cannot, we believe, be brought forward as a reason for pulling down the buildings in question; nor do we think that any interests of the city can be advanced by destroying those very monuments which make Florence a centre of attraction to the whole civilised world.

"We have the honour to be, &c."

Here follow the signatures, among others, of the Earl of Carlisle, chairman of the Board of Trustees of the National Gallery; Sir Edward Poynter, president of the Royal Academy and director of the National Gallery; Mr. George Aitchison, R.A., president of the Royal Institute of British Architects; Mr. Walter Crane, principal of the Royal College of Art and president of the Arts and Crafts Exhibition Society; Sir W. B.

Richmond and Mr. Alma-Tadema, Royal Academicians; Mr. G. F. Watts, Mr. Holman Hunt, Mr. Claude Phillips, keepers of the Wallace Collection; Mr. Stirling, &c.

SOME PECULIARITIES OF WOOD.*

THE most noteworthy peculiarity of wood is that this material, which has been so universally employed since the dawn of civilisation, is still so little understood, so imperfectly known as to its nature, characteristics and properties.

While the specifications for iron and steel materials have been developed to such finesse that even the chemical composition is prescribed as determinative of the quality desired, it is questionable whether the majority of engineers and architects know what points to make in the specifications for wood materials, and from the many inquiries the writer has received while in charge of the timber-physics work of the U.S. Division of Forestry, it would appear that they are not prepared to inspect the material which they have specified.

The reasons for this absence of knowledge and finesse in the use of wood are probably two: wood has been apparently plentiful and cheap, hence not calling for a more economical and effective use; and, furthermore, being a very non-homogeneous and variable material, or rather, structure, the precise study of its properties and characteristics has been too difficult and cumbersome.

Yet it is possible to study wood in a scientific manner with the assurance of practical results, as has been shown by the extensive and fruitful series of studies which one wise administration of the U.S. Department of Agriculture authorised and another wise (?) administration discontinued just when most promising progress had become possible and the first important results had been announced. If no other fact of value for the practitioner had been obtained than the discovery that the "strength of a beam at the elastic limit is equal to the strength of the material in compression," the value of the work could not be denied, while as to the propriety of the Government undertaking the study of this difficult and complex subject there could be hardly any dissenting voice, especially when it is admitted that it is the function of the Government to secure a conservative policy in the treatment of our forest resources and presumably also of the material which this resource furnishes.

The defects in our knowledge regarding the peculiarities of wood lead naturally to a crude, improper or wasteful use of the material, which could be greatly improved even if only the existing knowledge were more closely applied. There is a possibility of specifying, selecting and inspecting wood materials which a knowing architect can now secure, thereby increasing the efficiency, durability and stability of the structure.

There are those who are inclined to think that there is no need of greater finesse in this direction, either because we have such an abundance of wood materials that their wasteful use will work no harm and need not be considered, or else that wood is destined to grow out of use and is bound to be supplanted by other materials.

The first position has been true enough for the past; but we are entering on any era when, through the wasteful exploitation of our forest resources, without attention to their reproduction, the abundance of good wood materials is bound sooner or later to cease, and the decrease in supplies will force upon us the necessity of greater economy.

The second position, namely, that wood will be displaced by substitutes is also true only in part. Since we are using only from three to ten times as much wood now as other civilised nations, undoubtedly the necessity of economy will force us to reduce our wood consumption and to substitute stone and iron, which in many cases will prove an advantage.

But he who thinks that wood at any time will be entirely or practically supplanted by other materials shows ignorance as to the true merits and characteristics of that material which is as much an indispensable requirement of our civilisation as our food materials.

What the lowest requirements of wood for high civilisation in the temperate zone of the world are may perhaps be learned from the consumption of such people as the Germans or British, the latter relying almost entirely upon importations; the former, in spite of their methodical treatment of their forest resources and their comparative poverty, were forced to import more than two thousand million feet B.M. above exports, in addition to their home production. The consumption of these people, being about one-quarter of our consumption, ranges between 150 and 160 feet B.M. of saw material per capita, which may be considered as expressing the absolute necessity of a modern settled civilisation without expansion, such as the unsettled condition of our country induces.

There are a number of characteristics of this material which make its continued use desirable. It would lead us too far to point them out in detail. Perhaps it is not realised that a beam of long-leaf pine will bear without detrimental deflection a load from six to eight times as great as an iron bar of the same length and weight, a cubic foot of iron weighing ten to thirteen times as much as a cubic foot of that wood and costing at least twenty times as much. That means the iron structure is at least twice as expensive. In the combination of light weight, stiffness, elasticity and strength with cheapness and ease of working wood excels all other materials and renders it especially invaluable in all rapid constructions. But the most valuable and unique feature of wood, which is undoubtedly unconsciously but yet not fully appreciated, is the fact that it is a poor conductor of heat and electricity. This property, if no other, will assure to this material a continuous use in the arts not only for utensils, furniture and finishings, but for construction in general, since a metal substitute, the only material we can think of, would not only bring discomforts, but dangers which the increase of electrical appliances would constantly multiply. Hence a better knowledge of wood leading to more effective use will remain desirable.

There are three properties peculiar to wood which make its use as a material of contruction appear objectionable, and it is these of which I wish mainly to speak—its liability to shrink and swell, its liability to rot, its liability to inflammation and combustion. All three of these defects can be, and at least invaluable permanent structures ought to be, overcome by proper selection, inspection and treatment of material.

The first two defects are due partly to the one and the same property of wood, namely, its high hygroscopicity, from 50 to sometimes over 150 per cent., related to dry wood, of the weight of a freshly-felled log in water. This is gradually lost in seasoning, but unless artificial means are applied this seasoning progresses rather slowly and with some species a "yard-dry" condition is not reached in years, if by "yard-dry" any definite stage of moisture condition is meant. The moisture contained in such "yard-dry" wood, in addition, is very unevenly distributed through the stick, and hence influences the behaviour of the stick unfavourably as regards swelling and shrinking.

As a matter of fact, wood is never entirely dry, even when artificially dried. As soon as it comes from the dry kiln thoroughly dried its high hygroscopicity asserts itself; it takes up water from the air more or less according to the relative humidity of the latter, so that even the best dried wood in use will contain at least 8 to 10 per cent. of moisture or even more. If left unprotected, unvarnished and unpainted, this percentage changes with the change in the atmosphere, and hence shrinking and swelling or "working" is the result.

This of course is known to all architects and woodworkers, but the effort to avoid this most troublesome peculiarity of wood does not appear to be always in due proportion to the knowledge.

There is of course a specification of "seasoned" material, but is there any attempt at defining what is the requirement of "seasoned" condition? And is there any inspection? If there were, fewer floor joints would open and more doors would shut snugly.

A single inspection test would be to cut a small piece from the middle of a floor board—the end would not do, as it is always the driest part—weighing it, placing it in an oven or other heater until it does not lose any more weight, when the difference between the first and last weight gives the weight of water lost; this divided by the first weight and multiplied by 100 gives the moisture per cent. of the wood. If it is greater than that specified, say 10 per cent. for the best work and 12 to 15 per cent. for cheaper constructions, there is cause for complaint and rejection is justified.

To be sure, it is better to specify so as to avoid the complaint as much as possible. Specify for kiln-dried material, which is preferable to yard-dried, because, as a rule, more evenly dried. For very valuable work immersion in water or steaming should be practised. Immersion in water, without in any way impairing the value of wood as building material or otherwise, seems to decrease the hygroscopicity of wood, upon which property the swelling and shrinking rests. The Japanese, excellent wood-workers, whose careful use of wood should be an example to us, practice this immersion in ponds to a large extent.

Another specification which reduces the factor of shrinkage is for quarter—or rift—sawed material, for it is peculiar to wood to shrink and swell, or "work," more in tangential direction than in any other. Longitudinal working is practically *nil*, but the shrinking in tangential direction, *i.e.* in direction of the annual ring, is at least 50 per cent. more than in the radial direction. This is due to the fact that the thick-walled summer wood of the annual ring, which on account of its thick walls takes up more water and shrinks or swells more

* A paper by Professor B. E. Fernow, Dean of the New York State College of Forestry and former chief of the Division of Forestry, United States Department of Agriculture, read at the thirty-second annual convention of the American Institute of Architects.

than the thin-walled spring wood, is in such position towards the latter that in expanding or contracting it carries the latter with it—the summer wood shrinkage per cent. prevails—and hence the "working" is more pronounced in such a bastard board than in a quarter—or rift—sawed board, which contains the summer wood in a position where it cannot affect the spring-wood shrinkage, and also in a more even, regular distribution of spring and summer wood, thus insuring a more even working along the whole face and hence no warping.

If immersion is advantageous in promoting thorough seasoning, reducing liability to swelling and shrinking, it is on that account also advantageous in reducing liability to rot, because by the immersion soluble materials which serve as food of some of the rot-fungi are leached out.

Where, however, the question of time is important, there are other processes which are expedient and effective in keeping out fungi, and indeed more so than mere immersion in water.

Some of these processes, as creosoting, treating with chloride of zinc or other mineral salts, are well known and practised in special engineering works, as in canal and railroad building. They are, however, rather expensive, and require a special plant, which, unless situated where the architect practises, would forbid their use.

But there is now coming to the front an effective, cheap and simple means of increasing the durability of wood; it is the application of heavy coal-tar oils, which go by the name of "carbolineum." There are various brands trying to establish themselves, but it is still questionable how far claims of superiority can be demonstrated, and especially when a higher price is also exacted for such claim, it will be well to inquire closely into the superior merits. This material can be applied with a brush or, better still, by immersing the wood in the hot liquid for some hours or days. It penetrates the wood to sufficient depth so as to protect it against moisture and the accompanying rot-fungi in such places as architects are likely to have to deal with. Three pounds to the hundred square feet, enough to be effective, would not, even at the unnecessarily high price asked for some brands, increase the cost of a building so as to prevent its application even in cheap structures.

Decay usually starts not in the heart, but in joints and points of contact, mortise holes, &c., where moisture collects and is not rapidly dried off. Hence contact surfaces, and especially all joists and timbers in contact with damp brick walls, mud sills and posts and material placed where a proper circulation of air cannot be had, and where painting after thorough seasoning is not practicable, should be protected for sanitary reasons as well as to secure stability and permanency. To be sure, there are other precautions, specifications and inspection which can be applied to reduce liability to rot.

The choice of species to be placed in such situations should be considered, to secure at least partial immunity from rot; the cedar tribe, with the redwood and bald cypress, seem especially capable of resisting rot for a long time. Oak and chestnut come next among the more common woods. It must, however, be understood that these, too, are liable to rot unless properly handled. If not properly seasoned before using they are as liable to decay as other species; if felled in summer, when temperature and moisture conditions are favourable and fungus spores seek a location, incipient rot may be more readily introduced; if painted while not thoroughly seasoned the protection intended for the wood becomes a protection to its enemies; bastard-cut faces are more apt to admit water readily and give lodging to fungus spores. Circulation or air which carries off moisture is one of the most effective precautions against decay.

Perhaps the most objectionable peculiarity or property of wood is its inflammability and liability to combustion. While no doubt a large part of the 150,000,000 dols. worth of property which is annually lost by fire in the United States owes its destruction to the excessive and careless use of this combustible material, it is not at all sure that not a very large per cent. of this loss can be avoided without discarding the otherwise so useful material.

It is well to know in this connection that the supposedly fireproof construction of iron and stone has, after all, proved itself in cases of fire in the contents of the building often more disastrous to the property than a properly designed wood-construction would have been; the heat of the fire warping the iron girders out of shape and causing the collapse of the entire building, while in the wood and stone structure the walls might have been left intact and the chances of success in subduing the fire by a good fire-department would have been greater.

But aside from the fireproof mill construction with wood which Mr. Edward Atkinson has been most instrumental in bringing about, there are means for reducing the danger from fire in structures of a simple nature applicable to even the cheapest buildings.

The possibility of "fireproofing" wood is so well established that it is unnecessary to risk the hazards of construction with untreated material.

I do not mean to say that an "absolutely fireproof" building can be constructed with wood, or, indeed, with any material. The attempts in securing such have been and will probably remain futile. All we can expect to attain, just as with resistance to decay, is a degree of retardation, which is sufficient for most cases; "fire-retardent" rather than "fireproof" construction should be the aim. If we are satisfied to reduce the danger and merely delay the conflagration until a fire-department can arrive and prevent its spread, the problem can be solved by reducing the inflammability of wood without securing absolute incombustibility.

There are a number of substances which have proved themselves efficient fire-retardents, some of which can be cheaply enough secured to make their application practically and universally possible.

We find that, while untreated wood took fire under the conditions of the experiment undertaken at the instance of the Belgian Government at the end of one and three-quarter minutes, wood treated with water-glass or lime, or with ammonium phosphate or various ammonium salts, resisted inflammation from thirty to forty minutes, while other substances produce less resistance; the ammonium phosphate being the most efficient, acting by the production of a non-combustible vapour. If applied so as to fully impregnate the wood this would prove rather expensive, as 100 lbs. costs 25 dols., and would not saturate more than 25 cubic feet. But there is no need of a thorough impregnation, especially when one of the cheaper protective coatings of asbestos in water-glass, &c. (which are efficient by being poor conductors of heat) are used in addition.

It must not be forgotten that in the absence of encouragement cheaper methods and materials are slow in being brought forward. There are even now cheap antipyreas to be had, like calcium chloride and ammonium chloride, which, though less effective, would greatly decrease the liability to conflagration.

Finally, it may be of interest that a generous application of silicious compositions to all exposed woodwork has been so effective in reducing fire danger in England as to cause a decrease of 50 per cent. in the insurance rates on houses thus treated.

The architect is, we believe, now in the position of bringing into the home he has built "that peaceful security and liberation from a dreaded tax which comes with the practical abolition of danger from conflagration." When due attention is given to making buildings fireproof and rotproof, not only safer, more durable and more sanitary buildings will result, but in the end they will be cheapened more satisfactorily to the investor.

As Mr. Constable has pointed out before the Boston Society of Architects, failure to secure satisfactory results comes often from the incomplete attention to all points of the problem of successful fire-retardent construction, an absence of consistency in plans and execution. Hence the progress of reform is retarded.

I am inclined to think that 20 to 50 per cent. more efficiency can be secured in the use of wood materials than is now obtained by merely applying the knowledge now in existence.

In order to give some practical point to these few hints of reform, I would suggest that if your Society is organised not only for exchange of views and facts relating to your art, but also for its advancement, a committee to study and report on specifications for wood materials so as to at least reduce as far as possible the dangers from rot and fire would be a most laudable direction of associated effort.

THE OLD BRIDGE AT LUCERNE.

IT is almost inconceivable, writes a correspondent of the *Manchester Guardian*, that the authorities of Lucerne should be so short-sighted as to allow anything to interfere with the wooden bridge known as the Kapell-Brücke. Built in 1333, and entirely constructed of wood, it is one of those monuments of a bygone past that cannot be allowed to pass away from Europe without a protest. Not only does it remind us of the time when so much of Lucerne within the walls, either of the old or the new town, was built of wood, that men called Lucerne the "wooden stork's nest," but it tells us of a time when men felt that a nation was kept strong by reverence for the heroic deeds of the past, and none who passed that bridge in the olden days but felt the breath of battle for the Fatherland, or the glory of marytyrdom for God and for faith strengthen their souls. It was not without good intent that the Switzers of old time painted in the 121 triangular spaces beneath the tie-beams the sufferings of their patron saints Leodegar and Maurice, the deeds of might of Winkelreid or the hero of the battle of Giornico. It was with good purpose that for those who entered the "greater town" from the Klein-stadt beyond the river there should be set upon the wall at the Kapell-Brücke end the face and form of the hermit "Wanderfluh."

The fact seems to be that the burghers of Lucerne do not really seem to know what it is the average tourist comes to their beautiful town for. Their official guide-book, after telling us that 200,000 travellers pass through Lucerne in a season, asserts that "in a town where the present is so beautiful we may well let the past be forgotten," but a very large number of these 200,000 birds of passage alight at Lucerne just because they cannot let the past be forgotten, and are so tired of this modern life that they wish to get a glimpse of the more restful and more beautiful days of the fifteenth and sixteenth centuries. It is just because they wish to learn and dream of those old days beside the Reuss that they care so much for all that helps their power to dream of bygone days, that they delight in the Spreuer-Brücke and the quaint pictures of the Dance of Death that Gaspar Meglinger drew, that they gaze again and again upon the quaint brown-hooded Wasser-Thurm and the crooked Kapell-Brücke, that their eyes wander away from the palatial hotels and modern promenade beside the lake foreshore to the Musegg and its crown of towers, and let their eyes by irresistible attraction rest on the Rathhaus tower, and forget the brand-new station and the princely post office. If only Lucerne knew its attractions it would preserve them.

But, notwithstanding all the good work that the genius of the art school, Professor Weingartner, has done in the past ten years to bring back the times of Holbein and to redecorate the outside walls of the shops and hotels in the older part of Lucerne with interesting fresco-painting, it would appear that the genuine feeling for Old Lucerne is dead or dying, and we hear with feelings of regret that will be shared by the whole world of travellers that the Kapell-Brücke is doomed. Last summer a portion of it was taken down to make way for a new riverside street, and, however much it pained one to see the change, one felt that the interests of the marketers had due right to consideration. But to destroy history and desecrate tradition, as is now proposed by the removal of the whole bridge, is vandalism as stupid as it is shortsighted. If greater facilities must be given for passengers across the Reuss, let another bridge be built, though every bridge so built will make the river Reuss less of interest to the artist than it now is. But in the name of common sense let the burghers see to it that they do not kill the goose that lays the golden eggs. Thirteen towers and gates have thus been destroyed in the name of facilities for visitors and improvement of traffic since 1833. Had they been standing to-day the city would have been as unique as Rottenburg for untouched Mediæval remains, and each year would have added to the wealth of the coffers of those who cater for the tourist public. But the spirit is still alive that for ever ruined the artistic glory of the river near the Spreuer-Brücke when it wiped out the ancient buildings and replaced them with a fine red-brick and Welsh-slated factory.

TESSERÆ.

Obstacles to Art in England.

FOR the attainment of excellence in the higher branches of art, as has been well observed by Passavant, it is requisite that a people should possess deep poetic feeling, and that art should not be considered among them as a thing of separate nature, but that it should interweave itself with the ties of social life, and be employed in adding beauty to its nearest, dearest interests. Now, the English, he continues, are more disposed to an active than to a contemplative life. They possess, it must be owned, a character of much earnestness and energy; yet, from the earliest times, their attention has been more directed to the cultivation of the mechanical arts and the sciences appertaining to them than to those nobler branches of art which flourish spontaneously in a more contemplative nation. This characteristic disposition, and the physical activity necessarily connected with it, have been by some ascribed to the influence of our climate, to our moist and heavy atmosphere and clouded skies, to counteract the influence of which, and to preserve a counterbalancing buoyancy of mind and body an active habit of life is requisite. But this hypothesis is untenable; for Flanders, with a similar climate, and flourishing likewise by means of its native industry, affords sufficient proof how little these circumstances are prejudicial to the cultivation of the fine arts. Perhaps a better reason may be found in the wide difference which is observable between the national habits of our countrymen and those of the people among whom the arts have been cultivated with the greatest success. In those countries where the beautiful was felt, where the arts were objects of national importance, where a people assembled to award the palm between rival sculptors, and also, in comparatively modern times, when a reigning monarch did not disdain to pick up a painter's pencil, and a whole city mourned an artist's death and paid honours to his remains, all the rank, wealth, genius, talent, taste and intelligence of the people were concentrated in one grand focus. Among the states of ancient Greece and modern Italy the city was, in fact, the nation; and at Athens, Rome, Venice and Florence was collected all of genius, taste and talent the people as a body possessed. The mental qualities were thereby rendered more acute, and the tastes and manners of the people more refined and cultivated by constant intercourse and communication with each other. This refinement was shared by all classes, and the lower taking pattern from the higher, the whole mass was learned. In England the very reverse of this takes place. Here, for the most part, those alone frequent our towns whose doom it is to labour for their bread; they have no leisure from the engrossing pursuits of wealth; business, like a jealous mistress, leaves them no time for other objects. In spite of various disadvantages of soil and climate, the taste for rural pursuits seems part and parcel of our nature, and that species of the genus homo, the country gentleman, seems peculiar to our island. Till within a few years the great majority of this class, whose abundant wealth and leisure might seem to constitute them the peculiar patrons of the arts, seldom or never frequented even the Metropolis, but for generations remained fixed and immovable in the place of their forefathers, rooted to the soil as one of their old oaks.

Perpendicular Characteristics.

Arches at first enclosing an equilateral triangle, afterwards obtusely pointed. Piers generally oblong; longitudinal direction, north and south. Mouldings continued from base through arch; capitals with mouldings, large, angular and few, with abacus and bell imperfectly defined. Foliage of conventional character, shallow and square in outline. Bases with bead, reversed ogee and hollow, polygonal. Windows, when lofty, divided into storeys, by transoms; the mullions often continued perpendicularly into the head. Canopies of ogee character richly crocketed. Doors generally with square label over arch, the spandrels filled with ornament. Buttresses with bold projection, often ending with pinnacles. Flying buttresses pierced with tracery. Walls profusely ornamented with panelling. Parapets embattled and panelled. Open timber roofs of moderate pitch, of elaborate construction, often with hammer-beams, richly ornamented with moulded timbers, carved figures of angels, and with pierced tracery in spandrels. Roofs sometimes of very flat pitch. Lofty clerestories. Fonts raised on steps, octagonal in shape, with sculptured panels of tracery and figures. Elaborate font covers. Mouldings large and coarse, with wide and shallow hollows and hard wiry edges, meagre in appearance, and wanting in minute and delicate detail; generally arranged in chamfer planes. Early in the style the mouldings partake of Decorated character.

The Cathedral of Lausanne.

The cathedral of Lausanne rejoices in the renown of being the finest in Switzerland, a distinction it has every appearance of deserving. Like most of our English minsters, it is surrounded by a claustrum or close, composed chiefly of very picturesque turreted piles, grey ramparts and aged gardens, now a wilderness of fruit trees. Before its western front extends a stately terrace of chestnut trees, overlooking literally the steep housetops, the lacquered minarets, louvres and gourd shaped domes of the collegiate, palatial and municipal buildings, and confronting even the fine belfroy windows of St. François itself. Simple even to severity, the cathedral of Notre-Dame exhibits every variegation of the Lanceolate style, and from this, with only two exceptions, it never departs; for while in the southern porch it is evidently flirting with the Decorated style, in the great western door and window—witness the foliated tracery and the ogee canopy—it has absolutely revolted to that most gorgeous and elegant order. The glory of the pile is, however, the southern porch, whether we regard its grand proportions, its beautiful figure, three sharp gables with bold trefoils flanked with tall voluted columns and clustered in the centre of their steep roof into a graceful minaret, or the delicate luxuriance of its interior decorations, especially that triple arcade of disengaged pillars. Generally speaking, the exterior of the minster is plain and massive, and its extraordinary galleries of trefoiled and lanceolate apertures, enwreathing nave, choir and tower fail to redeem it from the imputations of heaviness. To this, with all its noble belfroy windows and its four picturesque turrets, the great western tower or campanile deplorably contributes; while on the central tower (not content with having stuck a scraggy spire about as suitable to its bulk as a fool's cap to the Farnese Hercules) they have, in order to deprive its deformity of the last chance of escaping notice, gilded the thing from its parapet to its weathercock. The interior is so nobly simple in its plan, and yet so incessantly variegated in its detail, the narrow lancet heads of the sweeping apsidal cloister are so graceful, the flat Romanesque arcades in its circular oriel are so curious, the galleries with their quatrefoil and trefoil apertures extending in every direction, even to the clerestory windows, at once so allure and divide the attention that we have to wait for a second gaze before recollecting sufficiently to lament the absence of that peacock imagery, the language, the very life of the Gothic

lattice which iconoclastic fury has banished from the temple. There is a superb marigold window, whose Geometrical tracery they have stuffed with the deep dyed purples and crimsons of the monastic laboratory—a monument of their own barbarism. Three lancets beneath are tinctured with modern colours—a monument of their own degeneracy.

The Society of Arts.

From a meeting of only eight persons at Rauthmell's coffee-house in Henrietta Street, Covent Garden, on March 22, 1754, this Society dates its origin. The energy of William Shipley struck the spark which raised it into life and action, and two noble peers, Lord Folkestone and Lord Romney, honoured it with their protection. The advantages of such an institution were immediately perceived by the public, and numerous members soon gave it that firm establishment which it has ever since so honourably maintained. Lord Folkestone and Lord Romney were successively presidents. William Shipley was honoured with the first gold medal, with this inscription, "Whose public spirit gave rise to the Society." Very many individuals were encouraged by the rewards of the Society, especially in its early days. Thus in the list of 1808 we find the following recipients :—Philip Hardwick, of Berners Street, for an original drawing of an academy of arts, being the premium given in conformity to the will of the late John Stock, of Hampstead, the gold medallion; Edward Blore, of Upper Titchfield Street, for an original drawing of Fotheringham Church, Northamptonshire, the silver medal; J. C. Bromley, of Brook Green, Hammersmith, for an etching of a landscape, figures and cattle, a copy, the larger silver palette; to Master William Ross (after Sir William Ross, R.A.), of Tavistock Street, for an original miniature painting of Venus and Cupid, the larger silver palette.

Temple and Grove of Daphne.

At the distance of five miles from Antioch, the Macedonian kings of Syria had consecrated to Apollo one of the most elegant places of devotion in the Pagan world. A magnificent temple rose in honour of the god of light, and his colossal figure almost filled the capacious sanctuary, which was enriched with gold and gems and adorned by the skill of the Grecian artists. The Deity was represented in a bending attitude, with a golden cup in his hand, pouring out a libation on the earth, as if he supplicated the venerable mother to give to his arms the cold and beauteous Daphne, for the spot was ennobled by fiction, and the fancy of the Syrian poets had transported the amorous tale from the banks of the Peneus to those of the Orontes. The ancient rites of Greece were imitated by the royal colony of Antioch. A stream of prophecy, which rivalled the truth and reputation of the Delphic oracle, flowed from the Castalian fountain of Daphne. In the adjacent fields a stadium was built by a special privilege, which had been purchased from Elis; the Olympic games were celebrated at the expense of the city, and a revenue of thirty thousand pounds sterling was annually applied to the public pleasures. The perpetual resort of pilgrims and spectators, insensibly formed in the neighbourhood of the temple the stately and populous village of Daphne, which emulated the splendour, without acquiring the title, of a provincial city. The temple and the village were deeply bosomed in a thick grove of laurels and cypresses, which reached as far as a circumference of ten miles, and formed in the most sultry summers a cool and impenetrable shade.

NATIONAL PHOTOGRAPHIC RECORD ASSOCIATION.

Under the auspices of this Association an address on "A National Photographic Record" was given in the Imperial Institute on Monday by Sir Benjamin Stone, M.P., the president. Captain Abney, director of the Science and Art Department, occupied the chair. Sir B. Stone, in the course of his address, said that what they had in view was the collection of photographic records of objects and scenes of interest throughout the British Isles. These records would be deposited in the British Museum, where they would be safely stored and be accessible to the public under proper regulations. Such a collection would not only possess a great interest for the public, but it would be almost invaluable for the historian. There must be in many parts of the country customs and habits and observances of which they possessed no pictorial representation whatever, and if these were photographed they would form most important material for, and it might be throw curious sidelights upon the social history of the people. Then, too, there were buildings, rooms and other places of high historical and literary interest and importance. Of many of these there were pictures in the possession of some one, but he knew from experience that pictures faded and perished; but now, thanks to the remarkable improvements in photography, they were able to produce records by processes of an absolute permanent character. The formation of a national photographic collection had, indeed, become almost an imperative duty, and they ought not to hesitate to adopt any means to secure it, even to the extent of setting up a Government department charged with the duty. Captain Abney, in thanking Sir B. Stone for his address, said he was rather surprised that the lecturer should recommend that work of this kind should be done by a Government department. When they had active and skilled amateurs like Sir B. Stone, a Government department, in his opinion, would be quite *de trop*. If such work were not done better, it would certainly be done much quicker by the amateur than by the Government department, and the less red-tape they had in this matter the better it would be for the object they had in view. He was speaking not as a Government official, but as a member of the Association, and he certainly did not want to be handed over to any Government department to prevent that freedom of action which was so characteristic of Englishmen when they were not tied up with red-tape.

GENERAL.

Sir E. J. Poynter, R.A., has been elected a correspondent of the French Academy of Fine Arts, in succession to the late Sir E. Burne-Jones.

Lord Iveagh has placed 1,000*l.* at the disposal of the authorities of St. Patrick's Cathedral, Dublin, to defray the expenses of preliminary investigations rendered necessary by a recent report from Messrs. Thompson, contractors, Peterborough, on the dangerous state of the towers and buttresses of the east end of the cathedral.

Mr. Charles J. McCarthy was on Tuesday re-elected city architect of Dublin for one year.

The Candidates for election to the Académie des Beaux-Arts are the following painters :—MM. Blanc, Cazin, Comerre, Cormon, Dagnan-Bouveret, François Flameng, Humbert, Lhermitte, Maignan, Roybet.

A Meeting was held lately in Cape Town in support of a project for a new cathedral. The site is to be one at present used for a school facing St. George's Street. The estimated cost is 150,000*l.*, or for the eastern part, which would first be built, 50,000*l.*

The Trustees of the Dysart Estates have agreed that the lands along the Thames are to remain unenclosed for all time from the existing fences. This secures to the public a strip several miles in length, extending from River Lane, at the foot of Richmond Hill, to the further side of Teddington Lock.

Memorials in support of the Italian Society in its protest against projected demolitions in Florence can be signed at the Kensington Town Hall; Mr. Grant Richards's office, Henrietta Street, Covent Garden; and Messrs. Jones & Evans, Queen Street, Cheapside, until December 20.

The Technical Education Board of the London County Council have drawn up a report for presentation to the Council, dealing with the desirability of the Board assuming responsibility for the science and art instruction within the county of London.

The Official Returns to the Wesleyan Methodist Missionary Society show that the estimated cost of repairing and replacing the damage done to the Connexional property by the hurricane in the island of St. Vincent alone amounts to 12,460*l.*

The Site now occupied by Lady Holles's schools in Redcross Street, E.C., is to be used for a station for the Metropolitan Fire Brigade.

The Prizes won by the students of the Royal Academy wil be distributed to-morrow evening at 9 P.M. The competition works can be seen by the public on Monday next.

The New Building of the London Library, St. James's Square, was formally opened on Monday. The architect is Mr. Osborne Smith.

M. Boutet de Monvel, the French painter, is about to visit the United States, where exhibitions of his works have been organised in several cities.

A Performance of "Gautier d'Aquitaine," the new opera of which M. Paul Vidal is the composer, will be given in the Paris Opera House on Wednesday next, and the receipts will be applied to the fund for the erection of the memorial of Charles Garnier.

The Following Candidates passed the final examination of the Royal Institute of British Architects, held in November :—Walter Hargreaves Bourne, John Cubbon, Leslie William Green, Frederick Robert Hiorns, John Kirkland, Edward Frost Knight, Ernest Jesse Mager, Harry Dighton Pearson, John Henry Arthur Phillips, George Reavell, jun., William Alphonsus Scott, Vincent Steadman, Henry Tanner, jun., Harry Inigo Triggs, Jasper Wager, Arthur Maryon Watson, B.A.Lond.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii

COMPETITIONS OPEN.

BRADFORD.—Jan. 2.—Designs are invited for erection of a central fire-brigade station. Three premiums are offered, viz. 100*l.*, 50*l.* and 30*l.* Mr. George McGuire, town clerk, Bradford.

BURNLEY.—Jan. 14.—The Burnley School Board invite designs for a new higher-grade school and pupil-teachers' centre, to be erected in Ormerod Road, Burnley. Competition is limited to architects having offices within 60 miles of Burnley. Mr. E. Jones, clerk, Town Hall, Burnley.

HARROGATE.—Jan. 2.—Competitive designs are invited for erection of a pump-room, &c., the cost of which must not exceed 8,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* Mr. Samuel Stead, borough surveyor, Municipal Offices, Harrogate.

HULL.—Jan. 1.—Designs are invited in competition for a central public library in Albion Street. Premiums 50*l.*, 30*l.* and 20*l.* Mr. Sidney R. J. Smith, 14 York Buildings, Adelphi, W.C.

CONTRACTS OPEN.

ALCESTER.—Dec. 14.—For erection of a bathroom at the Hertford Memorial Hospital. Mr. Joseph J. Johnson, architect, 21 Unicorn Hill, Redditch.

ATHERTON.—Dec. 14.—For removal of offices in Bolton New Road, and erection on same site of new offices. Mr. J. C. Prestwich, architect, Leigh.

BARKING.—Dec. 13.—For erection of eighty-three cottages for the working classes in Creeksmouth Lane. Mr. C. J. Dawson, East Street, Barking.

BARNSLEY.—Dec. 12.—For erection of a tall chimney, and engine, dynamo and boiler house, storage-rooms and offices in Beckett Square. Mr. J. Henry Taylor, surveyor, St. Mary's Place, Barnsley.

BATLEY.—For conversion of the old Masonic Hall, Caledonia Road, Batley, into four cottages. Mr. Walter Crawshaw, architect, Branch Avenue, Batley.

BICESTER.—Dec. 13.—For erection of an additional class-room at the Crockwell infants' school. Mr. J. F. Jones, Littlebury, Bicester.

BLACKPOOL.—Dec. 20.—For erection of platform, platform roofing, cab approach from Chapel Street, &c., at Central Station, for the Lancashire and Yorkshire and London and North-Western Joint Railways. Mr. C. W. Bayley, secretary, Hunt's Bank, Manchester.

BRADFORD.—Dec. 17.—For erection of seven terrace houses at Oakleigh Road, Clayton, near Bradford. Mr. Sam. Spencer, architect, 344 Great Horton Road, Great Horton, Bradford.

BRADFORD.—For converting house into shop in Heaton Road, Manningham. Mr. H. Hardaker, architect, New Ivegate, Bradford.

BURNLEY.—Dec. 13.—For rebuilding of New Hall Mill. Messrs. Potts, Son & Hennings, architects, 34 Victoria Buildings, Manchester.

CAMBRIDGE.—Dec. 12.—For erection of a new dining-hall, chapel, kitchens, students' rooms and other additions to Girton College. Messrs. A. Waterhouse & Son, architects, 20 New Cavendish Street, W.

CARLISLE.—Dec. 12.—For erection of seven dwelling-houses at Furze Street, Greystone Road. Messrs. Johnstone Bros., architects, 39 Lowther Street, Carlisle.

CARLISLE.—Dec. 13.—For alterations and additions to premises in Blackfriars Street and New Bank Lane. Messrs. Oliver & Dodgshon, architects, Carlisle.

CHATHAM.—Dec. 17.—For erection of farm buildings, stabling, yards, cottages and farmhouses at Luton, Chatham. Mr. W. L. Grant, architect, Sittingbourne.

CHOPWELL.—Dec. 12.—For erection of residence a Whiney Leas. Mr. D. M. Spence, architect, Ashmount Shotley Bridge.

COVENTRY.—Dec. 13.—For construction of five sub-stations for the Electric Light Committee. Mr. J. E. Swindlehurst, city engineer, St. Mary's Hall, Coventry.

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DARTMOUTH.—Dec. 24.—For ventilating, painting and repairing the Guildhall and offices. Mr. T. O. Veale, surveyor, Castle View House.

DEWSBURY.—For erection of eighteen houses, reading and conversation room, outbuildings and boundary walls at Lees Moor, Thornhill. Messrs. Holtom & Fox, architects, Westgate, Dewsbury.

DURHAM.—Dec. 13.—For erection of farm buildings at Findon Hill. Mr. W. T. Jones, architect, 7A North Bailey, Durham.

EASTON-ON-THE-HILL.—Dec. 15.—For alterations and additions to residence at Easton-on-the-Hill, near Stamford. Mr. J. B. Corby, architect, 15 All Saints' Place, Stamford.

ECCLES.—Dec. 12.—For erection of a bowl-house and pavilion on land in Edison Road, Patricroft, and for the construction of a bowling-green on land in Edison Road, Patricroft. Mr. G. W. Bailey, town clerk.

EDINBURGH.—Dec. 12.—For erection of the new engine-house, traverser, paint shop, stores, offices, &c., at Henderson Row power station. Messrs. Colam & Cooper, 1 Parliament Square, Edinburgh.

EDINBURGH.—Dec. 17.—For erection of hotel at Princes Street Station. Messrs. Peddie & Washington Browne, architects, 8 Albyn Place, Edinburgh.

FAREHAM.—Jan. 16.—For the construction of concrete foundations, the erection of brick, steel and concrete superstructures of new infirmary wards, sanitary blocks, boiler-house, tall chimney shaft and sundry other works connected therewith, at the County Lunatic Asylum, Knowle. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

FULHAM.—Dec. 14.—For alterations to the coroner's court, Munster Road. Mr. Charles Botterill, surveyor, Town Hall, Fulham.

FULHAM.—Dec. 14.—For erection of a refreshment pavilion, Pryor's Bank, Putney Bridge. Mr. Chas. Botterill, Town Hall, Fulham.

FULHAM.—Dec. 14.—For erection of about 142 feet lineal of brick fence wall, 7 feet high above ground line, in Fulham Palace Road. Mr. Charles Botterill, surveyor, Town Hall, Fulham.

GIRLINGTON.—Dec. 12.—For erection of ten through houses at St. Leonard's Road. Mr. J. W. C. Atkinson, architect, 1 Ivegate, Bradford.

GLASGOW.—Dec. 12.—For supplying and erecting fittings required in the chemical laboratory and the bacteriological department at the Sanitary Chambers, 23 Montrose Street. Mr. John Lindsay, interim clerk, City Chambers, Glasgow.

HAMPTON-ON-THAMES.—Dec. 19.—For additions to the infants' side of the Station schools. Mr. Fredk. G. Hughes, architect, Hampton-on-Thames.

HEREFORD.—Dec. 28.—For erection of two new blocks and other additions at the Hereford County and City Asylum, at Burghill. Messrs. Giles, Gough & Trollope, architects, 28 Craven Street, Charing Cross.

HUNSTANTON.—Dec. 13.—For alterations to engine-house and engine foundations. Mr. J. S. B. Glasier, clerk, Hunstanton.

KIDDERMINSTER.—For additions to Lyndholm. Mr. J. M. Gething, architect, Oxford Chambers, Kidderminster.

LANCASTER.—Dec. 13.—For erection of Nazareth House, to be built of stone. Messrs. Austin & Paley, architects, Castle Hill, Lancaster.

LEEDS.—For erection of premises in Globe Road. Mr. Walter H. Hobson, architect, 82 Albion Street, Leeds.

LEICESTER.—Dec. 23.—For erection of working-class dwellings in Winifred Street. Mr. T. H. Fosbrooke, architect, Market Street, Leicester.

LONDON.—Dec. 15.—For erection of bathroom, lobby and w.c., for the children's ward of the infirmary, Lower Road, Rotherhithe, S.E. Messrs. Newman & Newman, architects, 31 Tooley Street, S.E.

LONDON.—Dec. 22.—For sundry repairs, &c., at the casual wards, Great Guildford Street, S.E. Mr. G. D. Stevenson, architect, 13 and 14 King Street, E.C.

LOWER EDMONTON.—Dec. 20.—For erection of infants' school at Eldon Road. Mr. John Moule, clerk, School Board Offices, Upper Edmonton.

MORECAMBE.—Dec. 12.—For erection of the Devonshire Hall and shops, West End, Morecambe. Mr. S. Wright, architect, Townley Street, Morecambe.

MORECAMBE.—Dec. 15.—For erection of a residence at Cross Cop. Messrs. Walker & Collinson, architects, 227 Central Avenue, Swan Arcade, Bradford.

NOTTINGHAM.—Jan. 3.—For erection of superstructure of the workhouse. Mr. Arthur Marshall, architect, King Street, Nottingham.

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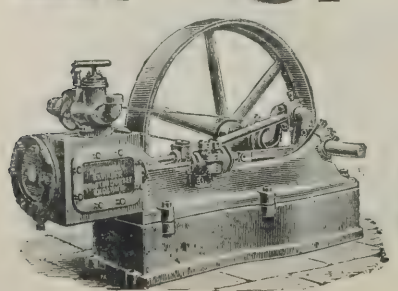
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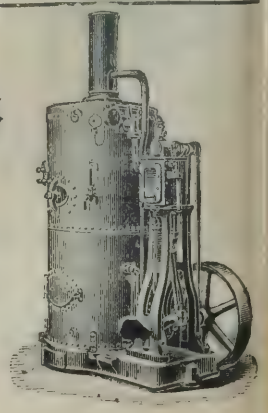
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[*Mention this Journal.*]



PENZANCE.—Dec. 15.—For erection of orchestra and reseating and decoration of the Wesleyan chapel, Mousehole. Mr. Horace W. Collins, architect, Penryn Street, Redruth.

PRESTON.—Dec. 16.—For alterations and additions to the grammar school, Cross Street. The Borough Surveyor, Town Hall, Preston.

PRESTON.—Dec. 16.—For extension of cellars at the Regatta inn, Fishergate Hill. The Borough Surveyor, Town Hall, Preston.

PRESTON.—Dec. 16.—For alterations to cattle stage, Cattle Market, Brook Street North. Borough Surveyor, Town Hall, Preston.

RAMSGATE.—Dec. 12.—For alterations and additions at Crampton's hotel and restaurant, Harbour Street. Particulars on the premises.

RUGBY.—Dec. 16.—For erection of a fire-brigade station and stabling in the Council Yard, Chapel Street. Mr. D. G. Macdonald, surveyor, Rugby.

SCOTLAND.—Dec. 12.—For erection of house at Parkmore. Messrs. Brown & Watt, architects, Aberdeen.

SHIPLEY.—Dec. 14.—For erection of a warehouse at Baildom Holmes. Messrs. Walker & Collinson, architects, 227 Swan Arcade, Bradford.

SLIGO.—Dec. 13.—For sanitary works, &c., at the workhouse. Mr. W. F. Gilcriest, engineer, Sligo.

ST. PANCRAS.—Dec. 22.—For erection of two chapels at the workhouse, King's Road. Messrs. A. & C. Harston, architects, 15 Leadenhall Street, E.C.

WADSLEY.—Dec. 12.—For erection of an iron staircase at Wadsley Asylum. Mr. J. Vickers Edwards, County Hall, Wakefield.

WALES.—Dec. 17.—For rebuilding the King's Head hotel, Tynewydd, Ogmore Vale. Mr. J. Cook Rees, architect, St. Thomas Chambers, Neath.

WALES.—Dec. 22.—For erection of a carriage bridge over river Dee at Corwen. Mr. H. Croom Johnson, engineer, Egerton Street, Wrexham.

WALES.—Dec. 27.—For erection of county police buildings, Blaenau Festiniog. Mr. T. Taliesin Rees, architect, Hamilton Chambers, Birkenhead.

WATFORD.—Dec. 14.—For alterations and additions to brewery. Plans, &c., at the offices of Benskin's Watford Brewery Company, Watford.

WEST HAM.—Dec. 13.—For erection of quarter-sessions court, police cells and mortuary, West Ham Lane. Mr. Lewis Angell, borough engineer, Town Hall, Stratford, E.

WEST HAM.—Jan. 7.—For enlargement of hospital at Southern Road. Mr. Edwin T. Hall, architect, 57 Moorgate Street, London, E.C.

WILLENHALL.—Dec. 30.—For supply and erection at new cemetery, Bentley, of a span-roof greenhouse, 30 feet by 12 feet, with glass frame, and complete with heating apparatus. Mr. Chas. J. Jenken, engineer, Town Hall, Willenhall.

WOKING.—Dec. 13.—For erection of a pair of cottages near Woking Park Farm. Mr. G. J. Wooldridge, surveyor, Bank Chambers, Woking.

TENDERS.

ALTRINCHAM.

For construction of main sewers for the township of Hale. Mr. J. M'D. M'KENZIE, surveyor, 7 Market Street, Altrincham.

G. BOZSON, Ashton-on-Mersey, Sale (*accepted*)	£750 0 0

BINGLEY.

For additions to school at Crossflats.

Accepted tenders.

T. Wildman, mason	£525 0 0
S. Town, joiner	270 0 0
A. Bolton, plumber	94 19 0
W. Thornton, slater	60 0 0
Spur & Son, plasterer	56 0 0

BRIDLINGTON QUAY.

For alterations at the Victoria Rooms.

W. ROBINSON, Portland Place (*accepted*)	£144 0 0

BROMLEY.

For works of surface-water drainage in Plaistow Lane.

T. Lansbury	£558 19 4
J. T. Gloag	554 8 6
E. Peill & Sons	544 18 9
R. Stockwell	525 8 6
W. J. LOGAN, Maidstone (*accepted*)	516 11 6

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For construction of stoneware pipe sewers, with manholes, lampholes, flushing-chambers, &c. Mr. E. B. Marten, engineer, Church Street Chambers, Stourbridge.

J. Biggs	£4,310 0 0
G. Trentham	2,951 4 0
G. Law	2,482 0 0
T. Vale	2,474 10 0
W. L. Meredith	2,231 15 1
J. Mackay, Smethwick (*accepted*)	1,994 14 0

CARDIFF.

For erection of block of offices on south side of the Exchange. Mr. Edwin Seward, architect, Queen's Chambers, Cardiff.

W. P. Ingleson	£5,669 0 0
Shepton & Sons	5,447 10 0
J. Allan	5,025 0 0
Lattey & Co.	4,875 0 0
E. R. Evans & Bros.	4,806 19 11
E. Turner & Sons, Cardiff (*accepted*)	4,678 0 0

For reconstruction of about 170 lineal yards of brick sewer, and for relaying part of the footway in Cathays Terrace. Mr. W. Harpur, borough engineer.

T. Rees	£1,053 11 9
F. Ashley (*accepted*)	1,052 7 2
J. Rich (footways only)	520 2 1

CASTLEFORD.

For erection of maltkiln. Mr. Arthur Hartley, architect, Carlton Chambers, Castleford.
Z. G. Wright, Beancroft Road (*accepted*).

CHESTERFIELD.

For alterations and additions (stone) to the Grammar School. Mr. W. H. Wagstaff, architect, Chesterfield.
W. Forrest, Station Street (*accepted*).

CHISWICK.

For erection and completion of eight detached villas, Spencer Road, Grove Park, W. Messrs. Palgrave & Co., architects, 28 Victoria Street, S.W.

Joseph Bennett, John Street, W.	£8,500 0 0

DORKING.

For works at Frobbury Manor. Mr. E. F. Augustus Spratt architect, 90 and 91 Queen Street, Cheapside, E.C., an Kingston-on-Thames.

W. & G. King, Abinger Hammer (*accepted*)	£2,052 0 0

ELGIN.

For erection of a public hall at Drummuir. Mr. R. B. Pratt, architect, County Bank House, Elgin.

Accepted tenders.

Davidson, mason.
Archibald, carpenter.
Boss Bros., plumber.
Taylor, slater.
McKay, plasterer.
Garden & Ward, painter.
McKenzie & Moncur, heating.
Total, £945.

FARNBOROUGH.

For extension of South Street sewer. Mr. R. W. Knapp, surveyor.

E. Kemp	£130 0 0
T. Turner	125 0 0
W. L. Edgoose	118 0 0
C. E. Morton	115 0 0
W. Norris, Farnham (*accepted*)	97 15 0

GRAVESEND.

For making and kerbing Milton Avenue. Mr. Geo. W. Cobham, surveyor.

T. Adams, London (*accepted*)	£748 0 0

Fencing.

W. E. Thomas, Gravesend (*accepted*)	95 0 0

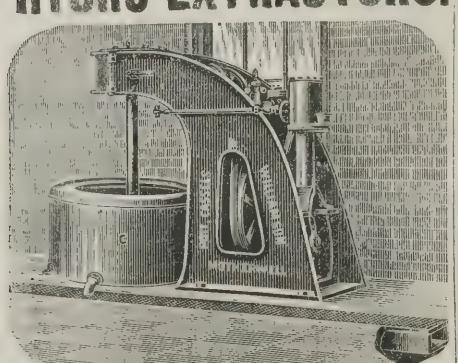
HUDDERSFIELD.

For erection of a villa residence, Botham Hall Road, Longwood. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

Accepted tenders.

Hirst, Firth & Co., Golcar, mason.
L. Kettlewell, Lockwood, joiner.
D. Taylor & Sons, Lockwood, plumber.
W. Armitage, Golcar, plasterer and painter.
Anderson, Milnsbridge, slater.
J. Cooke, Little Royd, concrete.
Total, £900.

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T. Moore	£26 15 0
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Onrill & Co.	16 12 6
A. FIMSTON, Irvinestown (*accepted*)	14 15 0

For extension and improvement of the infirmary, supply of steam cooking apparatus and laundry improvements, and construction of new sewers and water-closets. Mr. JAMES PERRY, county surveyor, Galway.

Accepted tenders.

T. McWilliams, building alterations	£495 0 0
T. W. Little, cooking, laundry, plumbing, &c.	356 0 0
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T. HOWDEN & SONS, Wakefield (*accepted*) £1,034 0 0

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For erection of a smallpox hospital on the Lancaster Marsh Estate.

Accepted tenders.
T. Kitchen, mason.
Exors. of W. Richardson, joiner.
H. P. Calvert, plumber.
R. Hall & Sons, slater.

For painting the interior of the market.
EATON & BULFIELD, King Street (*accepted*).

LONDON.

For erection of a staff laundry receiving-room at the Western Hospital.

G. Wade	£195 0 0
Barrett & Power	179 0 0
R. Goodman & Sons	176 12 0
SPENCER, SANTO & CO., LIMITED (*accepted*)	152 18 3
J. Barnes	149 13 0

LONDON—*continued.*

For reconstruction of sanitary arrangements at Renfrew Road Workhouse.

F. Bannock	£1,418 11 8
Vigor & Co.	947 0 0
Rice & Son	887 0 0
C. H. Wenham & Waters, Limited	839 0 0
Doulton & Co.	827 9 11
W. Mills	818 10 0
G. B. Davis	800 0 0
A. H. Innes	783 10 5
Bostel, Sons & Peattie	727 15 0
Foreman Bros.	724 10 6
Allen & Stanley	723 0 0
J. Knight & Sons	714 16 11
E. Wall	712 11 1
B. Finch & Co.	675 0 0
General Builders, Limited	670 0 0
F. W. Harris	649 0 0
R. F. SEED, 35 Cathnor Road, Shepherd's Bush, W. (*accepted*)	630 0 0

For enlargement of Block D of the telegraph factory, Mount Pleasant.

		A.
J. Mowlem & Co.	£13,517	—
W. H. Lorden & Son	12,988	£211
H. H. Sherwin	12,894	114
R. A. Yerbury & Sons	12,489	50
J. Chessum & Sons	12,283	148
B. E. Nightingale	11,867	150
R. W. Pattinson & Sons	11,399	141
A. E. WILSON (*accepted*)	11,100	214

A. Old material.

For additions and alterations at the Green Man, East Ham, E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C. Quantities supplied.

T. Welsh & Son	£3,075 0 0
W. J. Maddison	3,050 0 0
J. & H. Cocks	2,978 0 0
T. Osborn & Sons	2,960 0 0
P. Hart	2,848 0 0
SHEFFIELD BROS. (*accepted*)	2,785 0 0

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LONDON—*continued.*

For erection of billiard-room at the King's Head, London, E. Mr. Herbert Riches, architect, 3 Crooked Lane, King William Street, London, E.C. Quantities supplied.

Hawtrey	£1,465	0	0
Sheffield Bros.	1,398	0	0
J. & H. Cocks	1,390	0	0
A. Webb	1,375	0	0
T. Osborn & Sons (*accepted, shortest time*)	1,346	0	0
P. Hart	1,277	0	0

For fittings to shop, Upton Lane, Forest Gate, E. Mr. Herbert Riches, architect, 3 Crooked Lane, King William Street, London, E.C.

Parnall & Sons, Limited	£344	0	0
A. B. Hill	255	0	0
A. Webb (*accepted*)	244	0	0

MANSFIELD.

For erection of schools, &c., Rosemary Lane. Messrs. Vallance & Westwick, architects, Mansfield.

A. Eastwood	£12,450	0	0
J. Greenwood	12,200	0	0
H. Vickers	11,995	0	0
J. F. Price	11,687	0	0
J. H. Vickers, Limited	11,450	0	0
Fisher Bros.	11,100	0	0
Gilbert & Gabbitass, Nottingham (*accepted*)	10,903	0	0

For alterations to shops, Westgate. Messrs. Vallance & Westwick, architects, Mansfield.

Contract No. 1.

C. Vallance	£103	0	0
Vallance & Blythe	100	12	0
C. G. Percival, Mansfield (*accepted*)	77	9	6

Contract No. 2.

Vallance & Blythe	287	0	0
J. H. Allen	256	15	3
C. G. Percival, Mansfield (*accepted*)	204	0	0

For erection of two houses, Portland Street. Messrs. Vallance & Westwick, architects, Mansfield.

H. Vickers	£2,171	0	0
Gilbert & Gabbitass	2,154	0	0
J. H. Vickers, Limited	2,108	11	2
J. Greenwood	2,043	0	0
Fisher Bros., Mansfield (*accepted subject to deductions*)	1,850	0	0

MANSFIELD—*continued.*

For erection of house, West Hill Drive, and shop, Clumber Street. Messrs. Vallance & Westwick, architects, Mansfield.

Gilbert & Gabbitass	£1,205	0	0
S. B. Frisby	1,187	0	0
Brailsford & Son	1,177	0	0
Vallance & Blythe	1,170	0	0
C. G. Percival	1,147	0	0
J. Greenwood, Mansfield (*accepted*)	1,126	0	0

For erection of two houses, The Park. Messrs. Vallance & Westwick, architects, Mansfield.

J. H. Vickers, Limited	£1,780	0	0
J. F. Price	1,750	0	0
H. Vickers	1,700	0	0
J. Greenwood	1,692	0	0
A. G. Bell	1,630	0	0
Gilbert & Gabbitass	1,596	0	0
Fisher Bros.	1,540	0	0
W. S. Cuddy, Mansfield (*accepted*)	1,490	0	0

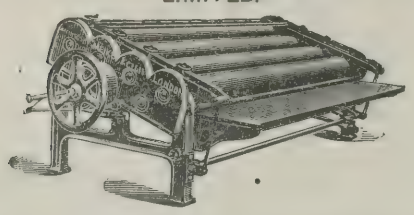
For erection of printing works, Toothill Road. Messrs. Vallance & Westwick, architects, Mansfield.

J. Greenwood	£988	0	0
J. H. Vickers, Limited	898	0	0
Ashley & Harvey	858	0	0
Gilbert & Gabbitass	833	0	0
J. F. Price	830	0	0
Vallance & Blythe	805	0	0
Fisher Bros.	790	0	0
C. G. Percival (*accepted*)	748	10	0

For sewering, levelling, metalling, kerbing, &c., Quarry Lane. Mr. R. Frank Vallance, borough surveyor.

J. F. Price	£1,565	0	0
J. Greenwood	1,494	0	0
J. Hawley & Son	1,373	0	0
J. Ford	1,369	1	8
J. Lane & Son	1,326	0	0
J. Bradley	1,321	18	10
Fisher Bros.	1,278	0	0
J. Tomlinson	1,268	10	9
W. A. Vallance, Mansfield (*accepted*)	1,249	0	0

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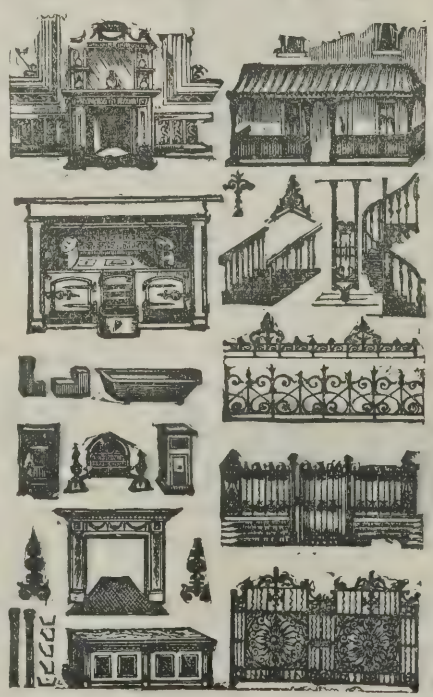
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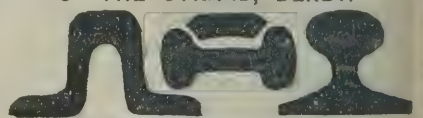
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MANSFIELD—*continued.*

For erection of conditioning stores, St. John's Place. Messrs. VALLANCE & WESTWICK, architects, Mansfield.

Brailsford & Son	£787 13 10
J. Greenwood	640 7 6
Vallance & Blythe	640 0 0
F. H. & J. W. Moore	632 5 10
C. Vallance	608 0 0
S. B. Frisby	582 9 6
C. G. PERCIVAL, Mansfield (*accepted*)	520 0 0

For erection of eight cottages off Rosemary Lane. Messrs. VALLANCE & WESTWICK, architects, Mansfield.

Brailsford & Son	£2,690 0 0
J. Greenwood	2,583 0 0
Gilbert & Gabbitass	2,450 0 0
VALLANCE & BLYTHE, Mansfield (*accepted*)	2,120 0 0

MARGATE.

For construction of about 4,000 feet of main sewer outfall to connect the Westgate-on-Sea drainage with the Margate sewerage system. Mr. ALBERT LATHAM, borough engineer.

Pedrette & Co.	£6,872 0 0
Cooke & Co.	2,016 0 0
Paramor & Sons	1,930 0 0
TUFF & MISKIN, Rochester (*accepted*)	1,875 0 0

MUNDESLEY.

For erection of proposed new Grand Hotel, Mundesley, Norfolk.

F. Bennett	£12,150 0 0
J. S. Smith	10,716 0 0
J. Youngs & Son	10,660 0 0
G. Riches	10,591 0 0
J. W. Collins	10,525 0 0
J. Hurn	10,036 10 0
Kerridge & Shaw	9,989 0 0
CORNISH & GAYMER, North Walsham (*accepted*)	9,600 3 0

NORWICH.

For widening of Fye Bridge. Mr. A. E. COLLINS, city engineer.

Cook & Co.	£1,255 0 0
Downing	1,180 0 0
T. H. Blyth, Foulsham, Norfolk *	982 11 6

* Recommended for acceptance.

NORWICH—*continued.*

For private street works in Mousehold Street, Cavalry Street, Anchor Street, Wodehouse Street and Stracey Road. Mr. A. E. COLLINS, city engineer.

Glenny	£2,366 4 10
Read	1,806 0 0
Clarke	1,795 0 0
G. Rackham	1,669 15 11
H. WOODHAM, Blackheath Hill, London (*accepted*)	1,471 13 0

PLYMOUTH.

For alterations and renovation to premises, 31 Tavistock Road, for Mr. Peter Stroud. Mr. JAS. HARVEY, M.S.A., architect and surveyor, 9 Courtenay Street, Plymouth. Quantities by architect.

J. Griffin	£330 0 0
J. H. Blackell	309 0 0
Pearn Bros.	300 0 0
G. B. Turpin	297 0 0
W. G. Good	293 10 0
J. G. Good & Co.	275 0 0
A. N. Coles	272 0 0
W. Pellow	266 0 0
Jillard & Stevenson	260 0 0
W. H. Palmer	249 16 0
W. BLAKE, Plymouth (*accepted*)	249 10 0

RUNCORN.

For construction of sewerage works in the parish of Helsby. Mr. WILLIAM DIGGLE, surveyor, Holly Bank, Frodsham.

T. Rowland	£273 8 3
Winnard & Weston	243 14 9
Sayer & Randall	212 8 0
F. J. Bemin	192 16 7
J. A. EWART, Warrington (*accepted*)	170 13 0

SALCOMBE.

For making-up, kerbing and channelling private streets. Mr. J. FORD, Plymouth.

G. Hooper	£943 18 5
E. Duke	927 6 2
J. & A. Steere	916 10 8
F. Fisher	907 5 10
W. H. MURCH, Batson, Salcombe (*accepted*)	902 14 9

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SCOTLAND.

For introduction of water to the poorhouse at Lochmaddy, for supplying and fitting-up baths, lavatories and w.c.'s, and for the construction of a new sewerage system.

F. Urquhart, Branly	£375 11 3
J. & R. Crosbie, Leshmahagow	333 7 10
D. Mactavish, Lochmaddy	276 10 9

No tender yet accepted.

For erection of dining hall and six bedrooms, &c, at the Stotfield Hotel, Lossiemouth. Mr. R. B. Pratt, architect, County Bank House, Elgin.

Accepted tenders.

McPherson, mason.
Ritchie & Sons, carpenter.
Gordon & Sons, plumber.
Gray, plasterer.
Murray, slater.
Forsyth, painter.
Johnston & Co., ironwork.
Total, £1,097.

SLEAFORD.

For providing and laying cast-iron pipes, with service-tanks, valves and other fittings. Mr. Jesse Clare, engineer, Sleaford. Quantities supplied.

Merridew & Wort	£1,417 0 0
A. Jenkins	795 0 0
W. Stone	739 8 7
Jenkins & Son	722 9 8
H. Shardlow	700 0 0
H. J. Materface	692 4 10
J. Lees	672 16 9
Steavenson & Co.	668 5 0
B. Roberts	642 3 7
J. T. Barnes	638 0 0
S. C. Skinner, Ewerby (*accepted*)	635 0 0

SLOUGH.

For additions to Southend Farm. Mr. R. C. Gleed, architect.

Botterill	£375 0 0
H. D. Bowyer	345 0 0
J. Deverill, Slough (*accepted*)	343 0 0

ST. ALBANS.

For erection of a stone staircase at the workhouse. Mr. T. Foster Woodman, architect, St. Albans.

J. & W. Savage, Lattimore Road (*accepted*)	£41 6 3

SUTTON-IN-ASHFIELD.

For alterations and additions to the New Cross Hotel. Messrs. Vallance & Westwick, architects, Mansfield.

G. F. Taylor	£1,156 0 0
J. H. Vickers, Limited	847 0 0
Fisher Bros.	817 0 0
J. F. Price	800 0 0
Gilbert & Gabbitass	795 0 0
S. B. Frisby	780 0 0
J. Keeling, Sutton-in-Ashfield (*accepted*)	650 0 0

WALES.

For erection of a master's residence at the Board schools, Rhosllanerchrugog. Messrs. J. Morison & Son, architects, King Street, Wrexham.

J. Davies	£460 0 0
Jenkins & Jones, Ruabon (*accepted*)	435 0 0

WEDNESBURY.

For widening the bridge over the Birmingham Canal on the Holyhead Road. Mr. E. Martin Scott, borough engineer.

J. Mackay, Smethwick (*accepted*)	£537 0 0

WESTON.

For erection of post and rail fencing to a culvert at Weston, Nursling. Mr. James Jenvey, district surveyor.

T. Ware	£13 17 6
W. Roles & Sons	12 10 0
W. Hood, West Wellow (*accepted*)	10 0 0

WOODFORD.

For erection of pair of villas at South Woodford, Essex. Mr. Herbert Riches, architect, 3 Crooked Lane, King William Street, London, E.C.

T. Osborn & Sons (*accepted*)	£1,050 0 0

WOOLWICH.

For repairs to the Woodman, North Woolwich. Messrs. Foulsham & Herbert Riches, architects, Bromley-by-Bow, E., and 3 Crooked Lane, E.C.

W. Harris (*accepted*)	£190 0 0

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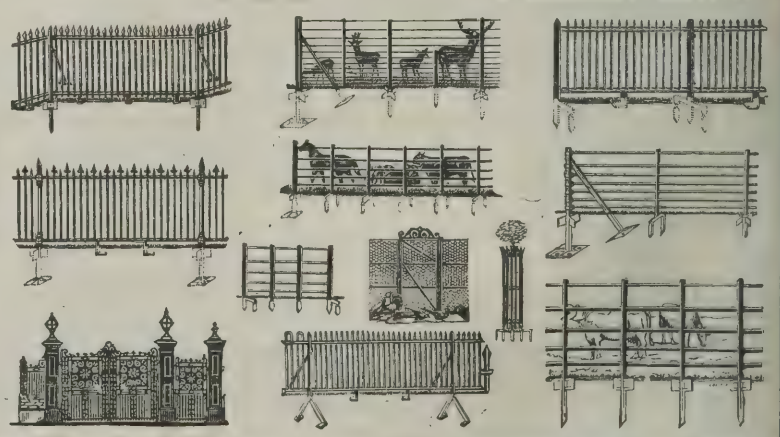
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DARTFORD HEATH.

For erection of twelve cottages. Mr. ST. PIERRE HARRIS, architect and surveyor, 8 Ironmonger Lane, E.C., and Orpington, Kent.

Rider & Son	£4,096 0 0
Stebbings & Pannell	3,938 0 0
T. Knight	3,880 0 0
Lonsdale	3,812 0 0

MOTHERWELL.

For erection of police buildings.

Accepted tenders.

T. Anderson, mason work	£3,943 5 0
T. Millar, joiner	1,676 0 0
A. Macdonald, plumber	566 7 8
Cormack & Sons, heating and ventilating, Glasgow	268 4 10
J. Bertram, slater	256 16 1
J. Currie, plaster	231 1 8
A. Kemp, painter	79 6 8

Total, £7,030 2*s.*

ORPINGTON.

For erection of six cottages at Crofton. Mr. ST. PIERRE HARRIS, architect and surveyor, 8 Ironmonger Lane, E.C., and Orpington, Kent.

Smith & Son	£2,120 0 0
T. Knight	2,009 0 0
W. Owen	1,990 0 0
Stebbings & Pannell	1,839 0 0

For execution of decorative repairs to private residence. Mr. ST. PIERRE HARRIS, architect and surveyor, 8 Ironmonger Lane, and Orpington.

SOMERFORD & SON (*accepted*) £142 10 0

For execution of repairs to properties situated in Wellington Road. Mr. ST. PIERRE HARRIS, architect and surveyor, 8 Ironmonger Lane, E.C., and Orpington.

Stebbings & Pannell	£126 0 0
E. R. Thorne	120 15 0
W. R. Taylor	114 10 0
J. Lonsdale	112 10 0

SHOREHAM.

For erection of a private residence and stables. Mr. ST. PIERRE HARRIS, architect and surveyor, 8 Ironmonger Lane, E.C., and Orpington, Kent.

Hanscomb & Smith	£2,210 0 0
J. Lonsdale	2,126 0 0
Somerford & Son	2,053 0 0
Wiltshire & Son	2,024 0 0

ELECTRIC NOTES.

THE Whitechapel District Board have adopted a scheme for electric lighting for the district, and decided to borrow 60,000*l.* for carrying out the first portion of the work, which is to be performed within two years.

AT a meeting of the electricity committee of Glasgow Corporation on Tuesday, a report was submitted by Mr. Chamen, the engineer of the department, and Mr. Myles, architect, on the proposed new electricity works at Coplawhill, on the south side of the city. The total cost for building and plant is estimated at 59,000*l.*, of which 16,000*l.* has already been authorised by the Corporation for the new generating station.

AN evidence of the progress of electric-lighting schemes is to be found in the figures just officially announced from the Private Bill Office of the House of Commons. Those which were submitted to Parliament last year numbered eighty-five—a great increase on the number put forward in the previous session. No fewer than 114 provisional orders have been deposited, and in addition to these there are several schemes for the production of electrical energy. Some of the latter proposals contemplate the supply of electricity to large districts. The proposals do not, however, deal exclusively with large centres of population, this form of energy for lighting and other purposes having become vastly popular in small urban districts.

IN a recent presidential address Mr. Preece mentioned the fact that there is enough energy "running to waste" in the waterfalls of the whole world to supply the wants of the whole of its industries; but at present very little of it can be practically utilised, from the unfortunate circumstance (which, however, is natural and explicable) that great centres of industry and great falls do not occur near each other. Generally speaking, the

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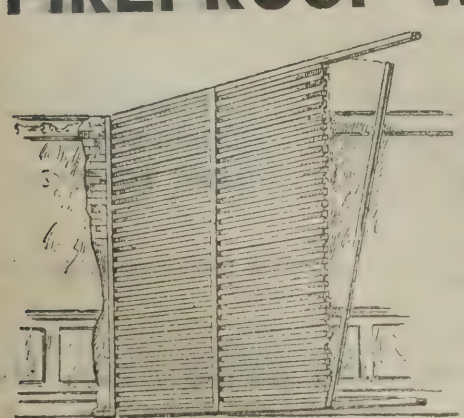
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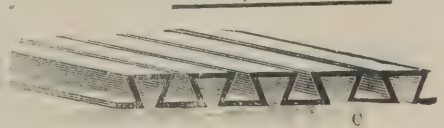
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distance to which power can be applied electrically is merely a question of money—that is, it does not pay to convey it far, compared with the cost of other sources of energy, such as coal. Rome at present obtains its light and runs its tramcars by means of electricity generated at Tivoli, fifteen miles away; Switzerland and South Africa use their falls and cataracts considerably, but it is in the United States that the idea has been most developed. In one town in Utah, for example, a voltage of 40,000 is produced, and the energy develops power equal to 2,000 horse-power thirty-two miles from its source; while at Ogden, Salt Lake City, the distance between the falls and the place where their energy is usefully employed is thirty-six miles. Of course we have nothing to compare with this in our own country, the electric railways at Portrush and Bessbrook in Ireland, and small undertakings at Worcester, Keswick, Lynton, &c., forming practically our only examples. This, however, arises not so much from our own backwardness as from the unalterable "nature of things."

BUILDING AND BUILDERS.

THE foundation-stone of a new schoolroom in connection with Llanaber church was laid on the 30th ult.

THE foundation-stone is to be laid to-day of the Whitechapel picture gallery, which is being erected adjoining the library in the High Street.

MESSRS. PEASE, extensive colliery owners and coke makers in Durham, have decided to erect handsome schools for the education of the children of their workpeople at Ushaw Moor. Accommodation will be provided for 600 scholars, and the cost of the premises will be about 5,000*l.*

A NEW pier is to be erected at Felixstowe, starting from the shops near the Old Battery and running out 3,300 feet. Upon the structure will be provided pavilions for concerts, refreshment-rooms, and hot and cold sea-water baths.

LLANDUDNO has resolved not to be behind in the supply of dramatic fare to its residents and visitors. Mr. Kitts, of the Sydenham Restaurant, has completed arrangements for the conversion of the newly-vacated St. George's Hall, in Mostyn Street, into a commodious theatre. Considerable additions will be made to the existing building with a view of providing accommodation for about 1,500 persons. A syndicate has also been formed for the purpose of erecting another theatre in the Craigydon part of the town, on land abutting on Riviere's Concert Hall.

THE memorial-stone of the new Hutchesontown, N.B., parish church, which is being erected at the north-west corner of Rose Street and Rutherglen Road, was laid on the 3rd inst. The church is designed in the Romanesque style, and is to be seated for 950 people. There is also a hall alongside to seat 600. The church has back and side galleries, with side aisles, and a special feature is an imposing chancel arch, suitable for an organ chamber, with the pulpit in front. The arch will have three relieving arches. The roof is an ingenious combination of iron and slate, and it covers the whole span, without any clerestory. The outside of the church is red sandstone, with rock-faced courses and clean dressed around the windows. The main entrance faces Rutherglen Road, and there are to be two side entrances. There is a tower at the west end of the main entrance, but there will be no spire. The architect is Mr. Alexander Adam, St. Vincent Street, Glasgow.

AS a development of the scheme for extending the Municipal Chambers in Edinburgh, the Lord Provost's committee of the Town Council have agreed to recommend the purchase of the Royal Exchange Hotel (better known as "John's Coffee House"), a room in which was at one time occupied by Hugh Miller when editing *The Witness*. Power to acquire this property and the adjacent shops to the east was taken by the Corporation in their Bill for enlarging the City Chambers. It is understood that the price to be paid for the premises, including the goodwill of the business, will be 15,000*l.* or 16,000*l.* This will give the Corporation command of the arches on the west side of the present entrance, and it is proposed in connection with this purchase to clear away the arcade and make a more worthy entrance to the City Chambers.

MR. F. H. TULLOCH, an inspector of the Local Government Board, held a public inquiry at the Board school, Curdworth, on the 1st inst., respecting the proposal of the Birmingham, Tame and Rea District Drainage Board to acquire a number of workmen's houses in the parishes of Curdworth and Sutton Coldfield, and their scheme for securing adequate accommodation for the persons inhabiting these houses. Under the Act governing the proceedings of the Board they may not, in acquiring land, compulsorily purchase more than ten houses

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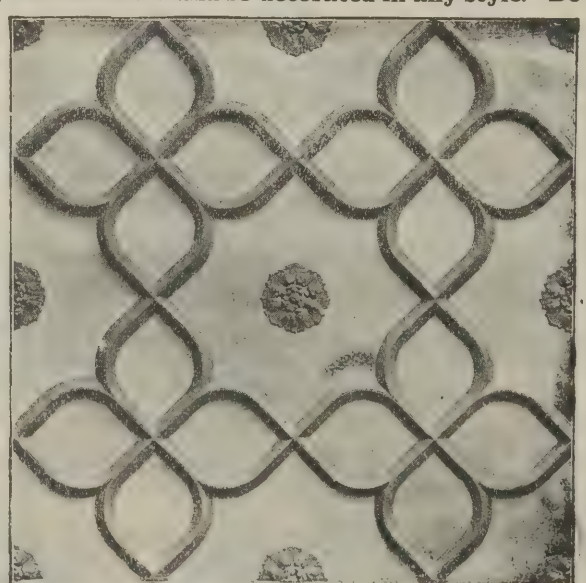
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occupied by the labouring class without submitting a scheme of accommodation. The inquiry was attended by the chairman of the Drainage Board (Alderman Baker), the solicitor (Mr. E. O. Smith), the engineer (Mr. Knight), and the clerk (Mr. W. Harris). The solicitor explained that though the Board were acquiring forty-three houses, the population would not be displaced; in fact, they proposed to build fifteen other cottages and to convert some of the larger houses into cottages. If any of the tenants were disturbed there would be other houses provided for them. Mr. Knight submitted the plans of the proposed new cottages, which were to be erected on a site which the inspector had already visited. There was no opponent to the scheme, but a working man expressed satisfaction at the proposals of the Board. The inspector will doubtless report in favour of the scheme.

Owing to the continued encroachment of the sea between Herne Bay and Whitstable, causing continuous slips of valuable building land at Hampton, a survey of the coast has been made by experts, who express the opinion that the encroachment is entirely caused by the old pier. As property of great value is in danger of being swept away through the sea gaining on the land, it has been decided to demolish the pier immediately, this being the only means of saving the foreshore.

An arrangement has been made by which the private practice established in Manchester in 1850 by the late William Radford, Esq., M.Inst.C.E., and carried on until recently by him in conjunction with his son, Mr. William Harold Radford, under the style of Messrs. William Radford & Son, civil engineers, surveyors and valuers, at 19 Brazennose Street, Manchester, has been transferred to Mr. Joseph Swarbrick, Assoc.M.Inst.C.E., of Temple Chambers, 33 Brazennose Street, Manchester, consequent upon the appointment of Mr. W. H. Radford to the position of Bridgemaster for the county of Lancaster, in succession to his father.

TESTS OF BUILDING STONES.

In the Geological Report of the State of Indiana, the following directions are given for testing the quality of building stones:—

The elasticity of stone may be tested by sawing it into long slender strips, say 2 inches square and 3 feet long, when, if it be quite perceptibly flexible, its elasticity is good. If such a bar be suspended so as to hang free by a string and is struck a light blow with a hammer, its evenness and solidity of fibre will be attested by a clear, sweet metallic note, not unlike that of a fine bell or that of a well-tempered steel bar. As a rule the best stone will break with a direct line of fracture; but it may be conchoidal or otherwise indirect and still be unobjectionable. Parallel lines of cleavage or of stratification are always favourable indications where other features are promising.

Resistance to crushing weight may be pretty safely inferred from solidity of texture and evenness of grain; but it is always necessary before a final acceptance to submit the material to the severest tests of an apparatus for that purpose.

In examining sandstone, with a view to building purposes, the outcropping, if there be any, should be carefully scanned with a view to discovering what effect long exposure to the atmosphere and the rigours of winter may have had upon it. If the stone has "weathered" badly, this will be shown by one or another sign of disintegration or demolition, and a talus of fragments and sand will be found formed at or near the base of the outcropping cliff. Often the substance of the rock will show unmistakable evidence of inequalities of structural composition, such as horizontal cavities caused by the weathering out of seams or streaks that, on account of bearing too much iron, have oxidised and crumbled away. Such stone, if used in a building, would prove worthless and therefore dangerous. It is often the case, as I have observed during a long experience in civil engineering, that public bridges erected by counties are rendered unsafe by having their piers and abutments constructed of this kind of stone, and that, too, in places where most excellent material lay near at hand, and which a little knowledge of the nature of stone would have pointed out to the superintendent. Too frequently it happens that appearances of the most untrustworthy kind are relied upon where an ignorant person is set to do work which ought to be in charge of a skilled and well-informed engineer.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: THE SCREEN.

NEW CLARIDGE'S HOTEL.

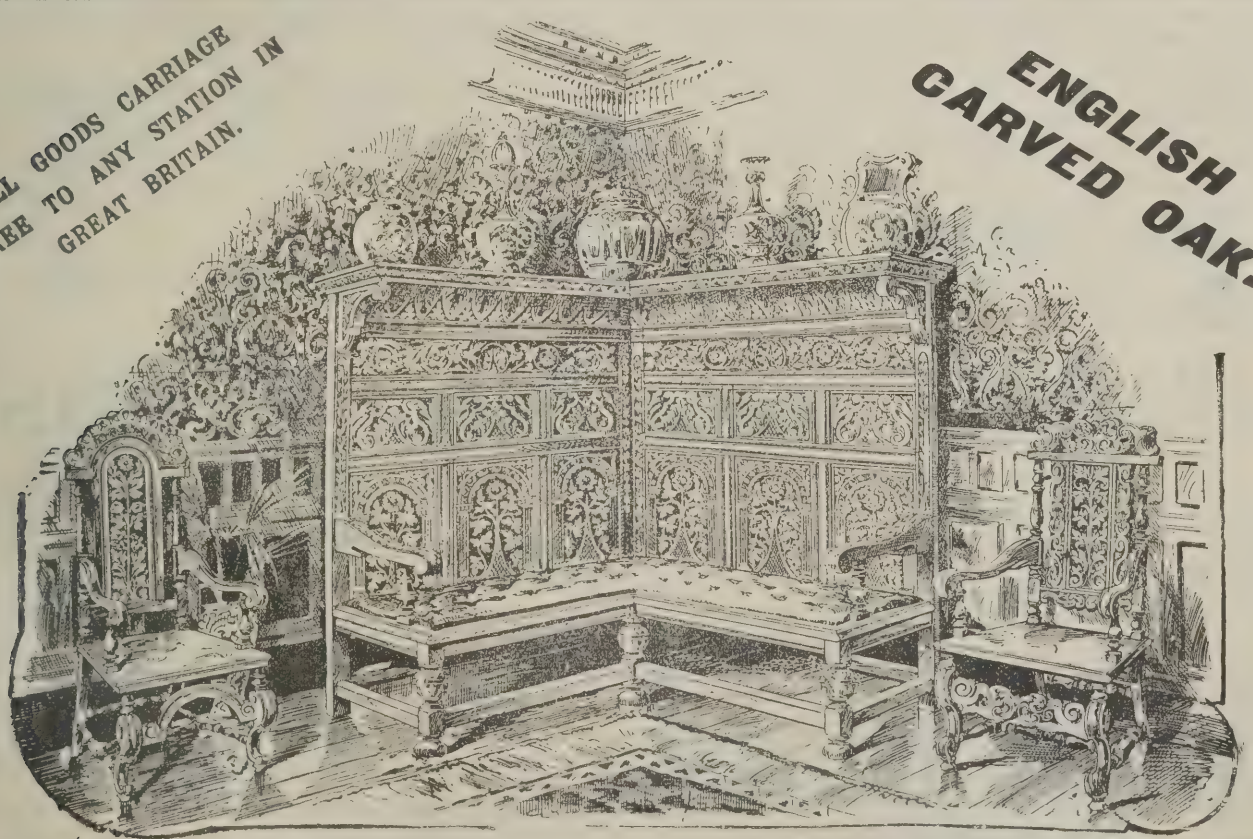
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In judging of the probable durability of limestone, before subjecting it to any test of science, the same observations should be made as in the case of sandstone, with a view to ascertaining its weathering qualities. Any unequal discolouration of the face of the exposed ledge should be scrutinised carefully. Usually these are caused by the presence of iron in the composition of the rock. But limestones are much more injuriously affected by hidden faults of composition than any sandstones, and for this reason they demand a much more careful examination before any extensive quarries are opened. It is often the case that iron in limestone will do no more than discolour the outer surface on exposure to the action of air and rain-water, but even this is a serious defect when the stone is to be used in any structure wherein beauty is a chief object. For the rough masonry of ordinary bridges and for the hidden foundations of buildings, a cheap and durable stone is what is most wanted, and in these discolouration is not a fatal fault.

KETTON STONE.

Apropos of an article on "Edith Weston Stone" which appeared in our last week's issue, in which we referred to the "famed Ketton Quarries" as being "about worked out," we have received a letter from the agent of the proprietress of those quarries, to the effect that they are not worked out, and we therefore hasten to mention this in order to remove the erroneous impression which may have been created by the remark.

TRADE NOTE.

The Conservative Club, Rawtenstall, is being warmed and ventilated by means of Shorland's patent Manchester stoves and patent Manchester grates.

The Great Northern Railway has recently had an artesian tube-well bored at Werrington, near Peterborough, with the result that a splendid overflow rising to the height of 20 feet above the surface has been obtained This boring, which has been carried out by Messrs. Le Grand & Sutcliff, hydraulic engineers, London, reaches to the depth of 132 feet, and the water coming from the Lincolnshire limestone overflows at no less that 300,000 gallons per diem, which copious yield may have a material bearing upon the locomotive supplies of the district.

VARIETIES.

New Wesleyan Sunday schools erected in the rear of the Wesleyan Centenary Chapel at Boston (Yorkshire) were opened on Monday. The new premises have been built at a cost of about 2,400*l.*

The Borough Road was yesterday *en fête* in celebration of the opening of the new extensions which have been added to the justly popular Borough Polytechnic Institute. The additions, which have cost somewhere about 15,000*l.*, comprise four fully-equipped workshops for wheelwrights, boot and shoe makers, printers and bookbinders. A fine business-like looking gymnasium and some classrooms will also be found to add materially to the value and efficiency of the institution.

A new chapel for St. Bede's College, Alexandra Park, Manchester, which has been in course of erection for the past eighteen months, was opened yesterday. The chapel has been built at an outlay of 2,500*l.* The sermon was preached by Monsignor Moyes, formerly a member of the college staff. On Saturday Abbot Geudens will pontificate at Mass, and the preacher will be the Rector of Stonyhurst College (Father Brown). The music to be sung at Mass on each of these occasions has been specially written by Mr. H. G. Allen. A magnificent marble altar and reredos, the gifts of anonymous donors, form the leading features of the new chapel.

A monster blast was successfully carried out on Wednesday at Messrs. Farren's sett quarries, Rival Mountains, Carnarvonshire. A level had been driven into the rock, then cross levels at right angles, terminating in spacious chambers. Here over six tons of powerful blasting powder had been placed. The levels were then closed up with huge stones and Portland cement. An electric current of 400 volts was used to explode the charges. The upheaval was a magnificent sight, nearly 100,000 tons of granite being displaced. The arrangements were superintended by Mr. George Farren.

The new West Monmouthshire school which has recently been opened at Pontypool is a handsome and commanding building, occupying a site on the brow of an eminence overlooking the town and park. The frontages are in red brick, relieved by string-courses of Bath stone. In the south-east corner, set back into the east elevation, is a tower. There is another on the left, both being octagonal in style and 87 feet high. The main entrance is approached on either side by flights of stone steps, and in front of the door are two Bath

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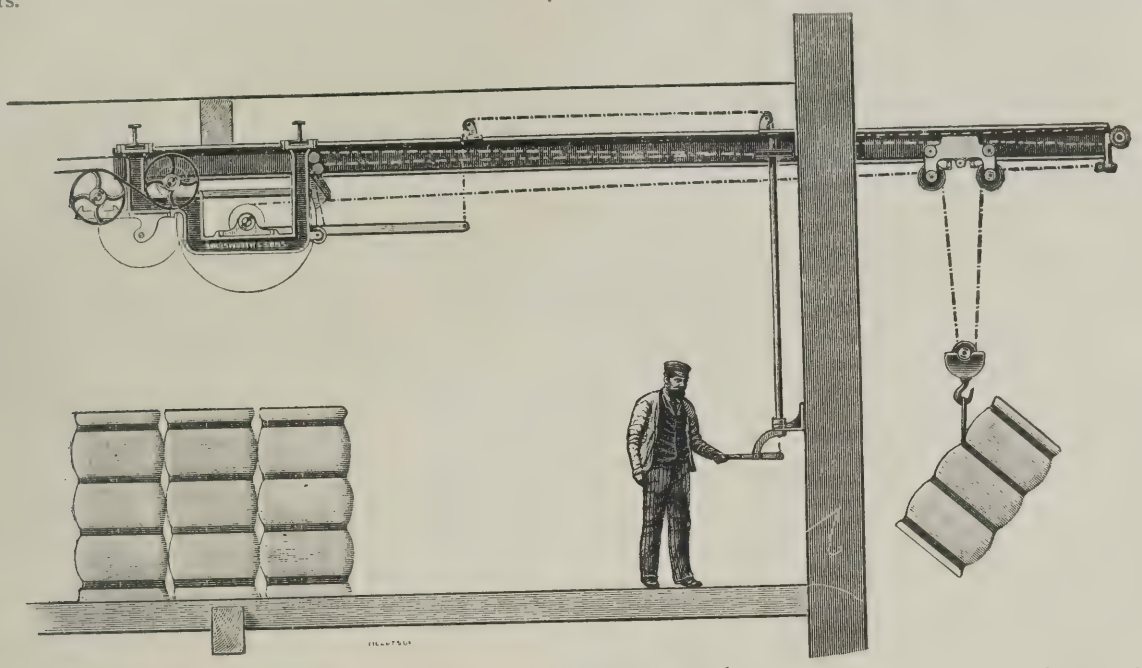
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stone pillars. The great hall on the ground floor will accommodate 300 people. Terraces run round the building, which stands in grounds extending over six acres, in a healthy and bracing situation. The schools, providing accommodation for 200 boys, including 70 boarders, have cost in the total close upon 35,000*l.* Mr. H. Stock, F.R.I.B.A., London, was the architect, and Messrs. W. Bowers & Co., of Hereford, the contractors.

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Messrs. Wm. Wadsworth & Sons, of School Hill, Bolton, send us a catalogue of their improved friction and cage hoists, &c. The illustration shows the working of their self-landing and delivering hoist, which has been designed with a view to dispensing with the dangerous and laborious work o

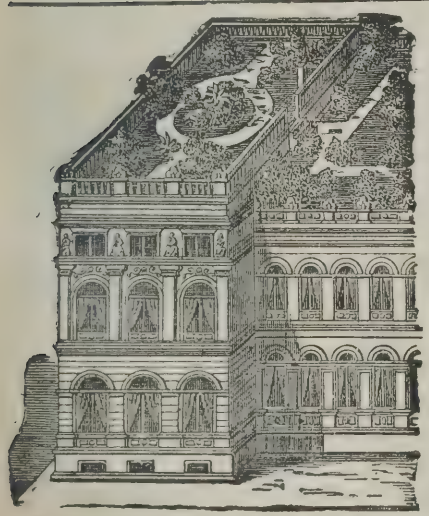


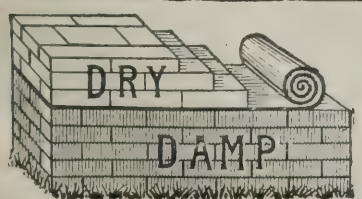
NEW CATALOGUES.

We can unhesitatingly advise architects to obtain a copy of the excellent catalogue which has just been issued by Messrs. J. Tylor & Sons, of Newgate Street and Belle Isle, N. It consists of close upon 400 pages of matter beautifully printed and copiously illustrated—many of the illustrations being coloured—and elegantly bound, and leaves, æsthetically speaking, nothing to desire, while the information which it contains is copious and

swinging the goods into the room. This hoist is controlled by a lever placed near the doorway, so that the operator can see both inside the room and the lurry standing outside. The movement of this lever corresponds with the movement required on the hoist thus :—To hoist, requires the lever to be raised ; to travel out, an outward movement of lever is required, &c. The jibs of the hoist can be made to draw inside the room, as generally required in warehouses by the Corporation authorities. This hoist requires only one strap to drive it.

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In the notice of Mr. Thornton's catalogue, which appeared in our last week's issue, we inadvertently gave the name as A. E. Thornton instead of A. G. Thornton.

DUFFY'S PATENT SYSTEM OF DOWELLED WOOD PAVEMENT.

An admirable specimen of workmanship and material may now be seen in the paving of the roadway which lies between the new Marylebone Station of the Great Central Railway and the huge caravanserai which is rising in the Marylebone Road. In this paving Duffy's patent system of dowelled wood blocks is employed, and the result is certainly one on which that gentleman deserves congratulation.

The method employed by Mr. Duffy in securing the blocks together consists essentially in the forming of recesses or holes in the blocks into which are inserted dowells or bonding keys of a special type. One of the leading features of this system is that all the blocks being fastened together mutually support each other, and the weight of the traffic is distributed over a considerable area instead of on each individual block. The effect of this improvement is that in many cases it will be practicable to dispense with the concrete foundation, which need only be used in streets subject to exceptionally heavy traffic; this distribution of the load is also an important factor in preserving the blocks from destruction by the concussion and stresses to which they are subject. Briefly, it may be safely stated that a roadway laid with hardwood under this system, and with close joints run in with mastic, presents all the advantages which could be desired under the heads of hygiene, economy and ability to stand the heaviest wear and tear, besides affording a sure foothold for horses. The same principle has been used during the past few years by Mr. Duffy for the laying of floors in public buildings, banks, insurance offices, churches, colleges, schools, barracks and other Government buildings, and it is claimed that in every case it has proved a success. As far back as 1895 Mr. Duffy's system was adopted by Sir J. Wolfe Barry, K.C.B., for the roadways of the Tower Bridge, where it may still be seen in a perfect state of preservation, in spite of the heavy traffic to which it has been subject. Trial pieces have also been laid in one or two other streets in London, where they have stood the test excellently.

GRAND THEATRE, LUTON.

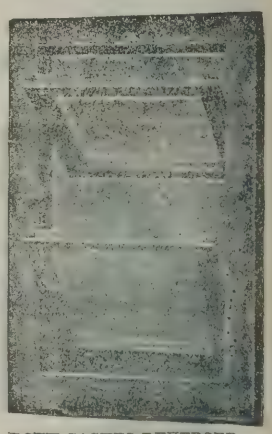
The new theatre which is to be opened in Luton on Monday next is designed on the latest modern principles and affords a perfect view of the stage from every part of the house. It is a two-tier house constructed on the cantilever system, and there are only two columns upon the pit level and upper-circle level to in any way obstruct the view. The whole of the floors are of concrete. There is seating accommodation for about 1,000 persons, and standing accommodation for about 350 persons in addition. The proscenium opening is 24 feet by 24 feet, and the stage has a total depth of 30 feet and an extreme width of 46 feet, with an additional area of 5 feet by 15 feet on the prompt side. The proscenium opening is fitted with a fire-resisting curtain, and the stage with all latest improvements. Provision has been made for ten dressing-rooms and a band-room, with all necessary conveniences. Three refreshment bars have been provided, together with all necessary cloak-room and lavatory accommodation. Upon the pit level there are no less than thirteen entrances and exits, including two to the dressing-rooms in case of fire, so that the house could be emptied in a very short space of time, and ample provision has been made for exit staircases. Hydrants have been provided in all necessary positions in the event of an outbreak of fire, as well as sprinklers above the stage. The theatre is lighted by gas, there being no electric system of lighting at the present time in Luton. The main entrance will be paved with marble mosaic. The exterior is faced with grey Luton bricks relieved with quoins and dressings of red bricks and St. Aldhelm box ground stone for cornice strings, bands, &c., the ornamental gable being carried out entirely in stone, and the exterior has a pleasing effect. The whole of the work has been designed and carried out under the superintendence of Mr. Charles Herbert Shoppee, of 22 John Street, Bedford Row, London, while the contractor is Mr. W. G. Dunham.

THE CIVIL AND MECHANICAL ENGINEERS' SOCIETY.

The opening meeting of the session of the Civil and Mechanical Engineers' Society was held at the Hotel Victoria, Northumberland Avenue, S.W., on Thursday, the 1st inst. Mr. Baines Dadley, the president, delivered an opening address. He pro-

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ceeded to refer to the various railway extensions in progress in London, especially the underground tubular system originally introduced by the late Mr. Greathead, which he described as a great step forward in the science of practical engineering. From the citizen's point of view he, however, considered it was not an altogether unmixed blessing, for travelling in tunnels was distasteful to most people, and should a serious accident occur in one of these, the extrication of the injured passengers might be extremely difficult. He was of opinion that if a fair trial was given to electric railways on the overhead system, it would be welcomed by the public. Dealing with the bridges over the Thames, he suggested that when a railway company was granted permission to construct a bridge over the river, it should be on condition that a road bridge was combined with it; such a regulation, he understood, already existed in some of our colonies. The steamboat traffic on the river had greatly fallen off because the land services had improved to an extent which had not been imitated by the river service, but with covered landing stages, improved boats running at greater speed, at more frequent intervals, there was no reason why an all-year-round service should not be resuscitated. The river was also badly lighted, and the public lost after dusk the advantage of this splendid highway through the centre of the Metropolis. Were the bridges and banks lighted with diffusive electric arc lamps, traffic could be carried on by night as well as by day. Referring to the labour question, he stated that during last year only the working men of this country through labour disputes lost 10,300,000 working days. He thought the root cause of the trouble was the destitute condition of the workmen in their old age, the example of which spurred the younger men to demand higher wages while they were able to work, and as this could only be obtained by combination against the employers, strikes were the result. He suggested that the Government should take over the funds and liabilities of the trade societies, and inaugurate a *pro rata* system of State pensions for which compulsory contributions of a percentage of the wages should be deducted by the employer and paid over to the State Department, and that a judicial commission should be appointed to act as arbitrator in all labour disputes, its decision being final and binding on both parties for a term of years. He knew the financial objections to such a scheme were considerable, but the savings from the present Poor Law administration would also be very great, and as the contributions might be extended over forty-five years and a very large minority would not attain the pensionable age, he opined the scheme in time would be self-supporting. The meeting closed with a vote of thanks.

ELECTRICITY AND THE SEASONING OF TIMBER.

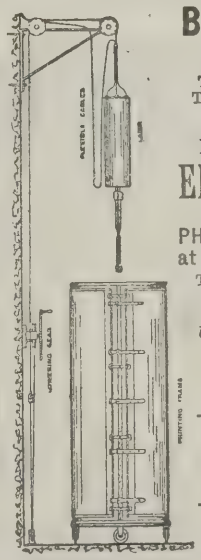
AN important and novel process for the rapid seasoning of timber by the aid of electricity has been in operation on a large scale in France. By means of it the market price of timber can be much reduced and the quality improved. We are not surprised to learn that the 100-franc shares of the company that was started in France (with a capital of 1,200,000 francs) to work the process stand to-day at 475 francs.

There is not much difficulty in understanding the reasons for the remarkable success of the process. It is well known that old wood, on account of its resistance to damp, to variations of temperature, as well as its possession of qualities required for some special manufactures—elasticity, adhesiveness, impermeability, sonorousness, &c.—is the only kind adapted for the manufacture of string instruments, wind instruments, pianos, art materials, sculpture, furniture, joiner's work, carpentry work, cabinet making, the toy trade, cartwright's work, coach building, the stock of railways, oak flooring, the construction of boats and ships, the manufacture of casks, the mounting of fire-arms, &c., and is in continuous demand. To render timber fit for use the following losses have had to be sustained:—1st, sinking of capital during seasoning (from five to twenty years); 2nd, the rent of ground or warehouse; 3rd, expenses of insurance; 4th, loss arising from cracks and rot, which amounts to as much as 20 per cent., sometimes even 35 per cent., of the total volume of the wood. To this must be added the permanent danger of fire.

There is an interest, therefore, of the first order in finding an economical and rapid process for ageing the wood while securing to it the same qualities as the natural senescence. For fifty years the greatest sacrifices have been made towards this end.

During 1896 two Frenchmen made together the discovery so long attempted in vain and by so many diverse means. They finally arrived at a practical and definite solution of the problem. The trials bore at first on the preparation of the reed for clarionet reeds, and were made in great number by one of the discoverers, a musical instrument maker. The other gentleman interested then conceived the idea of applying the same treatment to all wood substances, and under the superintendence

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of eminent specialists they have made real and absolutely conclusive industrial experiments. One difficulty to conquer was the permeation of thick joists. This was overcome in a most practical manner by a very rapid electrical process. The electro-capillary permeation which resulted therefrom was soon susceptible of applications as numerous as they were unforeseen.

The timber to be treated is put into a quadrangular tank of liquid, immersed to rather more than half its depth, and an electric current is applied through a metallic conductor, so arranged as to distribute it throughout the area. In the space of four minutes the sap commences to exude visibly at the lower part of the end of the wood, forming a line of viscid froth. In the space of six hours the sap is seen, by the ceasing of exudation, to be entirely extracted. The wood is then taken out and placed in another tank, from which a septic solution is forced from below into the pores denuded of sap by an electro-capillary method ; duration, three hours.

After the two electrical processes have been completed the wood undergoes a drying process by being placed for two or three or more weeks in covered sheds, provided with a continuous through current of fresh air. If of large scantling or obstinate nature, a longer period is allowed, it being placed for three or more days in hot, dry rooms. The processes are then all complete, after lasting about a month.

Among the advantages of the new process are the following :—One month's interest on capital, instead of years ; power of utilising cheap or damaged woods, hitherto almost useless, and of applying them to new purposes ; facility of dyeing woods to prescribed colours throughout their entire thickness, thus rendering painting unnecessary ; gain in treating green woods without loss of time—the greener the wood the quicker the action of the process ; complete freedom from shrinkage, twisting and warping ; immunity from damage by insects or animalculæ ; great reduction in inflammability ; increased strength and better surface ; resistance to damp or moisture ; extraordinary increase in the resonance and fine tone of musical instruments ; economy of application ; enormous diminution in the destruction of forests so far as arising from premature rot in the timber actually sold, and practicability of rendering wood fireproof, if required, at a very small additional cost by one further process.

We are informed that a beginning in England is about to be made with important works at Charlton for supplying the requirements of British timber merchants and manufacturers, and gentlemen interested in timber will shortly be afforded an opportunity of witnessing a practical demonstration of the process. Those who desire to be invited should at once send their names to the Secretary, Electrical Timber Seasoning Company, 159 Victoria Street, London, S.W.

THE NEW CENTRAL UNDERGROUND STATION.

After many delays the chief station on the Glasgow Central Railway is approaching completion. It is so far finished that it will be handed over to the company on December 15, and shortly afterwards the present temporary premises will be vacated. The termination of this long piece of laborious work will be welcomed, says the *Glasgow Herald*, not only by travellers but by the general public. The station has a frontage to Argyll Street of 154 feet, and to Hope Street of 123 feet. It is one storey in height, and the chief feature of the exterior is a circular dome at the corner where the two streets converge. This embellishment is somewhat squat in appearance ; but it is perhaps rather soon to pass an opinion upon it, having regard to the fact that the original plan, which has not yet been carried out, provided for the erection, to the north of the station area, of a high building, in relation to which the station as viewed from the street would form a sort of terrace. The plans were prepared by Messrs. John Burnet & Son, Glasgow, and the design may be described as a free treatment of the Classic style of architecture. The fronts are divided with pilasters extending to the parapet, surmounted by massive stone vases decorated with grotesque masks. The dome is enriched with four life-sized statues carved in stone, emblematic of industry, commerce and transport by land and sea. The building rests on a base of polished red granite, upwards of 6 feet in height, the superstructure being of stone. From the pavement to the top of the parapet the height is 26 feet, and to the lantern of the dome 46 feet. At the eastern end of the Argyll Street façade access is had to the parcels office, and at the extreme end of the Hope Street front there is a semicircular recess with two granite pillared entrances, the one to the offices yet to be constructed in the high building and the other to a suite of rooms to be used for arbitrations in connection with the business of the company. Internally the station may be said to have three floors, the first being on the street level,

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where the booking offices are situated, the next below that being occupied by a distribution hall, and the third by the train platform. Entering from the Argyll Street or Hope Street doorways, which are protected with overhanging verandahs supported on iron cantilevers, passengers will find themselves in front of a range of booking windows. Descending by a stairway 10 feet wide they will enter the passenger distribution hall, a handsome glass-roofed apartment surrounded with arched bays and having a restaurant 60 feet long at one side as well as a ladies' room 27 feet long and other necessary accommodation. From the distribution-hall two gangways, each 19 feet wide, lead down to the platform, while provision is made for the traffic to and from the high-level station by means of a ramp or inclined plane 12 feet wide. For the convenience of the public who require to pass from the one station to the other without going out to the street a booking-office is provided at the low-level platform. The most part of the floors and fittings are of teakwood, and a cheerful effect is imparted to the interior by the free use of lightly-tinted glazed tiles, which are variegated by bands of tiles of darker shades. The arbitration chambers include a large room with sliding screens, which may be removed as required, thereby making a hall 60 feet long by 24 feet in width. There are also rooms for counsel, witnesses, clerks and others.

SOCIETY OF ENGINEERS.

AT a meeting of the Society of Engineers, held at the Royal United Service Institution, Whitehall, on Monday evening, December 5, Mr. W. Worby Beaumont, president, in the chair, a paper was read by Mr. George Thudichum, F.C.S., entitled "The Bacterial Treatment of Sewage."

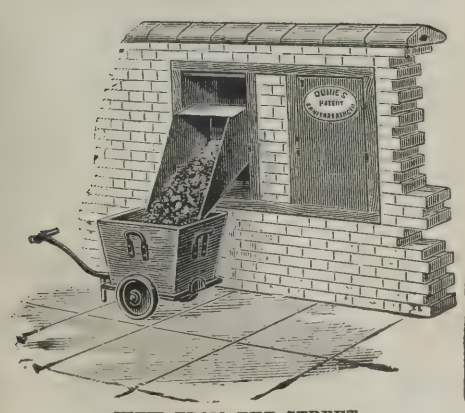
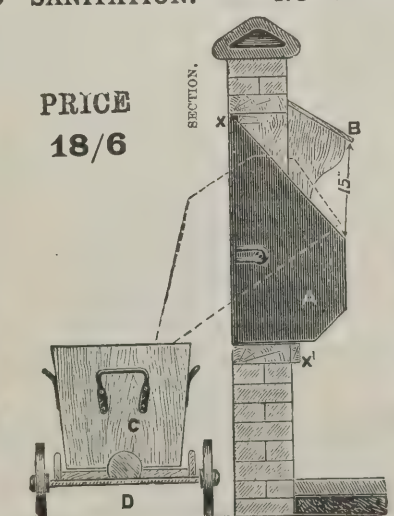
The author observed in his opening remarks that he did not enter into any theoretical considerations, taking it as a fact that the majority of those concerned accepted the general doctrine of bacterial treatment. The paper dealt with practical applications only. After describing the special uses of different processes under varying local conditions of fall, nature of soil and sewage, the author gave in detail the method adopted at Worcester Park, where the Cheam and Cuddington sewage is received, to convert a process of precipitation and irrigation into one of bacteria bed treatment and irrigation when desired, showing how the necessary beds were constructed by excavation, and filled with burnt ballast produced on the farm, at a total cost of about 325*l.*, the quantity of sewage to be dealt with amounting to 80,000 gallons daily in dry weather. The conversion of the Sutton sewage works was also alluded to, the cost there having been something less than 2,000*l.* for a daily flow of half a million gallons of sewage, whilst the saving in working expenses was 500*l.* per annum. The author then discussed the general questions of the interception of road detritus; the catching by screens or otherwise of pieces of rag and any large floating matter; and the dealing with night sewage by the provision of a special bed for its reception, with syphons for the automatic emptying of the bed in case of storms.

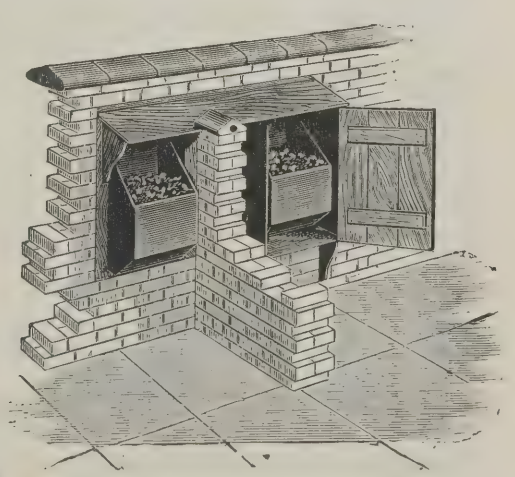
The author next dealt with the problem of sewage treatment as applied to hospitals, schools, country houses and other small communities.

For dealing with the sewage from a small community one of two biological methods may be employed, according to the fall available. In the first method, which may be either on the lines of the Sutton or of the septic system, or a combination of the two, the sewage is passed continuously through the tank or for twenty-four hours on to a coarse bed, and then on to fine beds, where it remains for two hours and is then discharged. If bacteria beds only are employed, they should be four in number, viz. two coarse and two fine grain, each being of sufficient capacity to take a whole day's flow. The sewage, or the overflow from the cesspit where such exists, is allowed to pass into one of the coarse beds for twenty-four hours, and is then diverted to the second bed, the effluent from the first being discharged into the corresponding fine bed. Here it is allowed to remain during two hours, and is then finally removed. By this method there is no doubt far more anaerobic action in the coarse bed than is the case when the system is worked normally; but the rest, which is given every alternate day, gives an opportunity for the destruction by oxidation of the organic matters retained by the bed. The attendance required is very slight, and can be readily given by a gardener; it consists merely in turning a few valves, with an interval of three hours between the first and second operations, and in an occasional raking of the surface. If the fall be sufficient to admit of the employment of two sets of beds, the septic tank and the fine beds only can be employed; and in this case the alternating gear used with the latter is essential, as otherwise the attendance would prove a severe tax.

In the second method it is presupposed that the sewage cannot be delivered at or sufficiently near the surface to be

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passed on to a bed. In this case the best plan is to provide a storage tank, a coarse-grain and a fine-grain bacteria bed, each of the three being capable of containing the sewage of an entire day of twenty-four hours. At a fixed time on each day the sewage should be pumped from the storage tank into the coarse bed, should remain there two hours and then be passed into the fine bed, and after a similar period of rest in the latter be finally discharged.

The sewage from the Claybury Asylum of the London County Council has been treated by a single pair of coarse-grain bacteria beds with perfect success for over three years. At Radley College an installation has recently been completed, in which the overflow from a cesspit is treated by two pairs of beds, viz. two coarse and two fine grain. These beds are constructed by excavating, the sides being of brickwork and the bottoms of clay puddle. The coarse beds are 16 feet by 10 feet by 3 feet deep each, and the fine 16 feet by 12 feet by 3 feet deep each. The bed material is coke, that in the coarse beds being all rejected by a screen having a half-inch mesh, and that in the fine having all passed a mesh of three-eighths of an inch, with the fine dust removed. The water capacity of each bed is 160 cubic feet, that being the maximum quantity of sewage which they have to deal with daily.

It is a source of much gratification to the author that further experience has caused no alteration of the views expressed by him in the paper read before the Society two years ago regarding general principles and methods of working. Much additional knowledge has been gained and the applications of the bacterial method have been shown to be of wider scope than was at that time generally recognised; but the facts then related still form the basis on which such knowledge is founded, and the theories set forth have been only amplified and verified without suffering any integral change. The method of working the beds by alternately filling and emptying, allowing them to stand full for a limited time and empty for as long a period as possible, has been proved over and over again to be the correct one. Where the method of constant flow through a filter is employed, the results have so far not been shown to be satisfactory. In many instances, as for example at Wimbledon, the effluent escapes from the burnt ballast filter, surface-choked, and—being cut off from air by its covering of earth—in a semi-putrid and stinking condition. This fact was noticed by many members of the Society of Municipal and County Engineers on the occasion of their visit to the farm. Whatever be the first treatment, the final purification must be aerobic; and so far as the author has yet seen, this is best accomplished on the lines laid down as a result of the Barking experiments between 1892 and 1896.

HOUSING THE POOR IN LONDON.

According to Lord Onslow the building regulations made by the London County Council to govern the designing of their dwellings have made it impossible to house the poorer of the working classes, and in fact their tenants are well-to-do men—many of them in the service of the State—while only 20 out of 6,929 of those actually displaced are now living in the Council's dwellings.

The housing committee allege that this is owing to the high standard of accommodation required by the Government Departments, whereas in fact all that the Home Office (which is the supervising authority under Part I. of the Act) has done has been to endorse the somewhat luxurious conditions laid down by the Council itself. In 1889, shortly after it came into existence, the Council laid down regulations of which the principal were as follows:—

(*a*) Staircases not to be central, to be at least 4 feet in width, and to be finished with a dado of glazed or hard-pressed bricks.

(*b*) Regulations governing construction of basements.

(*c*) Bath and wash-house accommodation to be provided in every block of buildings. Closets to have doors and windows opening directly to the open air.

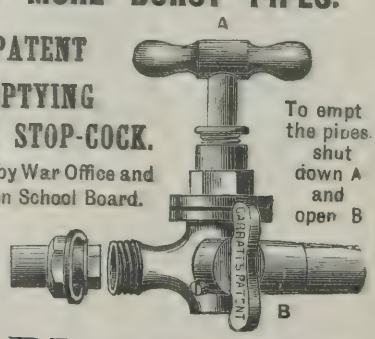
(*d*) Sizes of rooms to equal 144 feet for living-rooms and 96 feet for bedrooms.

(*e*) Height of rooms to be 9 feet.

Every building to be, if practicable, distant from any obstructing building one and a half times the height of the obstructing building.

But the cost of these was found to be prohibitive, and in 1893 it was resolved to increase the height of the buildings from four storeys to five, and to reduce the height of the rooms from 9 feet to 8 feet 6 inches. Towards the end of 1894 the conditions reached their least exacting point; under these Sonning and Culham buildings were built, and are the cheapest the Council has erected, for they are there able to let thirty two-roomed tenements at the (for the Council) very low rent of 5*s.* 6*d.* each. In 1896 an increase of the sizes of the rooms took place, but in 1897 there was a slight reaction, when the Home Office inquired why the Council should not be maintain-

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ing its former standard, but upon being assured that the Council's experience showed that the most suitable size for a living-room was 160 feet superficial, and for a bedroom 110 feet superficial, the Home Office at once accepted the reduced superficial area. This has been the standard adopted by the Council and sanctioned by the Home Office ever since. Now in the Boundary Street area the average rent per room per week is 2*l.* 10*s.* 4*d.* (*sic*), while in the adjoining district of Hornsey the District Council's rents average only 1*s.* 8*d.* per habitable room. The architect in his report to the Council observes upon these buildings :—"The cottages are attractive, not only from this low rent, but from their general appearance, convenience of arrangement and their gardens. But however cheap they may be, and however suitable they may be considered by some persons, they are obviously not buildings which the Council can copy unless a most material change is made in its policy and in the views of the Government with regard to the size of rooms in the Metropolis."

What reason can be given why the Council should not make a material change in its policy, and what is the justification for throwing the blame on the Home Office, when the Council has never proposed regulations to it with a view of housing those whom they displace at rents which they can afford to pay? No man can at present become a tenant of the Council who does not earn 30*s.* a week or upwards. The buildings of the Industrial Dwellings Company at Deptford contain sitting-rooms of about 90 feet superficial, and bedrooms averaging about 100 feet superficial; each tenement has a water-closet, and some have small sculleries in addition. Taking two and three-room tenements as examples, the superficial area of the two rooms would be about 290 feet superficial. The rents are for the two rooms 4*s.*, while the three-room tenements vary from 5*s.* 3*d.* to 6*s.*, according to the floor on which the tenement is, and if it has a scullery.

The Guinness Trust buildings in Snow's Fields, Bermondsey, contain living rooms of about 140 feet superficial and bedrooms about 100 feet superficial, with a scullery common to four or five tenements, and a water-closet common to two or three tenements. Again, taking two and three-room tenements as examples, the superficial area of a two-room tenement will be about 240 feet and of a three-room tenement about 340 feet. The rents for the two-room tenements vary from 4*s.* 9*d.* to 5*s.* 6*d.* and for the three-room tenements from 5*s.* 3*d.* to 6*s.* 3*d.*, according to the floor on which the tenement is.

It is, no doubt, very pleasant to have a luxurious dwelling if one can afford it, but a dwelling of some kind every man must have, and it is the Council's duty to try and provide those whom they displace with a tenement which they can afford to occupy.

Until the Council has applied to the Home Office and been refused permission to construct such buildings as have been erected by Hornsey and by the two companies referred to, they are neglecting a course whereby they might remove the stigma hitherto attaching to them owing to the failure of their operations. Let them at the same time, with the energy that they throw into their schemes for reform of taxation, seek powers from Parliament to sell cleared areas for commercial purposes and invest the proceeds in the erection of dwellings elsewhere, and they may yet achieve more even than the much despised Metropolitan Board of Works accomplished, and that without calling upon the ratepayers to grant an aid in relief of rent to the favoured tenants of the Council.

WIDENING OF PARLIAMENT STREET.

THE improvements committee of the London County Council have prepared a report dealing with the application of Her Majesty's Office of Works for a contribution from the Council towards the cost of the widening of Parliament Street. It appears that the Council was asked to join in a conference at the Office of Works to determine the nature and extent of the contributions to be made by the Council and the Westminster Vestry. To this request the improvements committee acceded, and deputed the chairman (Mr. Shaw-Lefevre) and the vice-chairman to wait upon the First Commissioner, having previously ascertained, however, that the vestry had resolved to take no part in the conference, as they had not decided to make any contribution towards the cost of the improvement. At the conference it was stated, on behalf of the Office of Works, that it was proposed to widen Parliament Street by setting back the line of frontage of the public buildings to be erected there, so as to give a width of at least 135 feet, instead of about 60 feet as at present. At the same time, it was proposed to do away with King Street, and to utilise its site in connection with the new public offices. The difference between the area of the land to be added to Parliament Street and that to be appropriated for buildings in King Street would amount to 17,858 square feet. It was contended that this widening of Parliament Street would be a great public improvement, relieving altogether the congestion



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of traffic there, and adding greatly to the dignity of the approach to the Houses of Parliament and Westminster Abbey. It was suggested, therefore, that the London County Council might properly contribute out of the county fund to this improvement, and that the proper measure of such contribution would be the value of the land thus added to Parliament Street, after accounting for that appropriated in King Street. If the value of this land to be given up were put at 10*l.* per square foot the amount would be 178,580*l.*, but the First Commissioner freely admitted that as the Office of Works would not lose the frontage value of the lands, inasmuch as they would retain the frontage to the widened thoroughfare, the value should more properly be estimated at 6*l.* per square foot. This would make the value of the land given up to the public way about 107,000*l.*, to which should be added the cost of the paving works of the widened street. It was further pointed out that it was proposed to double the width of Charles Street, which would also be a public improvement. Incidentally it was mentioned by the First Commissioner that the clearance of the block of buildings bounded by Parliament Street, Charles Street, King Street and Great George Street had cost the Office of Works the sum of 405,000*l.*, which included 100,000*l.* the value of the land forming part of the Westminster Bridge estate, owned by the Office of Works.

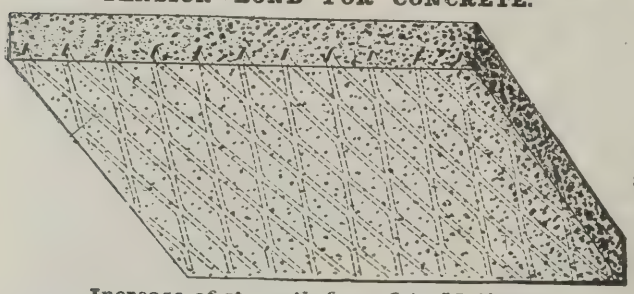
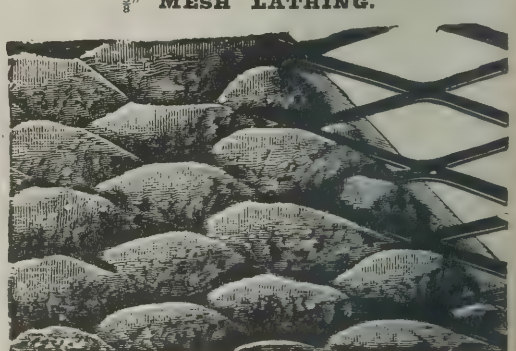
After stating what has in the past been done in connection with the widening of Parliament Street, the committee mention that the clause authorising the Council and the Westminster Vestry to contribute was not originally in the Public Offices (Westminster) Site Act, 1896, but was inserted during the progress of the Bill through Parliament without the Council or the vestry being consulted in the matter. Neither was the Council asked for a contribution until arrangements had been made for the acquisition of the land. These and other facts were stated by Mr. Shaw-Lefevre at the conference, and he suggested that the inference to be drawn from them was that the improvement about to be effected by the Government would not entail any cost when the commercial value of the land was taken into account. While admitting the very great public importance of the improvement in the widening of Parliament Street, he felt doubtful whether the Council would be justified in making a contribution towards the acquisition of the land for the widening of the street, though he expressed the opinion that the cost of making up the roads would be a matter for consideration.

Since the conference the improvements committee have very carefully considered the whole subject and now report:—"It appears to us that the Council would not be justified unless it were clearly shown that it was being carried out at a loss. As the Office of Works in 1882 so strongly represented to the Metropolitan Board of Works that in their opinion a scheme exactly similar to that now being undertaken by them could be carried out without loss, and as a body of private promoters were in 1896 also prepared to carry out this same scheme at their own cost, and under the belief that they would make a profit thereby, it cannot be shown that the Government is incurring a loss by the transaction. Moreover, it must not be forgotten that the Office of Works are retaining for the purpose of the public offices the very valuable frontages to the widened thoroughfare of Parliament Street. We consider, therefore, that the Council should not be asked to make a contribution towards the cost of the acquisition of the land needed for the scheme. We fully recognise the value of the scheme about to be carried out by the Government in the widening of Parliament Street and the improvement of the approaches to the Houses of Parliament and Westminster Abbey. We think that the Council, as the central authority in London for carrying out large street improvements, may well desire to show its appreciation of the value of this work to the extent of taking upon itself the cost of making the widened roads in Parliament Street and Charles Street. We think that a reasonable estimate for the two thoroughfares would be 12,000*l.*, and we consider that the Council would do well to offer to contribute that amount." The committee accordingly submit a recommendation to that effect.

IDEAL LONDON.

At Toynbee Hall, on Saturday evening, a lecture was delivered by Mr. Frederic Harrison on the subject of "Ideal London." He said that he had been asked to give a lecture on "Ideal London" as a conclusion to the series of lectures on London, past and present, which had been delivered at Toynbee Hall during the season; and by "Ideal London" he meant "London as it might be, as it should be and as it shall be." The true ideal was no idle dream, but the justification of study and the motive of all useful endeavour. London was his birthplace, and for nearly sixty years had been his home. For two generations he had watched its growth and rebuilding; and as a member of the County Council he had experience of the practical difficulties of making improvements. In suggesting the

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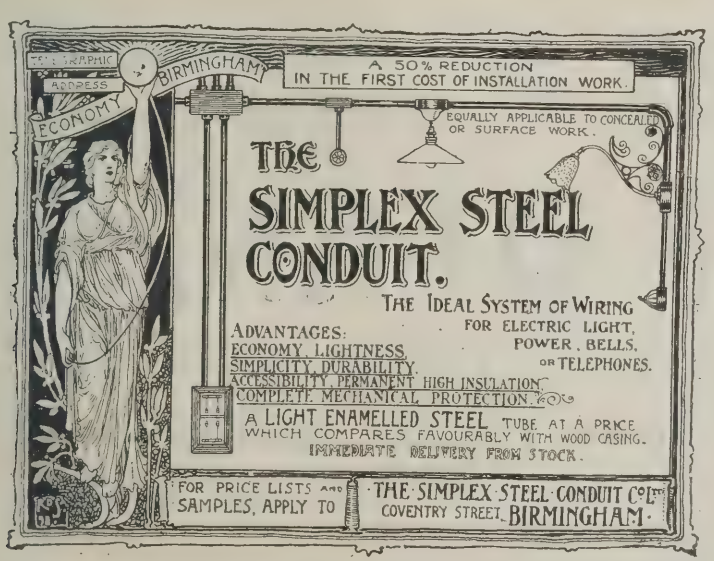
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PRICE LIST AND ESTIMATES ON APPLICATION.

ideal London, he should try to keep within the bounds of practical statesmanship; but he was not bound by limits of time or by the exigencies of existing prejudices and legislation. An ideal London should contain all that pertained to pure and perfect citizenship. Now modern civilisation had failed to carry on some of the best elements of city life as known to the ancient and Mediæval worlds. London did not inspire in Englishmen the feelings which Athens, Rome, Florence and Venice excited in their citizens. It was now valued as a market, an exchange, an office or a playground, though that had not always been the case. But a city that covered 120 square miles of buildings was not a city, but a wilderness of houses, and city life was impossible for a population of four or five millions. People must be within walking distance of the country, or the town became a prison and not a city. Therefore ideal London would not exceed two millions of inhabitants—and it would be better with only one million—and it would be but a third of its present size. He was no lover of the tenement or flat system, but it was absolutely necessary if a great city were not to grow to unmanageable bulk. London at present had no ideal tenements, and few satisfactory ones; but when spacious, airy, clean and lofty blocks, provided with common libraries, baths, playrooms and sickrooms were available, the economy of such wise co-operation would leave room for boulevards, parks, gardens and playgrounds. He repudiated the idea that London would go on increasing at its present rate; for he was sure that the causes which had led to that increase were only temporary. In ideal London the Thames would run as clear as at Henley, and again it would be the great highway of traffic. The bridges would be doubled in number, and the disfiguring railway bridges would have to be suitably treated. Steam-engines would probably be prohibited within the City, and the air would cease to be polluted by the poisonous fumes of millions of chimneys. It was really strange how long we had allowed preventable nuisances to choke us. A pure and unlimited water supply would be carried through great aqueducts, as in Rome, from inexhaustible lakes and reservoirs. This would have been done long ago for London but for commercial self-interest, political intrigue and administrative jealousy. Water, no more than fresh air, would be bought from money-making speculators. It was a prime necessity of life, and as such it was the duty of the State to supply it pure and in abundance. Science and organisation would annually save many thousands of lives now sacrificed by preventable diseases. Already the death-rate of London had been reduced by one-half in the present century, and there was no reason why it should not be reduced very much further. With regard to the question of burial-grounds, he believed that London would return to the ancient and honoured practice of cremation. This practice would obviate the danger of infection to the living and the difficulty of visiting cemeteries which could only be reached by a long and fatiguing journey. It was too much forgotten that cremation was only the scientific process of preparing the remains of the dead for disposal. The problem of the reorganisation of London had taken a new phase since London had been broken up into so many Parliamentary boroughs. He did not advocate "tenification," but he looked forward to the different districts of London, while united under a strong central Government, having each a separate civic life of its own, available for all citizens within a mile of their homes and within reach of their own influence. The buildings of London, which had now neither permanence nor self-respect, would be changed in character, and be made more worthy of the genius which built Westminster Hall and the Abbey. But through all reconstruction he hoped that the historic associations and landmarks of a city which had an unbroken record of a thousand years would be preserved even at the expense of some regularity. New lines of traffic would be created, and the heavy traffic would be diverted to the deep electric railways. With easy and open avenues of communication, London might become as bright and gay, as full of fountains and flowers and statues as Paris and Florence.

At the conclusion of the lecture Mr. Harrison invited questions from the audience, and being asked how he thought the population of London could be brought within the smaller limits which he had contemplated, he replied that the efficient cause would be economic. He did not suggest any legislative restrictions, but he could not believe that London would always continue to occupy its present unique position as the centre of the financial and commercial world.

BUILDING IN GLASGOW.

A PAPER was read on the 2nd inst. by Mr. Robert James Bennett at the Glasgow Building Trades' Exchange on "The Relationship which the Exchange ought to have to the Technical College." The lecturer said that on the one hand they had workmen limiting the apprentices for fear of there being too many workers in the trade, and on the other they had boys



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who, under the present system of education, thought they knew everything, and considered it beneath their dignity to go through the groundwork of any trade. Why was it in the boasted second city of the empire they had been the last to provide sound technical schools worthy of the name? He blamed the merchant princes, the Chamber of Commerce, the Merchants' House, the Trades' House, the City Fathers and themselves. The main objects of the Glasgow and West of Scotland Technical College were to afford a suitable education to those who wished to qualify themselves for an industrial profession or trade. It had been twelve years in existence, and be said emphatically that it had not accomplished anything like the high ideal of its founders. In respect to technical education the German Emperor had taught the whole world a lesson. There were technical colleges at Berlin, Munich, Dresden, Leipzig, Cologne, Karlsruhe, Hanover, Heidelberg, Düsseldorf and Hamburg, and the Government had just issued an order converting all the general technical schools into colleges in towns of from 60,000 to 100,000 inhabitants, the cost falling upon the municipalities, in the first instance, aided by State grants of from 1,500*l.* to 3,000*l.* a year according to requirements and the number of pupils. In Glasgow, as he had said, the whole community was to blame. They ought at once to set their house in order by building a technical college worthy of the name, and instead of there being accommodation for only 4,000 students, it ought to be sufficient for 10,000. For the building trades there ought to be a duly qualified set of practical teachers and a visiting committee sent from the Trade Exchange, not merely visitors of inspection in name, but skilled and qualified workmen willing to visit the school at least once a week, so that the students would not require to unlearn many of the theories which they had been taught. It would never do to be contented with their present position. As to the Building Trades' Exchange, he had to confess that it had not made that progress in four years which he had hoped to see. They had failed to bring the architects and the surveyors as a body to learn the true value of the Exchange. They ought to be in a position to speak to them as customers of the members of the Exchange with some degree of authority begotten of knowledge, just as the architects and surveyors spoke to their clients with the drawings of their building, or an artist with his picture, or as a writer with his books. He was strongly of opinion that the extension and improvement of technical schools was a matter in which the Building Exchange should interest itself. They had an education committee, which he understood was not overburdened with work, and he suggested that the members should put themselves in touch with the managers of the Technical College and obtain if possible some share for the Building Exchange in the scheme of management. This, he had no doubt, would readily be accorded to so influential a body. At the close Mr. Bennett received a cordial vote of thanks.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

24491. Arthur J. Keeble and George H. Innes, for "An improved method of making Cambridge Portland cement from chalk and marl."

24603. William Frederick Mason and William Henry Wilson, for "Improvements in kilns for bricks, pottery and the like."

24629. Albert Edgar Alexander, for "An improvedprocess for producing artificial asphalte."

24659. Herbert Briggs, for "Improvements in apparatus for moulding cups and like articles of clay or other plastic material."

24763. Charles David Phillips and James Pring, for "Improvements in roller mills suitable for grinding mortar, clay and the like."

24928. George Austin, for "Improvements in brick-making machines."

24941. Oliver Howl, for "Improvements in apparatus for drying bricks or other plastic articles."

Specification Published.

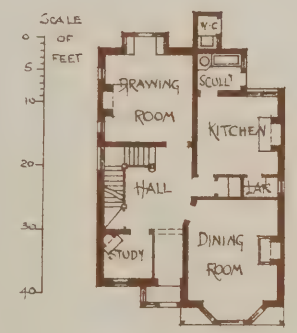
27561. Johnson & Walker, for "Kilns for burning cements, limes and other like substances."

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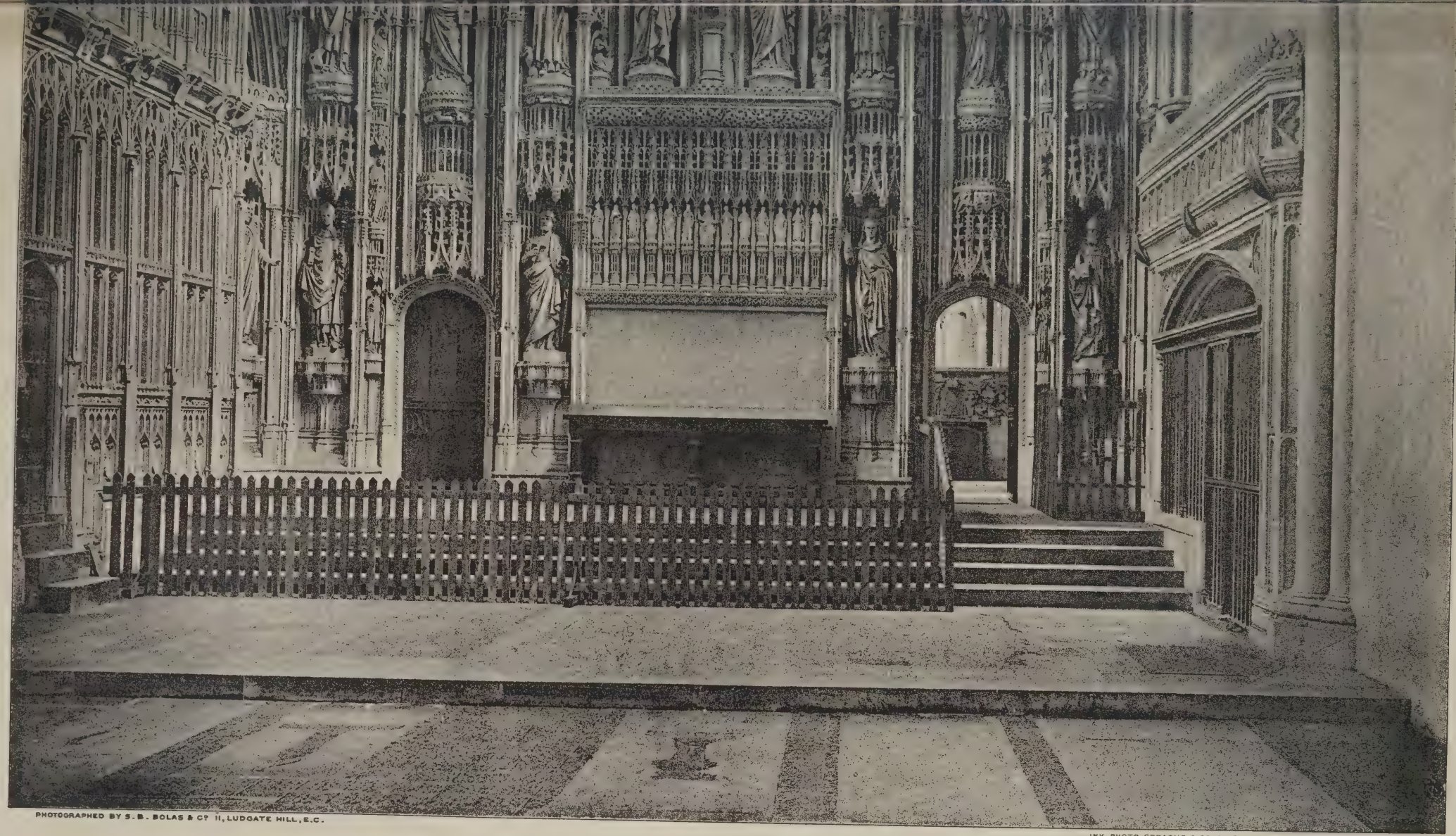
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CATHEDRAL SERIES, No. 179.—ST. ALBAN'S: THE SCREEN.



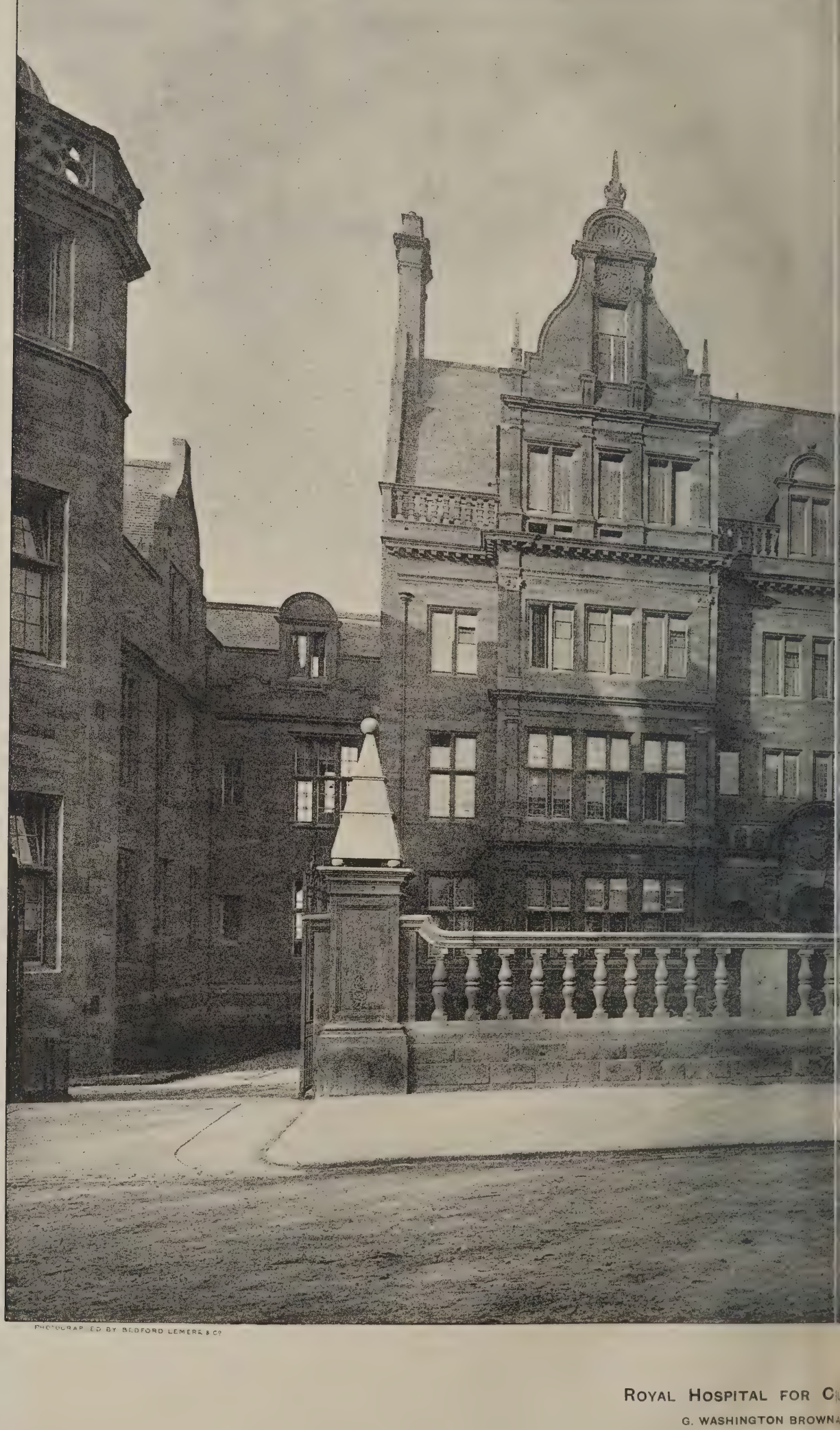


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T. H. YABBICOM, A.M.I.C.E., City Engineer.

The Architect.

THE WEEK.

The appointment of Sir William Anderson as Director-General of Ordnance Factories caused much grumbling among one class of military experts, who objected to him as a civilian. It was not generally known that Sir William was probably the most versatile of mechanical engineers, and one who has had the widest experience. The ignorance may be accounted for when it is known that for the greater part of his life he was accustomed to play the "ghost." His wonderful inventive powers and practical skill were familiar to engineers with whom he had contracts, to men of science and to many foreign rulers. His death on Sunday morning, in his sixty-third year, is a national loss. By birth he could be claimed as a Russian, and he possessed what is called the freedom of St. Petersburg. But in his boyhood he came to London and studied at King's College. Then he was apprenticed to Fairbairn, where he was engaged on constructional ironwork as well as on machinery. The earnestness of the man in those days is suggested when it is said he walked the hospitals for a time in order that he might be qualified to treat accidents among his employés, and he could discourse on the mechanics of the human frame in a manner which surprised eminent surgeons. His apprenticeship over, William Anderson accepted a partnership with a Dublin firm, and his entry was immediately followed by most important contracts. He constructed bridges, devised improvements in signals, adopted ingenious arrangements for supporting buildings, and produced many kinds of machinery. Without his aid there was hardly an important work completed in Ireland in which metal was employed. He was always in the best of good-humour in dealing with troublesome customers, and used to liken himself (for he had a boy's delight in novels) to Mark Tapley, who was also a "Co." In Dublin he met with an extraordinary accident. Machinery in a distillery was being overhauled by his firm, and as one part was exceedingly dangerous he had it carefully cased. The workmen found it necessary to remove the casing, but forgot to replace it. Anderson went to the building after the men had left, and as he was passing by a wheel his arm was caught and the whole of the muscles were torn from the shoulder to the wrist. He fainted, and as there was nobody present he lay unconscious for a long time. While still in a state of unconsciousness he got up and was passing across the yard when a gate porter perceived his condition. He was brought to his own house and the ablest surgeons sent for. They decided to amputate the arm at once, but on the appeal of a young doctor who was one of Anderson's friends, the operation was postponed for some hours. Eventually the arm was saved. He was busy at the time preparing working drawings for an exhibition building, and he rigged up an apparatus with several pulleys which supported the maimed arm while using the right arm on his drawing-board in bed. The incident shows his character and success in overcoming obstacles and performing his work regardless of the cost to himself. After eight or nine years in Dublin he joined the well-known firm of Easton & Amos (now Easton, Anderson & Goolden), where there was more scope for his ability than in Ireland. He erected the great works at Erith, and it would be hard to say what was not produced in them by the firm. Among his important contracts were several for the Egyptian Government under Sir John Fowler, whom he has followed so quickly. Both in the Institution of Civil Engineers and in the Institution of Mechanical Engineers William Anderson's genius was recognised, and he stood among the foremost representatives of practical science. It was a sacrifice for a man of his rank to accept a post in a Government factory, but he was anxious to serve his country regardless of his personal loss. During his term of office he had to encounter much opposition, and we are afraid his conflicts hastened his end. Sir William Anderson was a great man and a good man, and his loss will be felt in other countries as well as in England.

The Trustees of the Marylebone Club can command without payment of fees the advice of several eminent lawyers. There was therefore no need to go before the Chancery Division in order to discover that a greenhouse was a "building." Many tenants of cheap villas and confined gardens in the metropolitan area who have set up little structures of glass and wood without the consent of the County Council could enlighten the Trustees on that point. A new tennis and racquet court is being erected at "Lord's." The back wall is about 30 feet high, and the party wall of a garden belonging to a Mr. Clifford was utilised as a part of it. As a consequence there was interference with his light and air. The defendants, however, said that only the north light was obstructed, and that there was ample light on the east, west and south sides. Mr. Justice Kekewich, who heard the case, said that when a building was of such a character that excessive light was important to it, then it was a building in the sense of the words of the Prescription Act. The same rule applied to it as to studios for painting or photographing. His lordship said there was no doubt that there was an obstruction of light, but the question was whether it was of material character. He considered that architects and surveyors were far too apt to ignore the value of diffused light. There were many houses, especially in London, which were dependent entirely upon diffused light, and if the sky area was obscured and the diffused light cut off the light was as much diminished as if the pencils of the sun's rays were cut off. A new staring red brick wall of such a height was undoubtedly injurious, although no complaint was made on that account. Mr. Justice Kekewich, in conclusion, held that the plaintiff was entitled to a mandatory injunction to restrain the interference with the access of light to the greenhouse. The injunction would be suspended for three weeks to enable the defendants to appeal if they desired to do so. If they gave notice of appeal within the three weeks then the injunction would be extended until the appeal was disposed of. There is nobody who would like to see "Lord's" suffer in any way, but we suppose the trustees have become so accustomed to umpires, they are in a difficulty in any case where those arbitrators are not visible.

A new use has been found for the Röntgen rays in what may be called palimpsestic application. There is, as our readers know, a dispute about the genuineness of the Droeshout portrait of Shakespeare, which has been often engraved. In Stratford-on-Avon it is believed to be the most authentic of all. It has been proposed to apply a solvent to a small portion of the surface in order to test whether there is not another portrait beneath. But Mr. Edgar Flower, the chairman of the Governors of the Shakespeare Memorial, says he has already consulted a picture restorer on the subject, and was informed that the experiment would have to be performed on the face, which would be fatal to the picture. Mr. W. E. Wilson, F.R.S., says he has ascertained by testing an old portrait of Sir Philip Sidney, which is also painted on a wood panel, that by means of the X rays and a fluorescent screen any work which is underneath can be seen without removing the paint. By that method many knotty points about pictures can be cleared up, and the test is worth a trial on the Droeshout portrait.

Custom will apparently exercise an important influence in decisions under the Workmen's Compensation Act. At the Brompton County Court on Friday last a labourer claimed 227*l.* 10*s.* from Messrs. Kilby & Gayford, builders, for injuries sustained through the negligence of their foreman. The plaintiff was only nine days with the defendants, and was attending a bricklayer at a building in Earl's Court. The first time he carried up his hod, through habit he put out his hand as if several more rounds of the ladder were still to be ascended. Not finding one, he tumbled to the ground and was severely injured. Evidence was given that a ladder should be at least 6 feet above a landing in order to be safe, whilst at Earl's Court it was 3 feet. It was remarkable that an hour before the accident notice was given to the plaintiff to leave, because the foreman considered he was not sober. A verdict for the full amount claimed was given.

T. HAYTER LEWIS.

ALTHOUGH it would be difficult to name any building by the late Thomas Hayter Lewis which is an adornment to London, yet his life was in many ways useful to his contemporaries. There are architects who will remember him as a Professor in University College, some have had the benefit of his advice in litigious cases, and many know him as the author of papers which were read before various societies. He was always respected as an honourable man, and his death on Saturday removes one of the Nestors of the profession, who was well acquainted with the various changes which have occurred during the past sixty years. Born eighty years ago, he was introduced to architecture in the office of Joseph Parkinson in Sackville Street. Subsequently he obtained more acquaintance with building, valuing, and especially financial operations in the office of William Tite. When he left him he travelled for a time on the Continent, and on his return entered into partnership with Mr. Finden.

The first important commission of the firm was for "The Royal Panopticon Institution," which stood on the site of the Alhambra in Leicester Square. The whole management of the business was left by Mr. Finden to his partner. At the time there was a general educational movement, and it was supposed that any institution which appeared to extend the purposes of the Exhibition in Hyde Park must be a success. The Panopticon Company was, therefore, incorporated in February 1851. The institution was to rival the Polytechnic, and to combine instruction with amusement. The managing director thought only of attracting crowds, and with that end proposed the adoption of a Saracenic style. Hayter Lewis said he was unable to recall any Panopticon institutions which the Saracens had erected, and was not satisfied. But on reflection he came to the conclusion it was not more incongruous to set up a building in Eastern style than a Greek building which would be seventeen centuries older. Why should not he follow the example of the leaders of the profession and retain his commission? He therefore set to work with the utmost despatch, for very little time was allowed for study. The building was to contain a large central hall, two lecture-rooms, laboratories, workshops, engine-rooms, gas works, &c. The hall was 98 feet in clear diameter, with recesses for boxes. The dome was 72 feet across, with a circular light of 32 feet diameter. The hall was to have been square on plan, but the fear of obstructing ancient lights compelled a change. The dome presented some difficulty in construction, for neither buttresses nor ties were possible. The fourteen main ribs were therefore constructed on the ground in such a way that each was able to stand in equilibrium without extraneous aid. It was afterwards not difficult to unite them, and large water cisterns were used to steady the ribs. The decoration was mainly carried out in primary colours, with a liberal employment of gold leaf. It was found by experiments of the Professor of Natural Philosophy that when ordinary positive colours are used, one-half a surface to be seen by daylight, and two-thirds if seen by gaslight, can be gilded without any gaudiness.

The building exemplified the results of a great many experiments, and was in keeping with its purpose. But the public that gravitate towards Leicester Square are not enthusiasts for science, and the Panopticon was hardly more successful as a speculation than James Wyld's Great Globe. So many new products were introduced in its construction, it might be called a building museum, and it was well suited to be a place where novelties could be shown.

If in the years that succeeded Hayter Lewis could not keep his name before architects by works as novel as the Panopticon, yet he was at least able to demonstrate by papers that he was a careful student of the art. He always seemed to have particular problems which he endeavoured to solve by travel rather than by the study of books. Hayter Lewis was, therefore, apparently an eligible successor to T. L. Donaldson, when the latter, in full vigour of body and mind, resolved in 1865 to give up teaching in a classroom. It was remarkable in his opening lecture as Professor of Architecture at University College to find the man who was afraid to touch Saracenic forms a few years before had become an admirer of the style, which was, he said, "so light, so elegant, so redolent of the grace and luxuriance of the East, and yet so bold, that no artist could seek a better subject for his pencil, no poet a more graceful rendering of his dream." Hayter Lewis thus proved that we cannot really understand any true work of art until we endeavour to imitate it. Then we realise that what is usually called study is only becoming acquainted with superficial qualities. Saracenic architecture had appeared to him peculiarly interesting, not only from its charm, but through the inseparability of decoration from construction. He held that "architecture without sculpture and painting is like a strong-limbed tree throwing around its sinewy arms without the delicately sculptured foliage to give it grace, or the beautifully coloured flower and leaf to give it life." In 1865 there were only a few who thought of evolution as a key to history in all its aspects. Hayter Lewis was not among the initiated, or he did not believe the law of progress was applicable to the arts. He told the students how he believed, with the Greeks, that art sprang "in its full strength, all armed as Minerva, direct from the god, as little a creation of man's as language is." There was, he said, no clear authentic record of an advance in art and civilisation from the lowest point to the highest. He held that "when a nation's art or industry has suffered change, it has come not from the unassisted mind of the nation itself, but from some altogether different influence of another race, conquering or civilising, as the case might be, and bringing with them their own peculiar style of art to mix with or supersede the other." Thirty years have produced much evidence about the history of the arts which does not support the theory of Hayter Lewis, but what he said was enough to prove the new Professor was a thinker.

The architectural history which had most fascination for him was that of France. It was almost a compendium of ancient styles. As he said, "It is the mixture of Roman, Norman, Rhenish and Eastern which makes the study of French architecture so interestingly difficult." But the interest was enhanced, doubtless, because Hayter Lewis acquired the happy knack of accommodating himself to the peculiarities of the people. "I have travelled," he said, "as much as most men, in most European countries, but in none have I found as an utter stranger a more kindly welcome than in France." His papers, if collected, would form a volume that would be of much use to architectural students who go on French tours.

Hayter Lewis was careful to discriminate between the variety of influences which were in operation in France. The Romans themselves, he remarked, like their architecture, never died out; the Easterns sent not only examples of their art but artists also. Along the Rhine and the Rhone came northern arts, and in the north-western region the Normans were working at their own style as if they were isolated from the rest of France. But while admitting that when the Pointed style in France had thrown its glamour over the architects there was an earlier development than in England, Hayter Lewis considered there was more delicacy, refinement and beauty of detail in the foliage and mouldings of English buildings, and as evidence pointed to Lincoln and Westminster and the chapter-houses of Salisbury and York.

Ten years ago appeared "The Holy Places of Jerusalem," by Hayter Lewis. It has lately acquired additional interest, for many of the photographs which are reproduced in the pages were taken by Lieutenant Kitchener, R.E., the present Sirdar, who has just had several weeks' experience of the inconvenience of hero-worship. In this book a theory of Mr. Fergusson is challenged, perhaps we ought to say overthrown, but in archæological contests there is always a possibility of renewal after defeat. Fergusson perceived that the Mosque of Omar and the Mosque el-Aksah at Jerusalem were without the niche or mihrab which serves to indicate the direction of Mecca, and is a necessary feature in all Mohammedan temples. He therefore came to the conclusion that they were Christian edifices. On subsequent study of the subject he went further, and asserted "that the building so well known among Christians as the Mosque of Omar is the identical Church of the Holy Sepulchre erected by Constantine." He acknowledged that the theory was never broached by any preceding traveller or speculator.

Interesting as is the question whether the mosques were raised by Christian or Mohammedan builders, there is another of still more importance. Was the ground formerly occupied by the Temple of Jerusalem? Unfortunately the ancient writers who gave descriptions of buildings were unable to realise that a plan, however simple, would be of more value to posterity than any verbal substitute for it. JOSEPHUS appears to be precise in his measurements, but as there is no certainty about what is meant by "from valley to valley," the starting and terminal points of his lines must be always problematic. That doubt should exist about the position of so remarkable a building as the Temple is so extraordinary as to become mysterious. The tradition of the Jews in Jerusalem is that the Dome of the Rock marks the site. In the twelfth century that belief was adopted by BENJAMIN OF TUDELA, and in the fourteenth century by Sir JOHN MANDEVILLE, or whoever wrote his travels.

HAYTER LEWIS has investigated the puzzle with a patience that is creditable. He concedes that the Dome of the Rock has not the characteristics of a mosque, and that it was simply an oratory built over the rock or Sakhra "long regarded with reverence as the threshing-floor of ARAUNAH, the Jebusite, by whose side the avenging angel stayed the plague, and which the Mohammedans believe to be the stepping-stone whence their great Prophet started on his night ascent to converse with the Deity." But there is no reason to connect the name of OMAR with the building which is the shrine for the treasure-stone. HAYTER LEWIS, after a close examination of the building, came to the conclusion that the details "were not all executed at the same time, nor as forming part of one general design, but that they were reconstructions of older buildings of various dates which had been partially destroyed, and whose materials had been put together in after times, with others worked at the time of the reconstruction by some skilful architect." According to HAYTER LEWIS, while on plan the Dome of the Rock resembles Italian buildings of the time of CONSTANTINE, the capitals and columns are from their debased character likely to belong to a subsequent time. It was the opinion of Professor SEPP that the building was entirely erected by JUSTINIAN. It appears there is no documentary evidence to support that theory, and the details do not correspond with those in the emperor's buildings.

There is an inscription round the colonnade which records that the building was erected in A.D. 691, by ABDALLAH, the Imám al Mamán. The name is a substitution of a later time for ABD-EL-MELIK, to whom, in an Arab work which was written in the tenth century, the work is ascribed. There are also other references to the builder. On the evidence of those authorities, and after a careful examination of the building, HAYTER LEWIS came to the conclusion that "the Dome of the Rock was the work of the Arabs, designed for them by a Byzantine or Persian architect, and with Persian or Byzantine workmen, before the Arabs had developed any definite style of art of their own, and that it was built with the capitals, bases and columns ready to hand, being derived from the remains of churches and other buildings destroyed by CHOSROES and other invaders."

In his book, HAYTER LEWIS also investigates the origin of other structures and natural features in Jerusalem which are of universal interest, such as the Mosque Aksah, the Golden Gate, the Holy Sepulchre, Jeremiah's Grotto and Siloam. Throughout he proves himself to be an archæologist of the analytical school. It is not by a comprehensive glance at a large and intricate building, or by the effect of a first impression, that we are likely to arrive at valid conclusions about the time and conditions of its construction. There is no place in the world where it is so difficult to separate realities from appearances, history from poetic legends, and there is satisfaction in knowing that the English architect came to the inquiry with an intellect that had been developed and sharpened by similar inquiries, and with a reverence for Christianity which no over-zeal on the part of the representatives in the Holy Places could diminish.

Among other archæological writings by Mr. HAYTER LEWIS were notes to a translation of PROCOPIUS'S work on "Justinian's Buildings," and an appendix on Byzantine sculpture to NAVILLE'S "Aanas el Medineh." He edited some of the publications of the Palestine Pilgrims' Text Society. Mr. LEWIS was also the author of the parts of the article in the ninth edition of the "Encyclopædia Britannica" which relate to Classic and modern architecture. As a writer he could claim to have produced important work, and it all represented anxious labour. Illness prevented HAYTER LEWIS from taking a prominent part in his profession after 1869, but he retained his professorship at University College until 1881, when he was succeeded by Professor ROGER SMITH, who has upheld the reputation of his predecessors for skill and knowledge.

ARTISTS AND ARTISANS.

THERE are obsolete words in living languages, and some languages are described as dead, but taken as a whole words may be said to endure longer than men. Men, however, differ from their ancestors, and many words also undergo changes as time runs on. It is, therefore, often difficult to ascertain whether they are used in their original significations. Doubts are, perhaps, more common in the employment of technical terms. There are, for instance, treatises on casting which are not two centuries old, and apparently are fully descriptive of the processes employed for producing the numerous bronze statues of the age of LOUIS XIV. But modern founders are afraid to employ them owing to the difficulty of interpreting the meaning of some of the words and phrases. It is found to be safer and more economical to follow processes which are familiar than to run the risk of making experiments of which the results cannot be foreseen. Scholars can interpret words as seems best to them, and if they err they incur at the most the abuse of rivals. But an erroneous interpretation in a workshop is followed by a more heavy punishment. It was doubtless owing to the inability to translate terms correctly, and consequently to the employment of the wrong drugs, that the prescriptions of the Greek physicians fell into disrepute. Modern invalids may in consequence suffer, for as Professor PERCY GARDNER says, "If we greatly surpass the Greeks in our experience of unhealthy conditions of life, their knowledge of health was surely wide and sound." It is to be doubted, however, whether many admirers of the Greeks would submit themselves to the experiments which would determine whether the remedies of HIPPOCRATES and GALEN surpass those employed in modern practice.

It must be remembered that as all men in our time are not very precise in their choice of words their predecessors were no less lax. Even official terms are often inexpressive or only partially expressive of the meaning which custom assigns to a word. The word surveyor is an instance. The old signification, a man who measures land, is no longer conveyed by it, for land-surveying as a special business has but few followers. It now represents a man who measures other things; or in the case of official surveyors measuring may be only a small part of his duties. In some cases measuring is no part of the employment. Hereafter the word may be a puzzle to students who will endeavour to understand the nineteenth century, just as now we find that in SHAKESPEARE'S time various meanings were attached to surveying, the practice of architecture being one of them.

As for the word architect, it would need a volume to deal with it. HORACE WALPOLE was very proud to have discovered a document, dated 1209, in which there was mention of one ELYÆ who was described as "ingeniatori," and who received 10 marks on account of some repairs to the king's house, Westminster; while in another document of 1210 WILLELMUS PUINTELLUS received the large sum of 1,216*l.* 13*s.* 6*d.* on account of operations at the Tower. According to WALPOLE, "WILLIAM PUINTELL might be only a surveyor, but ELYAS was certainly an architect." Apparently he judged from the difference in the amount of money. In WALPOLE'S time architects received only a small sum if compared with what was given to the builder or to a steward having charge of building works, therefore ELYAS, with his 10 marks, although called an engineer, was the architect, and PUINTELL the surveyor of the time. But in that age there was probably no general contractor, and the payments were made through PUINTELL, who would have as much right to be called architect as surveyor.

WALPOLE was finical, and was not pleased to encounter a verbal difficulty. Accordingly he ridiculed "the absurdity of those times in couching orders in a language which they could not write and addressed to persons by whom it was not understood." But a scholar of a later age has no right to assert that in a past age the meaning of a word was not understood. At the present time it would be hard to define in one phrase the manifold duties of a surveyor. But there is not a ratepayer in England who is unaware of the extent of a surveyor's authority, and is prepared to remonstrate if there is the slightest excess. There is the difference between language as spoken and language entombed in dictionaries. In the thirteenth century we may therefore be sure the duties of an architect were well understood by clients, although he might be described under a variety of names. One was no doubt master-mason, but there is no reason to suppose that a man so described spent the greater part of his time in cutting stones or in fixing them. In France it is believed that the word architect was not employed until the sixteenth century. The first who bore the title was SÉBASTIEN SERLIO. It is not stated, however, that he introduced a revolution in the organisation of building works, and apparently he simply continued the practice of the master-masons and masters-of-works of an earlier time. SERLIO was described in one of the king's orders as "nostre peintre et architecteur ordinaire," but it is remarkable that about the same time ESTIENNE, in his Latin dictionary, defines *architectus* as "maistre masson ou charpentier." The fact was the old architects had to be versatile. No one was surprised to have them described as carpenter, painter or sculptor, and on that account it was taken as a matter of course that PHILIBERT DE LORME should be designated by the king as "nostre architecte ordinaire" as well as "nostre amé et féal conseiller et ausmonier ordinaire." An architect was compelled to be everything by turns, and by his skill and experience to be able to deal with all emergencies.

While the architect was a "man so various" it did not follow that every mason and carpenter was an artist, and much less an architect. In looking over old records the reader is impressed with the difference between the artist and the workman, although very often the two words appear to be used as if they were synonymous. In ESTIENNE'S dictionary he does not give artisan or artist as the equivalent of the Latin word "artifex," but "ouvrier." It is possible that the monopolising of the word "arts" by the old universities had much to do with what may now appear to be a degradation of the term that could be used to express the fine arts. Thus it has been said that a university should be formally based and emphatically live in the faculty of arts, because the arts existed before other faculties, and the masters of arts were the ruling and directing body. That is the belief of high authorities in our time, but it was not questioned throughout the Mediæval and Renaissance periods. It is easy to believe that to speak of a man as an artist would be to suggest that he was a scholar—a bookman rather than a creator who used stone, wood or the precious metals. To speak of a man as an artificer, artisan or a fabricator up to the end of the sixteenth century did not mean that he followed a mechanical employment, for the terms might be applied to RAPHAEL or MICHEL ANGELO.

Words cannot be used indefinitely with impunity. The confounding of artists and artificers not only was an obstacle to the progress of art, but brought about many changes. Incredible as it may appear, the origin of the Académie des Beaux-Arts was one of the consequences of the indifference to precision in language by the French. We cannot, however, dwell at any length on the circumstances. As we have said, the Mediæval artists, although they could not be considered as a class apart, appear to have had recognised positions. In the guilds or confraternities they occupied posts of authority, and were known as sworn masters. But as still happens among the freemen of some English corporations, the sons of masters, although not always possessing ability, claimed their fathers' privileges. For a time the arrangement was allowed. But abuses followed. Incompetent men claimed to be artists, and mechanics on account of being members of a guild considered they were entitled to all the benefits which the statutes conferred. The public suffered, and from time to time in France it was necessary to invoke the intervention of the kings. There is a remarkable edict of HENRI III. in which he condemns the ignorance and idleness of young artists who appear to think that daubing is painting and the carving of grimacing figures is sculpture. But how was a reform to be introduced when some of the worst specimens of the unskilled fellows contrived to flourish under the title of peintres-valets to the royal court? The Flemings and Italians utilised the occasion and visited France, where they succeeded in obtaining many orders which should have gone to Frenchmen. At all times disunion promotes foreign competition in France. But as prior to the formulation of the Code the laws were in an indefinite state, numerous actions were taken against the foreign artists for invasion of the corporate rights of the native sculptors and painters, and in the end there was an imbroglio which was harassing to all but the lawyers.

Some clear-headed men in the seventeenth century realised that a coup was necessary to overcome the disorder. As is usual in such cases, logic was brought to their aid. It was concluded that as the origin of the evil arose from the confounding of two different classes of men, there could be no remedy until the original separation of the artist and the artisan was restored. In the atelier of SIMON VOUET students were carefully trained, and they realised that it would become their mission to overthrow the system which was fostered in the guilds of painters and sculptors. One of the results was the formation of a new Academy of Saint Luke in Paris, where artists whose ability could be proved were alone received. The old guilds of painters and sculptors were condemned at the same time, and by the authority of the Crown. The guilds then appealed to the French Parliament that was sympathetic towards ancient rights and succeeded. Academy and guilds were allowed to co-exist, and a competition began between them. That was continued during several years, and as a result a royal academy was founded of which the Académie des Beaux-Arts is the representative.

We have something to learn from the French experience. The attempt which is being made to promote "arts and crafts" is not free from the danger which for a time wrecked progress in art. Incompetent workmen are now assuming the airs of artists, and productions which no manufacturer could expect to sell are presented to the public as if they were inspired by genius and as dexterously executed as if they came from Japan. The public are not always good judges, and are rather partial to eccentricities if they appear under an attractive name. There are no tests imposed on the new race of creators, and they have the advantage of finding eulogists who have an interest in the promotion of extravagances. The public should be able to take care of themselves, but the true artist, and the architect more especially, cannot feel assured when he knows his position will be assailed by enemies who profess to have a common interest with him, but who degrade art instead of defending it.

BUILDING BY-LAWS AND THEIR ADMINISTRATION.

A JOINT meeting of the Royal Institute of British Architects and the Birmingham Architectural Association was held on the 9th inst. at the rooms of the Royal Society of Artists, Birmingham. In the absence of the president of the Institute (Mr. Aitchison) through illness, Mr. W. M. Fawcett, one of the vice-presidents, took the chair. The subject for discussion was "Building By-laws and their Administration."

Mr. C. E. Bateman explained that the subject had been selected by the local association because the Birmingham City Council was about to frame new building by-laws, and had promised to submit the draft to the Association. They hoped to have the assistance of the Royal Institute in considering these by-laws, and also in an effort to obtain greater uniformity in the by-laws of Birmingham and the surrounding districts, from the want of which a great deal of difficulty and annoyance arose.

A paper on the subject by Mr. W. Henman was read by the Secretary of the Institute. Mr. Henman explained that the paper was intended to indicate the widespread feeling that building by-laws and their administration throughout the

country are in a most unsatisfactory condition. The writer was afraid that unless the members of his profession could bring united pressure to bear upon the responsible authorities the evils under which they had so long suffered might extend, and cause in the future still greater annoyance and irritation to architects as well as injury and loss to the public. He excluded the Metropolis from consideration because the Building Act applying thereto had recently been revised, and because it was administered by an experienced body of men who, he believed, were generally architects who had had architectural training, while there was power of appeal to the London County Council. In the provinces an entirely different state of affairs existed. Some latitude in a few special particulars to meet local requirements might be necessary and advisable, but when every district authority was allowed to make all sorts of petty variations confusion resulted, and architects were often caused the greatest annoyance and inconvenience by having plans disapproved in one district which would be passed without question in another. This frequently resulted from the interpretation different surveyors might put upon the same by-law or regulation. Some local authorities made regulations simply by resolution of the Board, which they did not even print or circulate or submit to the Local Government Board. Architects as a body had not the slightest desire to evade or obstruct any by-law, or even any regulation, lawfully made with the object of securing safety and health, provided such by-law or regulation was uniformly and reasonably enforced. The so-called model by-laws of the Local Government Board were confused in their arrangement, and went too much into detail on matters of minor importance or matters in which knowledge was as yet imperfect, and omitted reference to matters of structural importance, the neglect of which in some buildings might be a definite source of danger. Moreover, they were wrapped up in a vast amount of unnecessary legal jargon and excessive verbiage. The district by-laws were often set forth in a most confusing manner, especially where local Acts affected the reading of the by-laws, and the difficulties were increased by the uncertain methods of administration. Apart from the larger cities, provincial district surveyors were usually selected from a class of men trained to road-surveying and sewer-laying, and with little knowledge of building construction and less of architectural propriety. They appeared to have imbibed the idea that architects were their natural enemies, and devised means for wasting their time and causing them trouble, quite regardless whether by so doing the safety or health of any individual might be secured. In populous districts the surveyors were assisted by building inspectors with, as a rule, less knowledge and discretion. Dwellings for the working classes were still erected in the most flimsy fashion by the jerry-builder, who generally went scot free, while architects who desired to build scientifically and well were continually harassed by unreasonable restrictions and requirements. Too many members of district councils were interested directly or indirectly in building operations, and the surveyor could serve them in many ways and in turn obtained their support. Inspectors were but mortal and were generally underpaid ; it was therefore not surprising that some of them came under the influence of the speculative builder, and little credit accrued to them by drawing attention to his irregularities, but éclat was gained when an architect was reported as having contravened even the letter of a by-law or avoided resistance to unreasonable demands simply for the sake of peace and quietness. Year by year authorities were grasping at greater powers of control, and by means of local Acts of Parliament, by-laws regulating the rights of property were trenched upon or the cost of building was seriously and unnecessarily enhanced. In order to counteract these evils members of the architectural profession must act together and strive to obtain the co-operation of building proprietors by letting it be known, through the public press, that action was being taken, in the hope of regulating local authorities, and then official, within reasonable limits. Pressure must also be brought to bear upon the Local Government Board so that building by-laws might be in all essentials uniform, and only such regulations might be sanctioned as were proved to be necessary to secure health and safety. In addition, courts of appeal easily accessible should be constituted. The paper also drew attention to the employment of district surveyors in carrying out buildings of architectural character, such as infectious hospitals, baths, libraries, markets and even town halls and council houses. Rarely had they received suitable training for such work, and by their doing it the architects were deprived of legitimate employment. When a building was required a surveyor often suggested that an architect's fees might be saved by employing the salaried servant. The surveyor then obtained the services of some architectural hack who prepared the design. When the work was done the surveyor suggested that he should receive extra remuneration, which generally took the form of a rise in his salary, and often the temporary hack became a permanent addition to the staff, so that the ratepayers, instead of simply having to pay an architect the usual 5 per cent. on the cost of the work, were saddled with an annual cost which, in the aggregate, largely exceeded the legitimate fees for carrying out the work. In addition to that it was a well-known fact the actual outlay on buildings carried out under the control of surveyors was generally far in excess of what it would be in the hands of a qualified architect. In some districts surveyors were permitted to undertake private work. They prepared designs in the public offices with the assistance of their staff. Necessarily these designs were passed without question, and the writer of the paper had even heard of difficulties being thrown in the way of building proprietors and architects evidently for the purpose of diverting work into the hands of the surveyor. These were crying evils which it was to be hoped the Institute would exert itself to remedy.

Mr. W. Woodward said that the difficulties Mr. Henman spoke of with regard to building by-laws and their interpretation applied equally to London. They had, however, a tribunal of appeal consisting of two architects and one solicitor or barrister.

Mr. T. Naden said that in Birmingham their appeal was to a committee of the Council. He had experienced no difficulty with surveyors. They had only to stroke the surveyor the right way to get what they wanted, and the committee need only be appealed to when the surveyor considered that the by-laws were not sufficiently elastic to meet a special case, and could not take the responsibility upon himself.

Mr. Nicoll said that in his personal experience the surveyors were not so very bad to deal with. The architect, if he went about in the right way, generally got his own way in the end.

Mr. W. Milburn said that in Sunderland they had a set of unsuitable by-laws, framed by the Corporation, and the architects got up an agitation, in which they obtained the assistance not only of the builders but of the leaders of the workmen's societies. The result was that they got the by-laws amended.

Mr. J. Cotton condemned some of the by-laws enforced in country towns as tending to destroy the picturesque irregularity which was one of the charms of such places. He suggested that the local association should call into consultation the architects from the surrounding districts. The late Birmingham surveyor was one of the best men they could have had in such an office, and he had found no difficulty in the present surveyor's rulings when the matter was put to him in the right way. By-laws should vary to suit local conditions—as, for instance, those of stone districts—but in what was really one large town uniformity was desirable. For instance, they could do things in Handsworth which they were not allowed to do in Moseley.

Mr. P. Gordon Smith said that Birmingham having special powers under the Consolidation Act, the suburban districts could not exactly copy its by-laws. He thought, however, that it would be a very great advantage if all the local authorities in the neighbourhood would meet in Birmingham and form a committee to go into the whole subject, with the view of framing a code of by-laws. They might, perhaps, get the assistance of some one from the Local Government Board to point out to them what they could or could not do. He was sure that the representations of such a conference would receive the utmost consideration from the Local Government Board. As to the "regulations" of which complaint had been made, a district council could make what regulations it liked, but it could not enforce them. There was no penalty. As for the model by-laws the Local Government Board could not compel the adoption of any one of them. These by-laws had stood the test of the courts very well, but if their phraseology were obscure there was no objection to the local authority printing explanations or illustrations with them. As for the surveyors, he had found them excellent officers and very amenable to reason. In many of the large towns the surveyors were simply splendid men.

The Chairman said that it appeared to him that the Birmingham architects should take a leaf from the book of their Sunderland colleagues.

Mr. J. Smith said that in Sheffield work to the amount of a million and a quarter was being done from the surveyor's office.

A Member suggested that if they took this point up they would be open to the accusation of thinking about their personal interests rather than the public good.

Mr. A. E. Sawday thought they need not be thin-skinned on this question. It was taken up in Leicester, with the result that a resolution of the Council was passed that for all work over a certain amount an outside architect should be engaged.

On the motion of the Chairman the following resolution was unanimously adopted :—"That the Institute is in sympathy with the action being taken by the Birmingham Architectural Association as to the framing and administration of by-laws in Birmingham and the surrounding district, and will be very pleased to assist the local society by advice or suggestion in their action."

ROYAL ACADEMY SCHOOLS.

On last Saturday evening Sir E. Poynter, P.R.A., distributed the prizes to the successful students of the Royal Academy Schools. The ceremony took place in the lecture-hall, Burlington House, and was attended by a large number of Academicians and Associates, as well as by the students of the schools and some of their friends.

The President, before distributing the prizes, said that those present were aware that as that was an off year—a year when there was no gold medal—it was not customary to deliver an address. At the same time they must allow him to congratulate them on the all-round competition for the prizes. For the Creswick prize he noticed several excellent paintings. He was very glad to see a larger and a better competition in the drawings from the antique, which he thought was a very important part of the student's course of study. He then proceeded to present the prizes, which were awarded as follows:—

Landscape painting—A Bridge over a Trout Stream, Creswick prize (30*l.*), Fred Appleyard. Painting of a figure from the life (open to male students only), silver medal, first, George Murray ; second, Edward Francis Wells. Painting of a head from the life, silver medal, first, Mary Towgood ; second, Fred Appleyard. Painting of a draped figure (open to female students only), silver medal, first, Grace Elizabeth Page ; second, not awarded. Cartoon of a draped figure, Calliope, silver medal and prize (25*l.*), George Murray. Design in monochrome for a figure picture, Joseph presenting his Father before Pharaoh—Gen. xlvii. 7, Armitage prizes, first (30*l.*) and bronze medal, not awarded ; second (10*l.*), Frank Cadogan Cowper. Design for the decoration of a portion of a public building, Harvest, prize (40*l.*), George Murray. Set of six drawings of a figure from the life (open to male students only), first prize (50*l.*) and silver medal, George Murray ; second (25*l.*), Frank Shelley ; third (15*l.*), Christopher David Williams ; fourth (10*l.*), not awarded. Drawing of a head from the life, silver medal, first, William Dennis Eden ; second, Annie Margaret Page. Drawing of a statue or group, silver medal, first, Fred Appleyard ; second, Annie Margaret Page. Perspective drawing in outline (open to painters and sculptors only), The Summer House in Kensington Gardens near the Fountains, silver medal, no competition. Model of a design, Endymion, whilst asleep, is visited by Diana, first prize (30*l.*), Stanley Nicholson Babb ; second (10*l.*), Alfred Bertie Pegram.* Set of three models of a figure from the life (open to male students only), first prize (50*l.*) and silver medal, Gilbert William Bayes ; second (20*l.*), Alfred Bertie Pegram.* Model of a bust from the life (open to female students), silver medal, first, not awarded ; second, Winifred Florence Hunt. Model of a design containing figure and ornament, Youths gathering Grapes, silver medal, Stanley Nicholson Babb. Model of a statue or group, silver medal, first, Frank Arnold Wright ; second, Stanley Nicholson Babb. Design in architecture, A Town Church, travelling studentship (60*l.*), William Hawke. Set of architectural drawings, The Hall of the Middle Temple, silver medal, first, no competition ; second, no competition. Set of architectural designs (upper school), prize (25*l.*), John Stevens Lee. Set of drawings of an architectural design (lower school), prize (10*l.*), Alfred Edward Corbett. Plan of a building, A Town Club House, prize (10*l.*), Arthur Campbell Martin. Original composition in ornament, silver medal, no competition. Perspective drawing in outline (open to architects only), The Interior View of the Library at Lambeth Palace, silver medal, no competition. The Landseer scholarships, in painting, of 40*l.* a year, tenable for two years, have been awarded to Frank Shelley, Arthur G. Ackermann and Christopher D. Williams (extra). In sculpture, to Gilbert W. Bayes and Mortimer J. Brown (extra).

* Disqualified, owing to having received the same prize before.

WAVERLEY ABBEY.

The council of the Surrey Archæological Society have issued a statement showing the work that has been already done in regard to the excavations at Waverley Abbey. The first points of interest disclosed included the west end of the chapter-house with what remains of its beautiful doorway. It was then decided to continue the excavations, and Mr. William Anderson set about clearing the chapter-house and the slype or covered way adjoining to the original level. Since then the ground south of the cloister, and lying between the cellarium and monks' dormitory, has been explored, with the result that now may be seen the kitchen block, wholly uncovered ; the walls of the monks' refectory, with the stone bench running along three sides ; portions of the walls of the calefactory, or warming-room, and of some other rooms. The church, too, has been partially excavated, and, amongst other things, the divisions of the chapels in the transepts brought to light. East of the chapter-house and monks' dormitory, according to the normal Cistercian plan, should be the infirmary with its hall, chapel (said to have been larger than that at Trinity College, Oxford) and kitchen offices, the abbot's house, the prisons, &c. In the cloister, opposite the chapter-house door, the coffin was found of William Mauduit, the third baron of Hanslape, and king's chamberlain, whose burial took place in October 1194, as recorded in the annals of Waverley. North of this was one other interment, and to the south of it four more, that at the end having above it a plain stone slab without inscription. The importance of this discovery lies in the fact that the coffins were not of stone, as is usual in our abbeys, but of oak, almost as sound as on the day they were deposited here. Photographs and careful measurements having been taken, the earth was replaced. During the excavations many objects of interest have been brought to light, including window glass, some of it painted, with portions of the lead casements in which it was fixed; a large number of floor tiles, many having designs on them; besides a great store of fragments of Mediæval pottery, some of considerable interest, and of glass vessels and other objects illustrative of the domestic life of a monastery. The statement adds :—"In fact, the excavations have so far shown such good results that the Council has decided to continue the work next year if sufficient funds are forthcoming. When it is considered that Surrey possesses at Waverley what remains of the first abbey founded in England by the great Cistercian Order, and, further, the importance to archæology generally of having an accurate ground-plan of the ruins, members of the Society can hardly fail to approve the action of the council in inaugurating a systematic and thorough exploration of the site. The cost of the undertaking will be considerable, and beyond the means ordinarily at the disposal of the Society. It is confidently hoped, however, that a great deal of support will be forthcoming from outside the Society, especially from those residing in the diocese of Winchester, with which the abbey was so intimately connected. Meanwhile members are invited to assist the executive by contributing to the fund now being raised with a view to the resumption of work in the spring." Contributions should be addressed to the Rev. T. S. Cooper, Chiddingfold, Godalming.

THE MICRONESIAN VENICE.

On Monday evening at the meeting of the Royal Geographical Society a paper was read by F. W. Christian, in which he described his visit to the Eastern Caroline Islands and his explorations among the famous ruins of Nan-Matal. He said that the area occupied by the islets of Nan-Matal is about nine square miles. For the most part they are deserted, and altogether there are not above twenty people living on the three or four inhabited ones. Some of them are planted with cocoa-nuts and bread-fruit, and are visited occasionally by fishing parties. The king's island of Tomun and the shores of Metalanim harbour are fairly thickly populated, but the folk as a rule give Nan-Matal a pretty wide berth. They say the place is haunted, and on certain of the islets, such as Pan-Katara and Pei-Kap, nothing will induce them to set foot. All the enormous quantity of basalt which the ancient builders used must have been brought in canoes or rafted down the coast, a distance of 20 to 30 miles. These pillars and blocks were carried down to the sea from the dales below the precipices of U and the great perpendicular scarp of Chokach, where the columnar basalt formation is very strikingly marked. Here were grand natural quarries, whence the builders might select all the shafts and pillars required, lying around ready shaped to their hand. The first of the islets visited from Uchentau was Nan-Tauach, the most remarkable of all the Metalanim ruins. The water-front is faced with a solid terrace of massive stonework about 6 feet wide, standing over 6 feet above the shallow waterway. Above is a striking example of immensely solid cyclopean masonry. A great wall, between 20 feet and 30 feet high and about 10 feet in thickness, formed of basaltic prisms laid alternately lengthwise and crosswise, encloses an oblong space, which can be entered only by the great gateway in the middle of the west face, and by a small portal in the north-west corner. The right side of the gateway is overshadowed and all but hidden from view by the dense leafage of a huge Ikoik tree. In olden times the walls must have been considerably greater in height, but much of the masonry has now fallen into lamentable ruin. A series of huge rude steps leads into a spacious courtyard, strewn with fragments of fallen pillars. This encircles a second terraced enclosure topped by a remarkable projecting frieze or cornice of stonework. The outer enclosures were 185 feet by 115 feet, the wall varying in height from 20 feet to nearly 40 feet, the inner, which forms a second conforming parallelogram, measuring 85 feet by 75 feet. Height of the wall 15 feet to 18 feet, average thickness 8 feet. Another rude flight of steps leads up to the great central vault or treasure-chamber, said to be the grave of an ancient monarch, who bore the dynastic title

of Chau-te-Leur. It was difficult to gain much information about the old traditions at first. The natives certainly know something about the history of these ruins, but do not care to talk of them to strangers. This reticence he had patiently to overcome little by little, and consequently bit by bit a tolerably explicit little chapter of history was built up. It appeared that in olden days Ponape was much more populous than at present. All the tribes in the days of the builders were united under a powerful line of kings. The last of this dynasty met his death facing a great invasion of barbarians from Pati-Air, the barren lands of the south, probably some portion of New Guinea, the New Hebrides, or some neighbouring portion of Melanesian area. They arrived in a great fleet of canoes under the command of a fierce and terrible warrior, Icho-Kalakal. The savage invaders poured in upon the peaceful settlers and blotted out the ancient civilisation, after a great battle, in which numbers were slain on both sides. Part of the walls were thrown down and the defenders were either slain in battle or offered up in solemn sacrifice to the war-gods of their conquerors. King Chau-te-Leur himself in his flight perished in the waters of the Chapalap river, at the head of Metalanim harbour. The Ani changed him into a blue river fish, which the folk of Metalanim to this day will not eat. The underground chamber or vault which bears King Chau-te-Leur's name lies right in the centre of the inner precinct, facing the great gateway. It is about 8 feet in depth, roofed in with six enormous slabs of basalt. The flooring was paved by some heavy basalt blocks, which they had great trouble in lifting away. Below this was a layer of soft vegetable mould, thickly matted with a tough root-growth that made excavation somewhat troublesome. The side nearest the entrance threatened soon to fall into ruins, and they had to pursue digging operations very cautiously in this corner for fear of being crushed by the collapsing of these mighty masses of masonry. There are three other tombs or vaults besides the large central one, situated on the south-west, east and north-west sides respectively. They are smaller in size, and gave up rather scanty results to their excavators. The one on the east side is very narrow and some 12 feet in depth. Paul, the king of the Metalanim tribe, sometimes used them as dungeons to confine those who offended him—a punishment greatly dreaded by the natives, in their childlike horror of the dark and of the viewless spirit forms with which their fancy peoples these lonesome places. "The eyes of the spirits are watching everything you do," said Keroun, one of the lecturer's workmen, as he tendered his resignation. "I know they are angry; they will not injure you because you are a white man, but they will punish us. I am very much afraid: I cannot sleep at night, and I would like to go home." Standing in the south-west angle, where the wall is nearly 40 feet in height, one looked down upon a green abyss of nodding woodland, with never a glimpse of the network of canals rippling below. The north-east angle is occupied by an enormous banyan tree, towering full 50 feet above the masonry in which it stands firm-rooted, thrusting its bunches of thread-like root fibre into every crevice. These, as they swell, exercise a constant and gradually increasing force, wrenching the blocks out of place. When a high wind blows the structure is racked through and through in every joint and keystone. Sooner or later, if nothing is done to remove the tree, this side of the wall will settle down into ruins. A tangle of weeds, grasses and creepers thickly carpets the precinct. Beyond the two small cross-walls on the inner side of the great outer wall on the south-west side is a remarkable slab, inclining to a crescent shape, balanced on two solid shafts projecting out of the masonry. This, when tapped, gives a clear ringing sound, and was probably used for an alarum or for a sort of a bell in sacred ceremonies. The north-west angle gives a happy impression of the style of architecture, the two walls at their junction running up high and bluff like the bows of a Japanese junk. Beneath, the terrace fronting the waterway is overgrown by a belt of young cocoa-palms of recent growth. News of the excavations, and of the havoc being made in the jungle in clearing operations, finally reached the ears of King Paul, who at once put a stop to the work. Most unfortunately, his superstitious terrors were confirmed by a very severe epidemic of influenza that broke out in the tribe shortly after their departure, and carried off many of the Metalanim people. The result of the excavations in the central vault was distinctly encouraging, and it was a great pity more time could not have been spent at it. Thoroughly to explore and clear the labyrinth of this Micronesian Venice and to make complete excavations would take several months' hard work. It was very difficult to get the natives to work here, owing to their dread of the vengeance of the ancestral spirits and heroes hovering around these holy places, ready to let loose some terrible judgment upon the head of rash intruders. Another great drawback to exploration likely to continue during the reign of King Paul is a deep-seated hostility to the white man felt by many of the Metalanim tribesmen.

MANCHESTER SOCIETY OF ARCHITECTS.

THE thirty-fourth annual dinner of this Society was given on the 8th inst. at the Queen's Hotel, Manchester. The chair was occupied by the president (Mr. R. I. Bennett), who was supported by Mr. George Corson (president of the Leeds and Yorkshire Architectural Society), Mr. Edward Salomons, Mr. Charles E. Bateman (president of the Birmingham Architectural Association), Mr. W. P. J. Fawcus (ex-president of the Northern Society of Electrical Engineers), Mr. W. A. Royle, Mr. C. H. Heathcote and Colonel Eaton. A telegram apologising for inability to be present was received from Professor Aitchison, R.A., president of the Royal Institute of British Architects. After the customary loyal toasts had been given from the chair and appropriately honoured, the President proposed "The Royal Institute of British Architects." The Institute, he remarked, was started in 1831, but it was not fairly founded until 1834, and it was constituted in the following year. At a later period the Institute was incorporated by Royal Charter. Its list of past presidents included such honoured names as those of Sir George Gilbert Scott, Charles Barry, Sir Horace Jones, Alfred Waterhouse, and last, but not least, Professor Aitchison, who enjoyed the distinction of being president for the third year in succession. The object of the Institute was the general advancement of civil architecture. It sought also to promote and facilitate the acquirement of the knowledge of the various arts and sciences connected with architecture. The Institute had a membership of some 1,600, and they had branches and corresponding members in every quarter of the globe. In Manchester the Society endeavoured to support and protect the character, status and interests of architects practising in or in the vicinity of Manchester, and to promote personal acquaintance and good feeling between the members of the Society, to regulate professional charges, and to establish educational facilities for younger members and students by means of classes, lectures, offering of prizes, &c. In the absence of Professor Aitchison, the task of acknowledging the toast was accorded to Mr. Charles E. Bateman, president of the Birmingham Association.

Colonel Eaton proposed "Allied Societies," to which Mr. Bateman and Mr. George Corson (president of the Leeds and Yorkshire Association) replied.

Mr. C. H. Heathcote, before proposing "The Northern Society of Electrical Engineers," alluded to the loss which the Manchester Society of Architects had sustained during the past year by the death of Mr. Bridgford and Mr. Sankey. In Mr. Sankey the Society had suffered a distinct loss, for he was a man who, if he had been spared, would have risen to a very high position—if indeed he had not already achieved high rank—and all the members united in sincere and reverent condolence with Mr. Sankey's relatives and, as it were, with themselves as his brother architects.

Mr. Fawcus (Northern Society of Electrical Engineers), in responding, referred to the arrangements in progress for developing the uses of electricity. It is proposed, he said, in the course of the next few years to spend between six and seven millions sterling on new works. Then electricity, instead of being a dear light and the luxury of the few, will be available at a far less cost than gas is now. Fivepence a unit was now charged, equal to about 3*s.* per 1,000 cubic feet of gas, but if Parliament granted the powers asked of it, the charge would be brought from 5*d.* to 1½*d.* per unit, and even less for motive power.

Mr. J. Ely proposed "Municipal Technical Education," which toast was acknowledged by Mr. J. H. Reynolds.

THE GLASGOW ARCHITECTURAL ASSOCIATION.

AT the usual monthly meeting of the Association held in the rooms, 187 Pitt Street, on Tuesday, December 6, Mr. Geo. S. Hill in the chair, Mr. John Watson contributed a paper entitled "Our Domestic Architecture." Mr. Watson confined himself to a general view of the types of building which went to form the suburbs of large cities. He traced the existing styles of plan to class of material used, prejudices arising mainly from economic causes. Mr. Watson showed by a large number of illustrations how different this class of building could be made if architects were but willing to adopt the many different materials which lay to their hands. This would in turn lead to improved types of plan and style of building generally. At the close of the discussion which followed Mr. Watson was awarded a hearty vote of thanks for his paper.

The Discussion on the paper read by Mr. W. Weaver on "The London Building Act and the Official Supervision of Buildings" before the Surveyors' Institution will be resumed on January 9.

NOTES AND COMMENTS.

We lately referred to some of the requirements of Parliamentary plans. Although they appear every year more or less abundantly, it is remarkable that their purpose is not entirely understood. The plans may show as much ground as the surveyors care to draw, but the essential part is what is comprised within the "limits of deviation." It might be supposed that every official of a corporation would know as much. But apparently not one member of the South Shields Corporation nor one of the engineering or legal officers was aware of a fact which might be said to be a part of the English Constitution. An Act was obtained in 1895 authorising street improvements in South Shields. When the arrangements were in progress for carrying out the work, it was found that more land was required than was shown between the limits of deviation on the Parliamentary plans. Thereupon, without having legislative sanction, they gave notice to a Mrs. Donaldson that it was intended to take some of her property. The lady applied to the Courts to restrain the Corporation from exercising compulsory powers to obtain the premises, and counsel had the hardihood to maintain that a more liberal construction of the law should be allowed in the case than was permitted to railway companies. It is needless to say Mr. Justice North at once granted the injunction, for the simple reason that the Corporation had no claim on any property beyond the limits of deviation. The conduct of the Corporation deserves to be brought under the notice of Parliament as a breach of privilege of the most serious kind.

Through the efforts of M. Formentin, the conservator, the new Musée Galliera in Paris is fast becoming representative of the modern decorative art of France. In order to adorn the walls the municipal authorities have lent several valuable examples of tapestry which have survived through many disturbances. A large number of decorative paintings, which are purchased from year to year, and which hitherto were stored in out-of-the-way places where they were visible to the storekeepers alone, are now to be seen in the Musée Galliera under favourable conditions which are not always obtainable for decoration. Then there are the *objets d'art* which are a specialty of Paris, and which were purchased like the paintings in the annual exhibitions. The sculpture is also excellent. The Musée Galliera, which as a work of architecture merits to be visited, may be considered as a rival to the Luxembourg, which recalls many Salon exhibitions and exemplifies several phases of modern French art.

An effort has been made lately to make out Lord Beaconsfield as a double dealer, because at the Academy banquet in 1875 he spoke of the faculty of imagination which distinguished the English School of late years. Browning, the poet, said that in the conversation after the dinner Disraeli, whilst looking at the pictures, said that they were most lacking in imagination. It is a pity that censors of a speech will not refer to a report of it, but to some hearsay evidence of its character. Disraeli might use opposite expressions without incurring a charge of duplicity. In his after dinner speech he referred to various sections of the English School. He spoke of the portraits, the landscapes and the paintings of the common incidents of life, but what has most, he said, "in my opinion, distinguished of late years the English School is the faculty of imagination." He then described how the faculty was developed under great disadvantages. In a characteristic passage he presented some of the drawbacks:—"The artist is not favoured by a climate of inspiration. He is not surrounded by a sublime nature. He does not dwell in cities glittering with symmetry, under purple skies. He is not surrounded by human beings whose flashing forms and picturesque gestures stimulate his invention, and often afford a happy hint of expression and of grace. For him there are no bannered processions parading the squares and streets of fair cities to animate his fancy amid the fall of fountains and the carolling of sacred bells. No, sir, he lives in a studio invaded too often by the London fog. If he walks forth for relaxation he wanders in streets of hideous monotony. His living studies are the constable and the cabman. Instead of a procession he encounters a blockade of omnibuses, and instead of bursts of harmony he is greeted by the scream of the Subterranean Railway, and the horrible concert of organs and hurdy-gurdies. And yet this man, by his imagination, by that divine gift alone, can give us a canvas breathing with human passions, in scenes of romantic loveliness and with every accessory of splendour and of grace." Such a speech might well be described by Mr. Watts as beautiful, but it referred to the English School in general, and was not intended to describe the works seen in 1875. In that year imagination was not supreme, and there was some magnanimity in the acknowledgment of Disraeli, that it did not bear out the roseate view he had taken of the characteristics of the School. To describe the difference as "devilish" or "hellish" is absurd.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: THE SCREEN.

We publish this week the second of the two screens which belonged to St. Albans Abbey. Tottenhoe stone was used in both. One divided the nave from the choir, and from its solidity and extent completely prevented any of the worshippers in the nave seeing what took place at the high altar, unless on occasions when the side doors were opened. The larger screen, which is credited to Abbot William Wallingford, resembles in treatment those of Winchester, Gloucester and St. Saviour's, Southwark. The cruciform space which forms the central part used to be occupied by a silver crucifix. In spite of vandalism, the ornament still suggests its original delicacy, but it is needless to say the figures in the canopied niches do not date from the fifteenth century.

COMMUNION RAILING, CANTERBURY CATHEDRAL.

The new communion railing, which is illustrated in the present number, consists of a broad-moulded continuous capping, having curved ends to terminate against piers of choir; this rests on a brass structure having for its chief feature a balustrade of moulded spindles divided into bays by upright pilasters on each side and between which are square middle panels. These pilasters have carved and pierced ornament, consisting of a conventional rendering of the acanthus springing from a vase and terminating in a cartouche, within which are oval medallions with monograms. The larger square panels above referred to have within wreaths the *iota eta sigma*, alternating with the emblem of the Holy Trinity. These panels are well chased and surrounded by carefully modelled egg-and-tongue moulding, and are backed by "opus sectile" mosaic in rich reds, jasper and azure, which material is also used in the panels of the base, where it embeds the angelic ascription with flanking roses. The whole is laid on a plinth of black Belgian marble. The gates are constructed with the same baluster treatment as the railing, with panels in the bottom rail designed to harmonise with the pilasters, but are left as open work (*i.e.* without backing).

The general character of the work is that of the English Early Renaissance, in the construction of which great care has been observed, having been substantially framed with H steel core in base and capping. The gate-framings are cast in one piece, and but few joints are visible in other parts. The material is practically bronze, an alloy having after several experiments been adopted which combined a pale brass colour with hardness and firmness of texture. All the plain surfaces are left unlacquered—to be regularly cleaned or left to acquire a patina surface, as may be determined.

The design and detail drawings were prepared by Sir Arthur Blomfield, A.R.A., and Messrs. Hart, Son, Peard & Co., Limited, of London and Birmingham, executed the work under his supervision. Messrs. Rattee & Kett did the carved work of the model from the architect's full-sized drawings, Messrs. Powell & Sons the opus mosaics, and Messrs. Earp & Hobbs supplied the marble plinth.

WRITING-ROOM, SAVOY HOTEL, STRAND.

THE LONDON BUILDING ACT AND THE OFFICIAL SUPERVISION OF BUILDINGS*

IN submitting the following short paper to the Surveyors' Institution, I am desirous of drawing attention to the London Building Act, and the manner in which it is carried out or enforced, with the view of considering the desirability of extending to London the system prevailing under the Public Health Act in the provincial towns throughout England. Included in the membership of the Institution are a majority of the surveyors connected with the development and management of estates both in London and the country, and such members especially should from their experience be in a position to institute a comparison between London and provincial procedure in matters of the kind.

Recent unfortunate events in London have had the effect of directing public attention to the Building Act and its alleged shortcomings, and although the aid of the law has been invoked in several cases since January 1, 1895, when the new Act came into operation, I consider it would be a slur on the many professional associations (including the Surveyors' Institution) which gave so much time and consideration to the Act when in Bill form to admit that its provisions if efficiently enforced are not sufficient for the general attainment of the end for which they were devised. Members are aware of the many alterations made in the Bill as the result of the consideration given to it and the very different appearance which it presents in the form of an Act, and it may be fairly assumed that even if the same amount of consideration were given to the amendment of the present Act, the resulting measure would still fall short of perfection and afford ample opportunity for the exercise of legal acumen and expert skill in the interpretation of its provisions.

I am of opinion that the remedy for the defects of the present official system of building supervision in the Metropolis must be sought, not so much in the direction of amendments to the Act itself as in the system of supervision adopted in enforcing it, and it is to this view of the question that I would particularly call attention. During my thirty-nine years' official connection with the parish, Kensington has developed from fields and market gardens into one of the most important districts of the Metropolis, and very exceptional opportunities have thus been afforded of acquiring practical acquaintance with the subject under consideration, not only in the particular district referred to, but in the Metropolis generally.

In the report of the London County Council for 1897, it is set forth that for the purpose of the Building Act the county of London is divided into 64 districts, each superintended by a district surveyor, whose duty it is (according to the said report) o see that all new buildings and all alterations and additions to buildings "are carried out in accordance with the law." This statement is not correct, for, as I shall point out, the district surveyors exercise no supervision outside the statutes governing their appointment.

The report of the Council further states that a standing order of the Council requires each district surveyor newly appointed or reappointed to devote the whole of his time to the duties of his office, and not to engage directly or indirectly in private practice. Of the existing district surveyors, forty-one can take private practice, twelve are precluded from private practice in their own districts, and the remaining eleven are, under the standing order above referred to, entirely precluded from private practice. The district surveyors are remunerated by fees in accordance with schedules attached to the Building Act, and during the year covered by the Council's last report these fees amounted to the sum of 47,748*l.* 10*s.* 4*d.* The Council has power, under section 158 of the Act, to substitute a fixed salary in lieu of fees, abolishing the latter and charging the salary to the County Fund.

Prior to the passing of the order prohibiting private practice, the office of district surveyor was sought, not so much for the direct income attaching to it, but for the opportunities afforded for enlarging the private practice of the official. A district surveyor acting as architect for a building in his own district is required to give notice of the fact to the London County Council, who appoint another district surveyor, generally from an adjoining district, to see that such building is erected in conformity with the provisions of the Building Act. After a short interval the positions are possibly reversed, and the first-mentioned district surveyor finds himself officially supervising the work of the *pro tem.* district surveyor in his district. There can be no doubt that it is bad in principle for any public official to be allowed to engage in private practice in any way connected with his official work, and doubtless the London County Council acted wisely when they passed their resolution prohibiting district surveyors thereafter appointed from engaging in private practice. It is somewhat curious, however, to observe how this restriction actually works. When a new district surveyor is required, candidates for the position are invited by advertisement, and in response applications and testimonials are sent in to the Council. Each candidate must have passed the qualifying R.I.B.A. examination; but beyond that equal gauge the comparative merits of the candidates are assessed upon the skill and ability they have shown in the past exercise of their profession, and in the result an architect is appointed who has established some reputation for designing and planning buildings, and the situation does appear somewhat ironical when it is considered that the newly-appointed surveyor must no longer exercise the talents which have secured him the appointment, but must, as it were, wrap them in a napkin and relegate them to unprolific burial.

The man who has gained a name for designing a good elevation and getting out a clever plan is forthwith to stifle his own aspirations and inspirations, and be content with looking after the height and thickness of walls, &c., and other dry provisions of the Building Act.

It is to be presumed that such self-sacrifice is loyally acquiesced in, but this castration of professional ability is for some reasons to be deplored. The training necessary for the production of a good architect is not required for and should be different from that of a building surveyor, in whose case the skill to plan and design, which is a necessity in the architect, is not so much required as a thorough acquaintance with building materials. A knowledge of strains and thrusts and of workmanship is much more desirable than expertness in the more artistic branches of the architect's profession.

In 1885, in response to an order of my Board, I presented a report embodying suggestions for improving the local public work of the Metropolis. Most of these suggestions have subsequently been carried into effect by legislative enactment, but among the recommendations awaiting adoption is one for the transfer to the local authorities of the Metropolis of the duties now discharged by the district surveyors. I am of opinion that public benefit and administrative economy would result from the adoption of this recommendation, and I strongly urge that, in any scheme for the reform of the local government of the Metropolis, the proposed district councils should be entrusted with the supervision of building operations in their several districts.

The policy of the proposed transfer has received the endorsement of the metropolitan vestries, as will be seen from the following statement of past action in the matter.

As a result of two meetings convened by thirty-four metropolitan vestries and district boards, and held at the Town Hall, Chelsea, a memorial was forwarded on August 5, 1890, to the Prime Minister, stating (paragraph 4):—

"That in the opinion of this conference the office and functions of the district surveyor under the Building Acts should be in the hands of the local boards and their officers, with an appeal to the London County Council."

On February 28, 1896, a conference took place between delegates from the London County Council and from the several vestries and district boards to consider, in view of contemplated changes in the government of London, what powers should be allocated respectively to the central and district authorities, and a resolution was carried similar in effect to that set forth above. The London County Council representatives did not vote on this resolution, and the committee of the Council subsequently reported adversely to the view adopted by the conference, and that recommendation of the committee has since been confirmed by the full Council. This line of action, however, was only to be expected, as the Council has always been opposed to parting with power, whilst showing a ready disposition to undertake new functions—the more important the better. On March 16, 1894, in giving evidence before the Royal Commission on the Amalgamation of the City and County of London, I submitted (*inter alia*) the following statement:—

"Upon the occasion of the delegates from the Conference on the Public Health (Amendment) Bill waiting upon the Local Government Board on June 25, 1891, the Right Hon. C. T. Ritchie stated that it was his desire and intention in the District Councils Bill, which he hoped shortly to introduce, to enlarge the scope of usefulness and responsibilities of the local authorities. In connection with such statement it may be fitly asked, What duty more desirable and important can be cast upon the local authority than the responsibility of seeing that the buildings within its district are erected in a sound substantial manner suitable for human occupation, with due regard to fire risks and health risks of the general community? As urged in the memorial above referred to, all such work should be vested in the local authority, as is the case in provincial towns. Drawings for each new building should be deposited, the intended drainage, depth of foundation, line of frontage, open spaces, water supply and sanitary arrangements should be clearly shown. Upon the said drawings being approved, the work should be executed under the supervision of the local authority, and on satisfactory completion a certificate given, which could be affixed inside the

* Apaper by Mr. Wm. Weaver, Fellow, read at the ordinary general meeting of the Surveyors' Institution on Monday December 12.

building. Such certificate would be of great advantage, both to the owner of and the individual contemplating residence in the house. Unauthorised alteration of the drains or sanitary arrangements, when completed as aforesaid, should be punishable at law. At the present time, after a drain has been completed, tested and passed by the vestry's officials, there is nothing to prevent the occupier or other person making, without notice, some alteration which may entirely destroy the perfection of the drain.

"In effecting any change on the lines hereinbefore advocated, Parliament would, of course, take care that no injustice should accrue to the present district surveyors, and the work of the future would have to be safeguarded by precautions being taken to insure proper knowledge and experience on the part of the officials undertaking the transferred duties. One of the risks under this head is in the case of small districts where the work is not sufficiently extensive or responsible to justify the appointment of a properly qualified man at a sufficient salary to give the whole of his time to his public duties. No public surveyor should be allowed to practise privately; the defects of such a dual system are well known and need not be dilated on here.

"The above difficulty (as to small districts) may be met by uniting two or more together, so as to create districts with a population of about 200,000 each. Such an enlarged district could afford to pay for the whole time of a properly qualified surveyor or engineer, who would have no difficulty in finding ample scope for the useful employment of his skill. The work of a fairly large district can be better and more economically executed than that of a very small district, especially where the local authority performs its own work instead of executing it by the aid of contractors."

It will be seen from the preceding extract that my desire was to protect the present district surveyors from any unjust treatment, and I would take this opportunity of assuring those gentlemen—many of whom I am pleased to count as personal friends—that I have always been careful when advocating the transfer of their duties, to emphasise the necessity of protecting their interests in the event of any change of the kind being effected.

It is possible, of course, that some individual cases of hardship may occur, but to any one acquainted with the building work of London it must be apparent that the duties of district surveyor and parish surveyor should be discharged by one official, corresponding to the borough engineer and surveyor in the towns throughout the rest of England. If the two offices were amalgamated the district surveyor would in some parishes probably be the best man to discharge the duties of the combined office, and in other parishes the present engineers and surveyors would be fully equal to the task. At any rate individual interest must not be allowed to stand in the way of public advantage, and if the latter demands a change there will be no more difficulty in getting qualified engineers and surveyors for the London district councils than is experienced in the large towns throughout the kingdom.

These points I strongly urged when reporting to my Board on the London Streets and Buildings Bill, as the following extract will show:—

(Extract from surveyor's report to the vestry of Kensington, dated December 27, 1893. Paragraph 57.)

"It is a bad system to have two district surveyors, one responsible to the Council and the other serving the local authority, and both going over the same ground and, to a certain extent, over the same work. The two officers should be rolled into one, responsible to the local authority, and discharging the same duties as now performed by the borough surveyors throughout the kingdom. The vestry will understand that the suggested amalgamation of offices is not proposed in the interests of the professional class of which I am a member, but is simply made in the interest of the government of the Metropolis. Many of the district surveyors are better qualified to undertake the work of the local surveyors than the latter are to absorb the functions of the former, but whenever such assimilation of officers does take place, properly qualified men would be appointed to each locality, and that without injustice to any present surveyor, district or local."

In view of the general unanimity of the present local authorities on the question, the members of this Institution can hardly fail to be convinced that it is for the advantage of the public generally and for the convenience of the profession itself that the proposed change of administration should take place. In support of the policy of change, I would submit the following considerations which have induced me to propose the suggested transfer of powers and amalgamation of duties under the Building Acts and Metropolis Management Acts.

I am distinctly of opinion that anyone desirous of developing an estate or erecting a building should be able to ascertain at the town hall of the district everything required by the public authorities relative to such building or estate. At the present time an applicant is informed on attending at the town hall that he must give the vestry seven days' notice before commencing the excavation of foundations, and must give concurrent notice to the district surveyor as to commencement of building operations, and submit drawings of the proposed buildings for the approval of the district surveyor; but the local authority has no power to call for such drawings, the seven days' notice to them being only required in order to afford an opportunity of serving a counter notice to keep the foundations up to a certain level, so as to insure proper drainage.

Should the applicant desire to develop some building land he is referred to the London County Council, to whom he must first submit (in duplicate) plans of intended roads. The County Council forward one of the copies to the vestry, and guided more or less by their recommendation, approve or refuse them. Having received sanction to his plan for laying out the roads, the applicant becomes anxious to construct sewers, and is then told to send in duplicate plans to the vestry, who upon approving them forward one copy to the London County Council for their sanction. After this double reverse process, generally taking considerable time, the applicant, having succeeded in getting his plans of roads and sewers passed, proceeds to build, generally constructing the sewer first, this work being carried out under the supervision and to the satisfaction of the vestry. The foundations of the buildings are then proceeded with, the vestry surveyor attending to look after the level and frontage line. Simultaneously the district surveyor attends to look after the foundation site with regard to the necessity for concrete and the thickness of walls and spread of footings.

The attendance of the vestry surveyor then ceases until the house drainage work is commenced, of which seven days' notice has to be given to the vestry, under whose supervision the whole of the work (in addition to water supply) has to be satisfactorily carried out. In alterations to buildings and in the erection of blocks of flats, building work and sanitary work will be found progressing simultaneously, and the district surveyor may be found looking after the proper construction of a wall, while the vestry surveyor is seeing to the soil-pipe attached to it. Generally speaking, in the majority of buildings, the drainage work is executed after the carcase of the building is completed, and it may be found, as in past cases, that the building, though erected in accordance with plans passed by the district surveyor under the Building Act, does not conform to the by-laws framed under the Public Health Act by the London County Council, and enforced and supervised by the vestry. Several such cases having occurred in Kensington, the London County Council were requested (March 16, 1894) to furnish the district surveyors with copies of the by-laws under the Public Health Act with an instruction not to approve plans submitted to them under the Building Act when such plans showed intended violations of the Council's by-laws. The Council in reply (April 14, 1894) considered it inexpedient to give such instructions to the district surveyors, whose duties were prescribed by the Building Acts. In consequence, at present it occasionally occurs that notice has to be served by the vestry requiring a newly-built structure to be altered and amended in order to meet the requirements of the Council's by-laws.

Further overlapping supervision and occasional clashing arise with respect to lines of building frontage and the laying out of new streets, and also in relation to arches or vaults under public ways. With regard to the former, the district surveyor is entitled to special fees under Section 155 of the Act, and as to the latter the fees are fixed under Schedule 3, Part I., of the Act.

Concurrently with the district surveyor's supervision of frontage lines and of the laying out of new streets, the vestry's surveyor is exercising similar supervision, with the additional work of setting out the levels of the new streets and their intersections. With regard to vaults under footways, the district surveyor's duty is limited to looking after the brickwork in relation to the span of the arch, and he has no power to disapprove any work provided it fulfils the conditions laid down in the Building Act, but the vestry's requirements, which their surveyor has to enforce, may demand 50 per cent. thicker head walls set back 2 feet from the kerb line, backed up with concrete, with 2 feet of space for electric, gas and water mains, &c., left between the crown of the vaults and the paving.

Again, with regard to setting back buildings to be erected on open spaces within 20 feet of the centre of the road, both the district surveyor and the parish surveyor have corresponding duties, and it occasionally happens that the former, in approving building plans submitted to him, loses sight of the fact that the abutting highway is under the full width, and the parish surveyor has afterwards to stop the building in progress.

If the work of the proposed new District Councils for London followed the course of procedure adopted in all other towns throughout England, these difficulties and cases of overlapping jurisdiction would not occur. In Leeds, Birmingham, Manchester, &c., by attending at the borough or town surveyor's office, anyone can obtain all information necessary for his guidance in carrying out any building operations, and the

advantages of this simplicity of procedure should not be denied solely to the metropolitan districts, many of which at the present time exceed in population and rateable value most of the provincial towns possessing the advantage of self-government.

Another difficulty under the present system in London arises from the district surveyor having no knowledge of or responsibility as to the sewers. Plans for buildings at the rear of old houses are approved by him, notwithstanding the existence of sewers running under the site of the new building, which it is illegal to erect in such position, but which unless discovered by the vestry within six months from completion cannot be demolished. The connection of the district surveyor with any new building ceases on its completion and the payment of his fees; there is no subsequent periodical inspection to detect violations of the law after the completion of the building. If such inspections were made I suspect that many infringements of the Building Act would be discovered, notably the erection of sheds and buildings in backyards, with consequent increased fire risks and reduction of air space. If the Building Act was administered by the local authorities the drawings of each building would be lodged with them; such drawings would show the situation and construction of the building, its drainage, sanitary adjuncts, water supply and open spaces attached to the premises, and the present officers to the local authorities in making their regular inspections at short intervals would be able to note any recent alterations to the premises.

As before stated, the district surveyors are remunerated by fees, out of which their assistants have to be paid, and it is unreasonable to expect the surveyor to provide and pay a body of perambulating assistants to the serious diminution of his net income. I believe I am correct in stating that most of the cases of dangerous structures are notified to the district surveyor by the vestry surveyor, and it must be borne in mind that the district surveyor is not entitled to charge his fee for surveying any dangerous structure until directed by the Council to make such survey, as under Section 103 of the Act the existence of the dangerous structure must be notified to the Council before an instruction for its survey is given by them. Under the present system too much is left to chance; it is nobody's duty to find out or discover dangerous structures, and the collapse of a building may be the first intimation of its dangerous condition.

I am of opinion that no fees should be charged in respect of new buildings or dangerous structures. At the present time the supervision of drainage and sanitary work, water supply and regular sanitary inspection are undertaken by the local authority and the expense thereof borne by the rates, and I fail to see any sound reason why one principle should not apply to the whole work of supervision.

In amending the local government of the Metropolis, it is very desirable that the responsibilities and duties of the District Councils should be enlarged beyond their present scope and limitations, in order to dignify the position of the members and raise the status of the chief officials. The latter should not, of course, become the masters of the councils, but at the same time they should be able men, fitted to discharge their duties fearlessly without sacrifice of independence.

In support of my opinion as to the desirability of raising the tone of local administration I would refer to the report of the Royal Commission on London Government (hereinbefore alluded to), and to the remarks made on June 25, 1891, by the Right Honourable C. T. Ritchie on receiving a deputation of delegates from a conference on the Public Health (Amendment) Bill. Mr. Ritchie, as I have mentioned, stated that it was his desire and intention in the District Councils Bill, which he hoped shortly to introduce, to enlarge the scope of usefulness and responsibilities of the local authorities. The report aforesaid of the Royal Commission states (page 17):—

"Paragraph 47. We have now to consider what the functions of the new Corporation should be and its relations to the subordinate local authorities, especially to that of the old City. As we have already intimated, we think the resettlement of the government of the old City should be made on lines which are capable of being more or less rapidly adopted in the other component parts of London, so that the organisation may be regarded as an example to be followed."

"Paragraph 48. In developing this principle we think that everything possible should be done to maintain the strength, authority and dignity of the local bodies of London; and that in the partition of functions between the Corporation of London and local authorities the former should be relieved of all administrative details for which its intervention is not really necessary, and the latter should be entrusted with every duty they can conveniently discharge. In the case of doubt our inclinations would lean to the allotment of functions to the local bodies, and we believe that in cases where uniformity of action is necessary, this may often be best secured by giving to the Corporation the authority to frame by-laws which should be locally administered, with provision, however, for the intervention of the Corporation to secure their enforcement should they be neglected."

I therefore submit that the interests of the community would be served by casting upon any new District Councils, to be created for the future local government of London, the duties now discharged by the district surveyors under the London Building Acts, and that the cost of carrying out such duties should be a charge upon the general rate of each district.

Finally, I beg to assure the members of the Institution that in recommending the foregoing alterations or reforms I have no personal object to gain—my official career is rapidly approaching its termination—and I simply place my views on record as honest convictions resulting from a life's working experience; and I am strongly of opinion if the District Councils Bill for the improvement of the local government of the Metropolis is shortly introduced (as promised) into Parliament, it should provide for the single, complete, systematic and regular supervision of all buildings on the lines I have advocated.

THE TAVISTOCK ROAD COMPETITION, PLYMOUTH.

At the opening meeting of the third session of the Three Towns Branch of the Devon and Exeter Architectural Society at Plymouth, Mr. Charles King presided. There were present Messrs. M. Alton Bazeley, W. N. Richards, J. H. Dwelley, W. T. Pethick, H. E. Roskruge, B. Priestley Shires (hon. sec. and treasurer). Letters of apology for absence were received from Messrs. E. Coath Adams, W. H. May and H. G. Luff.

The Hon. Secretary, in his third annual report, stated that steady progress had been made. The greater part of the time available had this year been occupied with the discussion of certain phases of the competition question in a very practical form, which had been more particularly brought home to them by the competition for the Tavistock Road building scheme, initiated by the Corporation. During the year many meetings on this subject had been held, and a deputation, composed not only of members of their own Society, but including others, representing the whole of the practising members of the Three Towns, had waited on the town clerk; a great amount of correspondence had passed, and a memorial, numerously signed, had been presented. But, after all, the negotiations fell through, the result being that with one exception no practising architects of the Three Towns competed, in consequence of the conditions not being in accordance with architectural practice. Their objections to the terms of the competition were very reasonable indeed. The promoters required full detailed working drawings for about one-fifth of their proper market value, and naturally they declined to have anything to do with a competition on such lines. Their case had been well ventilated through the local Press. They had not the slightest doubt that the step they took was the right one. They were supported by the architects of Devonport (with the exception referred to), by the Council of their parent Society at Exeter, by the whole of the architectural Press, and by the Royal Institute of British Architects, who, he understood, very recently decreed that it was undesirable for a member of the Royal Institute to act as assessor in the Tavistock Road competition on the existing conditions. The outcome of this was that Mr. Crickmay, who was appointed to act as assessor for the Corporation of Plymouth, respectfully declined the appointment. The remainder of the report recorded the election of Mr. H. G. Luff (Devonport) to the vice-presidency of the Society, and the election of Mr. Priestley Shires on the Council; the interesting visit to Oxford in June; the viewing of the new Palace Theatre, by the invitation of Messrs. Wimperis & Arber; and the hospitality of Mr. James Hine, ex-president of the parent Society and ex-president of the Devonshire Association, in entertaining members at Launceston; congratulations were offered to Mr. G. H. Fellowes-Prynne, who was this year guiding the affairs of the Architectural Association of London; to Mr. Harbottle Reed, hon. secretary at Exeter, on his success as the Grissell gold medallist for 1898; and to Mr. M. Alton Bazeley on his election to the Plymouth County Council; and expressed the hope that many of their members would in future endeavour to secure some of the very valuable prizes and travelling studentships in connection with the Royal Institute of British Architects.

In moving the adoption of the report, the Chairman said that during the heat of the recent municipal elections, a member of the Plymouth County Council attacked their profession generally, in stating they had formed themselves into a kind of trades union in order to bring undue pressure to bear upon the Council in connection with the Tavistock Road competition, that their action had considerably delayed the progress of the work, and that altogether they had placed themselves in a position which was not one of credit to them as professional men. That was answered very fully at the time, an anonymous letter appearing in the newspapers in reply to Alderman Radford's charge, while at ward meetings Mr. Bazeley was able to deal

with it. He was very anxious that the action they took at that time should be clearly understood. It was not an aggressive action. Proceeding to detail fully the circumstances, the Chairman remarked that the competition was, in the first instance, confined to architects practising in Plymouth, and the premium was fixed at 150*l.*, to be awarded by the special works committee. The unfair nature of the competition was recognised by the whole of the profession, some of the strongest remarks coming from the youngest members, and they were represented to the committee. The committee subsequently replied that they were willing to increase the premium to 250*l.*, but must retain the assessorship in their own hand, and have possession of all the working drawings, which would enable anyone with any knowledge of the building trade to complete the work without professional assistance. As they declined to accept the conditions, the competition was thrown open at the premium of 250*l.*, the assessor to be appointed by the President of the Royal Institute of British Architects, which the committee had previously refused to grant. Throughout it all they kept quiet, and had not made any fuss or represented themselves to be injured parties, but had simply adhered to their position, that as professional men they could not possibly accept the terms laid down. Their action was endorsed by the Royal Institute of British Architects and by the Council of the Devon and Exeter Society. Throughout the correspondence they had made a point of being as courteous and conciliatory as possible, and had recognised and acknowledged that the Council had shown them a kindness in the first instance by limiting the competition to Plymouth. He was anxious that in regard to anything transpiring in the future out of their action they should act as reservedly as they had done in the past. Very likely a few younger members of the profession would like them to act more aggressively; but it would be wiser and more judicious to follow the line already taken, so that whatever might be the outcome of the competition, they would be able to show they had simply done their part, and what they believed to be their duty in placing the profession generally on its proper basis in the mind of the public.

Mr. Dwelley, who remarked that the stand taken was a perfectly right one, seconded, and the report was adopted. The report of the treasurer, showing a balance in hand, was also passed, on the motion of Mr. Bazeley seconded by Mr. Richards.

The Chairman flatly contradicted the assertion that Mr. Bazeley was nominated in their interests to represent their views in the Council. As a body they knew nothing, and personally he was unaware of Mr. Bazeley's candidature until it was announced.

Mr. Priestley Shires observed that their recent attitude towards the Corporation was of not merely local interest, and would have an effect upon other municipalities and competition promoters. It was rare for architects to be so united as they had been over that question.

Some discussion followed as to the desirability of inducing more interest in the Society on the part of younger members, and it was also agreed to hold a dinner next month.

SOCIETY OF ANTIQUARIES OF SCOTLAND.

THE first monthly meeting of this Society for the present session was held in the library at the National Museum of Antiquities, Edinburgh, on Monday evening, Professor Duns, D.D., in the chair. The first paper read was a notice of the Priory Church of Ardchattan and its carved stone monuments, and of a group of carved slabs on the island of Inishail, Loch Awe, by Mr. Robert Brydall, F.S.A.Scot., of St. George's Art School, Glasgow. There seems to have been an early religious settlement at Ardchattan, probably founded by St. Chattan, about a century after St. Columba. The priory for Benedictine monks is said to have been founded by one of the Macdougals of the De Ergadia family, about 1230. Of the priory church and the monastic buildings but few architectural features are left, and the chief interest of the place lies in its ancient monuments, which though frequently referred to, have not been previously described and illustrated in detail. One fragment of a cross-shaft shows the ancient arms of the Macdougals on one side, and on the other a finely floriated pattern, resembling that on the tombstone of the Four Priors at Iona, and from a partially illegible inscription is supposed to commemorate a Macdougal prior of Ardchattan. Another monument, in the form of a very finely carved coffin-slab, commemorates the sons of Somerled Macdougal, Duncan and Dugal, successive priors of this monastery, together with their father and mother and their brother Allan, and adds that Dugal, the maker of the monument, died in 1502. The inscription goes round the margin, and one line crosses the stone in the middle, dividing the carved surface into an upper and lower half. In the upper half are three panels, each containing a figure in a Gothic canopy. In the centre is a skeleton figure emerging from the grave-clothes arranged round it as an ellipse. A very remarkable feature is the clearly-cut figure of a toad placed between the femoral bones. On either side is a figure habited in the dress of a religious order, in attitudes of grief. The three panels in the lower half of the stone also contain figures. At one side is a warrior wearing a pointed bassinet with a camail and a quilted surcoat, and holding a claymore. In the centre is the figure of a lady in fifteenth-century costume, and at the other side a knightly figure clad in armour appearing in Lowland effigies of about the middle of the fifteenth century—a rare type on West Highland monuments. The figures on this stone are unusually well designed, and better executed than the generality of the work on other monuments in the West of Scotland. Another interesting monument here is a cross-shaft of much earlier date, with ornamentation of divergent spirals, interlaced work and fretwork, recalling the style of the illuminations of the best Celtic manuscripts of the Gospels, like those of the Books of Kells and Durrow. A number of other monuments were described, and drawings of all the more important of the groups of carved stones, both at Ardchattan and on the island of Inishail, in Loch Awe, were exhibited. Drawings of the cross on Inishail and a photograph of an outlined rubbing of the cross-slab at Ardchattan were also exhibited by Mr. J. Romilly Allen, with remarks on the ornamentations.

In the next paper, Dr. D. Christison, the secretary, gave an account of the results of the excavation of the fort on Castle Law, near Abernethy, Perthshire. The excavation of this fort had been carried on for about three years in their leisure time by two residents in Abernethy, Mr. Alexander Mackie and Mr. James Marr, and when recently visited by Dr. Christison and Mr. Balfour Paul, on behalf of the Society, it was seen that one of the most interesting forts ever brought to light in Scotland had thus been unearthed, and by the aid of the Society the excavation was completed last summer. The position of the fort on a terminal spur of the Ochils is strong by nature, and the defences being substantially built of stone, give an impression of unusual solidity and strength. The shape is an oval, of 136 by 51 feet, enclosed by a wall varying from 18 to 25 feet in thickness, and still standing to a height of from 5 to 8 feet, although before the excavation was begun the whole of the structure was concealed under an almost level green sward. An outer wall, nearly of the same size, fortifies the end which is not protected by the steep hillsides. Both walls are dry-built, but have been ingeniously strengthened and bound by logs of wood built into the substance of the wall, both longitudinally and transversely. The wood has completely decayed and the spaces in the face of the wall formerly filled by the ends of the transverse logs now appear like rows of port-holes about 2 feet apart, while the spaces left by the decay of the logs laid longitudinally appear like channels running lengthwise along the wall in the midst of the rubble. This system of construction had been observed previously in the cases of two stone forts in Scotland—Burghead and Forgandenny—and is not uncommon in the Gaulish forts in France. It was a curious fact that neither at Forgandenny nor at Castle Law was there any indication of an entrance-way through the part of the wall that remained standing. The access must therefore have been either over the wall or through a gateway at some height above the base of the wall. For water supply they had the small loch below the hill, and had also a rock-cistern within the fort. The relics found during the excavation, as described by Dr. Joseph Anderson, consisted of a finely polished stone axe and two lamps of stone, a bracelet and a ring of jet, a deer-horn handle of a knife or dagger, a spiral finger ring of bronze and a bronze fibula or safety-pin of pre-Roman Iron Age type, a number of fragments of iron implements much corroded, some pieces of very rude pottery and two sling bolts of burnt clay.

In the next paper Mr. Thomas Wallace, Inverness, described a number of antiquities of various kinds which he had examined in Enzie, Banffshire. Among them was a stone cup found on the farm of White Stripe, which had its under side grooved by use in sharpening pointed tools. Two stone circles on the same farm had been destroyed and the stones used in building the farm-steading and in improving a ford. At Gollachy he noted a bronze axe and a fine flint arrowhead found in the same field, and at Presholme a bronze axe and spear-head from the same district.

In the last paper Dr. Joseph Anderson called attention to a Highland brooch of silver, ornamented with niello, which was lent for exhibition by Mr. T. S. Omond, and had been brought from the neighbourhood of Inverness to the late Dr. Traill many years ago. Its large size and elaborate ornamentation on both sides made it specially interesting as a fine example of a kind of artistic work in silver and niello which was once common in Scotland, though now extinct. He also described a set of three jet buttons found in association with one of two Bronze Age burials, discovered in excavating for a water supply at Keith Marischal, East Lothian.

Sheriff Mackay described a silver seal of Thomas de Rede, bearing a chevron between three branches or reeds, supposed to have belonged to one of the Redes of Redesdale, and now presented to the Museum by Miss Langland.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last at Conduit Street, Mr. G. H. Fellowes-Prynne, president, in the chair.

Mr. W. Milner was elected a member of the Association.

It was announced that the lectures on "Drainage and Water Supply" by Mr. Max Clarke would commence on January 5, 1899.

Mr. Edwin T. Hall read a paper on

The Position of Architecture among the Fine Arts.

The subject on which I essay to address you this evening is one of so wide a range, a subject on which so many books have been written, that I cannot hope to treat it fully in the limited time at our disposal, but only rather to suggest matter for reflection; and I must at the outset ask your kindly and patient consideration for my shortcomings.

In approaching a subject like this one is at once face to face with the necessity for definitions, and the two at the base of our fabric are:—What is fine art? What is architecture?

I suppose we are so used to these terms that we feel rather a shock in being asked if we really understand what we confusedly know. Fine art has been defined as that power whose great end is to give pleasure, and the pleasure we have in contemplation is the higher or intellectual to the exclusion of the lower and sensual. The vehicles by which this higher pleasure is conveyed to us are of course the senses, so that we get sensuous and intellectual, or reflective pleasure. By hearing and by seeing fine art is appreciated, and the pleasure it affords is the greater in proportion to its permanent retention by the intellect, and in proportion to the tranquillity with which it is so conveyed.

Fine art has been also defined as the representation of an intended idea, the expression of an idea in matter, while the ideal in art is the rejection of a rude and crude act to illustrate an emotion and the selection of a more subtle and poetic mode of illustrating the idea.

The definition of architecture varies almost with every writer on this subject, and one is sometimes appalled to hear the courage with which a young architect speaks, and, with the confidence begotten of enthusiasm, lauds this building as good architecture, and decries that as devoid of architecture. What is this art of architecture? Mr. Ruskin says in one place "it is a science of feeling more than of rule," in another it is that which "taking up and admitting as conditions of its working the necessities and common uses of the building, impresses on its form certain characteristics visible and beautiful, but otherwise unnecessary." So that in his view architecture is a gloss separate or separable from the building.

Mr. Fergusson defines architecture as "the art of ornamental and ornamented construction." To emphasise this he says that in a building it is the art of the engineer which consists "in selecting the best and most appropriate materials and using them in a scientific way, and where the engineer leaves off the art of the architect begins." In other words, the planning and the constructional design of the building are works anterior to the "architecture" of it, this being a superimposed ornament. Indeed, he gives us an illustration of a building, and shows how he adds architecture to it. M. Viollet-le-Duc takes a different view. He says, "Architecture and construction must be taught together. Construction is the means, architecture the result. Architectural construction is the employment of materials according to their quality and their adaptability with the idea of satisfying a want by the most simple and solid means, giving to the constructed object the appearance of durability and proper proportion subject to certain rules imposed by the senses, reason and human interest." Briefly, a building must be devised by one mind so using construction as to result in a work of architecture described as having specified æsthetic properties.

Mr. Eidlitz's definition is less involved than that of M. le-Duc, and carries the point further. He says, "Architecture is the art which models buildings, which teaches the development of structural forms, the word development comprehending the continuous evolution of architecture as distinguished from its crystallisation into styles.

Mr. Statham, in his recent work on "Architecture and the Poets," defines architecture "from one point of view as the realisation of an imaginative conception in composition and outline; from another as the craft of building."

The first part of this, it seems to me, is well stated, and it might be added that the architect sees mentally the completed building beyond and through the veil of his drawings. The latter definition, however, appears to me to be involved in the former, because, as Viollet-le-Duc says, the craft of building is merely the means used to attain architecture, which is the end. A drawing can never faithfully represent a building; the depicted block lacks density and an aerial separation from its surroundings. To us who pass our lives among drawings they become a sort of shorthand, and are intelligible in a way they can never be to the uninitiated.

Hegel defines a work of art as the interpenetration of matter and thought. Viewed in this light, the matter in an architectural production is so relatively massive and intractable that to penetrate it with thought is the goal for which we must laboriously aim, and he who can subordinate the material to the mental in such a production is entitled to rank as an artist, and to rank higher than other artists in proportion to the difficulties of the material in which he has to express his ideas as compared with those in which they have to work.

Having endeavoured shortly to put before you some conceptions of fine art and architecture, I will ask you to consider with me the relations of the fine arts one to another in their mode of expression, and from this to endeavour to find what is the best rule of life which will help us most to carry forward the banner of our own art.

We shall speak of the arts of music, poetry, the drama, painting, sculpture and architecture. Of these painting, sculpture, poetry and the drama are imitative, music and architecture creative.

As ideas in art must be expressed in language understanded of the people, it is essential to convey the artist's meaning by depicting something in imitation of or based on principles observed in nature, that is in real life. That this is done in painting, sculpture and the drama is self-evident, but it is also the same in poetry. The poet's conceptions are descriptive of man or of some other work of nature, and the vivid portrayal of the scene or effect desired is a measure of the artist's power. Thus in the "Iliad" and Odyssey," Homer's gods and warriors and women are pictures appealing to us by our power to realise them, and the more subtle pictures of poets' thoughts are conveyed by imitating that which we can grasp from general knowledge.

All the imitative arts may raise the subjects they depict from the commonplace to the ideal, and the abler the artist the greater his success in this direction.

Music has nothing to imitate. It is a spontaneous creation, and it may convey to the mind suggestions of anything or everything in nature.

It is probable that music of a kind is almost as old as speech, and we know that at least thousands of years ago musical instruments were used. There are representations of such instruments on Egyptian monuments, and we have descriptions of them in elaborate variety as in use in Assyria and Babylonia.

The European music of to-day, the opera, the oratorio, are but a few centuries old. These originated in the fifteenth or sixteenth century, at the time of the great Renaissance. From the exhibitions we had in London a few years ago of Japanese music, it would seem that in the extreme East no such development has taken place. That music is but a rhythmic cadence of few tones.

Here it has attained such a development that it speaks to us in a language of its own, quite apart from words. It portrays all emotions. But it seems to me it differs from all other arts, in that it is almost incapable of pandering to the lower passions.

It is perfectly true that, used with the accompaniments of words and dramatic action, it may and does minister to sensual taste; but alone it breathes a purer air and tends always to refinement.

Luther says, "Music is the grandest and sweetest gift of God. Satan hates music; he knows how it drives the evil spirit out of us." And many of us can speak of our own experience how often in the battle of life, when we have been almost in despair, music has calmed and softened and elevated us, faith and courage have revived, and we have been re-nerved to greater exertion.

Poetry would appear to be of later origin than music, in that its aim has been to depict that which pre-existed in the human history, or prophetically to discourse of that which is to be. It is the adornment of expressed thought in any form. We recognise it in descriptive histories, and probably no more poetical piece of writing can be found than the Book of Job, written many centuries before Christ. It is a book which Mr. Froude, the historian, goes so far as to say "will one day perhaps, when it is allowed to stand on its own merits, be seen towering up alone, far away above all other poetry in the world."

The influence of poetry on the race is diverse. It may exalt or elevate the soul, it may debase it. Poetry, being a form of speech, can be artistic while it panders to the lowest of our natural appetites.

The drama is a form of poetry depicted by action. Whereas the epic poem appealed to the ear, the drama appealed to

eye and ear by a more vivid and realistic representation, exciting more profoundly the interest of the audience. In historical sequence it was later than either music or poetry. Probably its date is the sixth or seventh century B.C. Its influence is great, but it is evanescent. It is an acted sermon whether its aim be high or low. It is taken not as daily food, but as an occasional tonic.

We now come to that art which is primarily the subject of our consideration to-night, and as such we must consider it in greater detail than the other arts. I propose to consider it together with the sister arts of painting and sculpture, as they have been so intimately associated with it.

When the necessity first arose for man to build in order to protect himself from the elements or his natural enemies, his buildings would take their form on strictly utilitarian lines, using the material readiest to hand. Thus in a timbered district a conical hut of wattles covered with leaves would be the first form of shelter—suggested by the drooping branches of a tree—and in an arid or stone district the earliest form would be doubtless the excavation of a hole under a large flat surface slab, the sides of the excavation being lined with stones to support the edges of the large slab and prevent it slipping or causing the earth on which it rested to give away under its weight. Many such can be seen in Brittany to-day.

As the family or clan increased and with its increase the feeling of greater security obtained, the wattle hut would give way to the larger timber room, and the burrow would be replaced by the building up of stones above the earth to form a walled enclosure.

The existence of large flat stones would suggest the formation inside the enclosure, against its outer walls, of a portion covered with flat slabs supported by pillars of stone on the inside, and this feature in principle is preserved to this day in the cloister or ambulatory of courtyards and ecclesiastical buildings in the West, as well as in the older buildings of the East.

In Iceland a large native house is now but a series of detached wooden rooms joined together by a corridor.

The high-pitched roof arose in countries of heavy snows, and a wise conservatism retains it in variable climates. The accessible flat roof belongs essentially to the tropics or hot climates, its purpose being to afford opportunities for getting the greatest amount of air by day or by night.

Architecture was born when, in the contemplative mood of leisure, the man of the stone enclosure began to reflect that the pillars of his colonnade might be arranged not at the distances necessary to support the various sized stone slabs which came readiest to hand and were used as covers, but at regular intervals, selecting his cover stones to suit, and that he might reduce the rude outlines of his pillars to regular shapes; and the man of the timber house began to think that he might, instead of having a lot of detached rooms, put them together under one roof, and when they were so joined might remove the separating walls of some and place pillars in their stead.

Gradually with the process of political and social education which taught him and his neighbours to live in mutual dependence would come the recognition of the necessity for order and organisation, and these applied to the home would develop the architectural faculty of convenient planning, and so on until the rude congeries of rooms would become an architectural entity, symmetrical and rhythmic, and thus would be evolved what Fergusson calls "the æsthetic form of the technic art."

A further development would arise when assured of the stability of the commonwealth. Man, in contemplating the grandeur of nature, the sublimity of its outlines, the mystery of its forests, the dignity of its rocky terraces, the massing of its lights and shades, would reflect on the mysterious powers which dwell in these, and on the laws which control the seasons and the storms, and a desire would arise in him to do honour to the Unseen Author of these mysteries by erecting a temple. In such a building the narrow limitations of domestic life would have no place, and the architect, attuning his mind to this great Author, and finding within himself a reflex of that Author—a creative power—would reverently set himself to produce a work which should, in however dim a fashion, reflect the emotions with which nature and his subject had impressed him.

In such a structure there would be no place for the lighter moods of life. The predominant key would be dignity; its harmonies repose, mystery and symbolism; their combination appealing to mankind in its contemplative mood, conveying an expression, as Ruskin calls it, "often serious and sometimes melancholy—an equivalent for the sorrow, trouble and mystery of human life." It is by gradual process we thus see the art of architecture vivifying the dry bones of construction and making them live and speak. This spirit once aroused would permeate the world.

The palace would come next, in which the oratorio would be replaced by the opera, expressive of the various phases of life. The broad outlines of the structure would be representative of the dignity of life as a whole. Subordinated to this, the various parts would appropriately express the lighter moods.

In the temple the mysterious attributes of the Deity would be symbolised and the phases of His worship expressed. In the palace the glory of the man would be emphasised and enhanced, so that the stranger should be impressed with his majesty and importance. The enclosure would mark that the king's abode was set apart. Through its stately portals, as through a frame, the eye would be led to contemplate the picture within, and a visitor conducted for the first time through its courtyards and vestibules, its colonnades and halls furnished with the pomp of armed guards, the peopled bustling of a busy place, would be emotionally affected, his senses impressed and his mind prepared by the time he reached the hall of audience to render homage to the master mind. The effect I have endeavoured to sketch is recorded of the Queen of Sheba when she had been conducted through King Solomon's palace and had seen its magnificence, "There was no more spirit in her."

From the palace the spirit of architecture would through the ages percolate downwards, its steps growing slower and its form attenuated as it receded from the centre of wealth and leisure, of culture and refinement, until it would evaporate at the abodes of grinding poverty, at the factory where Mammon alone was worshipped.

And here parenthetically I would dare to dissent entirely from Mr. Ruskin where, in the "Seven Lamps," he inveighs against the external artistic treatment of trade premises. He says you must not mix architectural ornament with business, but should only use it for places where you rest. I venture to affirm, on the contrary, that in the refinement of the tradesman's surroundings there is most hope for raising the artistic standard of his wares and fabrics, and indirectly of his customers. It seems to me that the external treatment of every building is a matter of the deepest concern to the man in the street; indeed, every building owner in a city should be encouraged to recognise his responsibility in the architectural treatment of his building as part of the whole street, just as in his moral conduct he has a responsibility to the community.

Architectural ornament is to building as the leaves and blossoms are to the structure of a tree—an artistic development of the skeleton evidencing life—a perfecting. But, like the leaves, it should be characteristic of, and in harmony with, the structure within.

The relative position of architecture among the associated arts of painting and sculpture may be likened to the relation of trees to flowers. The trees are the more stately, the broad features which give dignity and masses of subdued tone to a landscape; the flowers the decorative colour and brightness.

The tree in its perfection is, so to speak, a part of the landscape. Painting and sculpture are more like the flowers of the earth, bright, poetical, refined. They must be examined near and in detail. They are the companions of leisure and of ease, while an architectural composition is for him who runs to read, for the virile man, the man of activity. So that for a monument to record a great victory or a national achievement, an architectural building is appropriately the medium almost universally chosen, while the sister arts are selected to record a pageant, an act in the great drama—in short, to depict the detail rather than the mass.

Architecture seeks to express the more permanent in nature; sculpture and painting the more evanescent, the ever changing.

The picture, too, has a frame to enclose it, to remind the onlooker of its limits. A work of architecture has its own proper place under the vault of heaven, and calls out that it is part of the actual.

Now, to be of any living and vitalising value we must bring home architecture to our daily life and surroundings. I ventured last autumn, in speaking to your President's address, to suggest a doubt as to the wisdom of teaching architectural history in the early stages of the Architectural Association curriculum, and proposed rather that the student's mind should be first trained to understand the principles of art and of design, not only by studio work but by the study of buildings, the history coming later when his trained mind would know better how to appreciate it. Shortly afterwards the Bishop of London, discoursing to teachers of the School Board on learning, said it was useless to start a child's education with the Witenagemote, and that it was better to teach him constitutional history by starting with the actual around him—with the policeman whom he knew—and from the present to lead him back step by step, by which means, said the Bishop, he could learn to appreciate history and so get back to the cradle of our constitution. I feel that is our best position.

We should strive to learn the principles constituting the basis of design and to apply the knowledge of construction we possess now—a knowledge wider far than any possessed by the ancients—to meet contemporary wants.

Do not suppose I am belittling the study of history or deprecating research. These are of immense value to an architect, but one may be learned in them and never be an architect.

Nothing is more cramping or sterilising to the mind than,

by becoming saturated with history, to become the slave of "style," be it Classic or Gothic or anything else.

To design in a recognised "style" is to arrest all art progress; to always seek for and follow a precedent, be it for grouping or outline, for planning or moulding, is the negation of art. It is living in the dead past, in a world whose aspirations, whose moral life, whose callings have but little relation to those of our day.

Mr. Fergusson tells us what are the "correct" proportions for a room; others what are the correct proportions of a column, of an entablature, &c. As Mr. Eidlitz very properly remarks, "If rules of proportion existed, and a knowledge of them enabled men to produce great architectural monuments, architecture would become a trade and not an art."

My younger friends will say all this is true, but so true that it is unnecessary to speak of it. But I would ask them to look around, to study the buildings only within the earlier years of this century, to read, when they have nothing better to do, the literature of the Battle of the Styles fifty years or so ago.

Mr. Ruskin in one place says we are unwise to build in any other style than that of the Pointed arch, "because it is the strongest in structure and a beautiful form, while the square head is both weak in structure and ugly in form."

The Egyptians and Greeks did not think this. They certainly knew of the arch. We have recently heard of the discovery of a brick arch in the tomb at Denderah erected 4,000 or 5,000 years ago, and yet the architects built their great monuments in the Trabeated style.

The fact is we are all inclined to worship the great achievements of the artists of the past, and to regard their work rather than the spirit and principles which underlay their work. Had our great Mediæval church builders been trammelled by precedent and style, how would their marvellous art achievements have been produced? We should never have had their masterpieces to glorify the land.

(*To be concluded.*)

TESSERÆ.

Chartres and Le Mans.

THE cathedrals of Chartres and Le Mans are about as unlike as any two great Mediæval churches well can be. Well nigh the only point of likeness is that each possesses a magnificent east end of the thirteenth century, of the usual French plan, with the apse, the surrounding chapels, the complicated system of flying buttresses. But at Chartres this east end is part of a whole. The crypt still witnesses to the days of Fulbert, the lower stages of the western towers to those of Adela and to those of John of Salisbury; but all the rest of the church, including of course all the interior, is of an uniform style and design. The church throughout follows the usual type of great French churches; the eye accustomed to the buildings of England or Normandy misses the central towers of Lincoln or of St. Ouen's, but Chartres is not in England or in Normandy, but in France, and its church is built accordingly. A fairer question of taste is raised by the unequal spires of the west front—a French feature again, but occasionally extending into Normandy and England, as at Rouen, Llandaff, Lynn and Canterbury as it was. But it is only in so long and varied a front as that of Rouen Cathedral that it is at all satisfactory. At Chartres the great south spire is modern and of iron, but we believe it very well reproduces the outline of the elder one of wood, and it certainly comes down heavily and awkwardly upon the towers and upon the roof of the church. The upper part of the north tower is frittered away with work of a later style. Still, allowing for the diversity of the towers, which of course does not appear inside, Chartres is a whole—a consistent, harmonious whole, of great, though we cannot think of first-rate excellence. How does such a whole stand as compared with a building of strange and, at first sight, unintelligible outline formed by the juxtaposition of two parts, each of admirable merit in itself, but which startle by their absolute contrast in every way? Chartres was made, Le Mans evidently grew; and different minds will be differently inclined in the comparison between a single harmonious work of art and a union of two buildings widely differing in date, style and proportion. But, on the other hand, it must be said that nothing at Chartres equals the parts of Le Mans taken separately, and that, in the inside at least, the incongruity of Le Mans is far from being felt in the unpleasant way that might have been looked for.

Reynolds's Influence on Portraiture.

Portrait-painting at the commencement of Sir Joshua's career was certainly in a very low condition. A general recipe for face-making with the greatest facility seemed to have been current throughout the country. Attitudes and looks were according to a pattern, and there was so great a family resemblance, however unconnected the sitters, that it might seem to have been intended to promote a brotherly and sisterly bond of union among all the descendants of Adam. Portrait-painting, which had in this country been so good, was in fact, with here and there an exception, and generally an exception not duly estimated, in a degraded state: the art in this respect, as in others, had become vulgarised. From this universal family-likeness recipe Reynolds came suddenly and at once successfully before the world with individual nature and variety of character, and portraits that had the merit of being pictures as well as portraits. He led to a complete revolution in this department, so that if he had rivals—and he certainly had one in Gainsborough—they were of his own making. The change is mostly perceptible in female portraits. They assumed grace and beauty. Our great-grandmothers were strangely vilified in their unpleasing likenesses. The somewhat loose satin evening dress, with the shepherdess's crook, was absurd enough, and no very great improvement upon the earlier taste of complimenting portraits with the personation of the heathen deities. The poetical pastoral, however, very soon descended to the real pastoral, and as if to make people what they were not was considered enough of the historical of portrait, even this took. Gainsborough probably was the first to sin in this degradation line, by no means the better one for being the furthest from the divinities. He had painted some rustic figures very admirably, and made such subjects a fashion, but why they should ever be so we could never understand, or why royalty should not be represented as royalty and gentry as gentry. Although Sir Joshua Reynolds generally introduced a new grace into his portraits, and mostly so without deviating from the character as he found it, dispensing indeed with the old affectation, we fear he cannot altogether be acquitted from the charge of deviating from the true propriety of portrait. Ladies as Miranda, as Hebe, and even as Thais, no very moral compliment, are examples—some there are of the lower pastoral. Mrs. Macklin and her daughter were represented at a spinning-wheel, and Miss Potts as a gleaner. There is one of somewhat higher pretensions, but equally a deviation from propriety, in his portraits of the Hon. Mistresses Townshend, Beresford and Gardiner. They are decorating the statue of Hymen; the grace of one figure is too theatrical, the others have but little.

Roman Work in France.

In France the interest and importance of Roman and of Mediæval remains are exactly the same in kind. Which is the higher in degree is a question which will be differently answered according to the respective tastes of different inquirers. Each alike is part of the continuous history of the country; no impassable gulf separates one from the other. Who can venture to say when the Roman style of building came to an end even in Northern Gaul? The masonry of many churches, down quite to the eleventh century, is still essentially Roman. No doubt a connoisseur in Roman art would despise it as very poor work when compared with work of the age of Augustus or even with work of the age of Constantine. But it is Roman work all the same; it is a style of masonry which had gone on in use without any break, without any one moment of change to divide one period from another in any marked way. In Gaul, in short, even in northern Gaul, "the Roman style" never actually died out till it merged in the latter style of the Middle Ages. So again in the South nothing is more curious than to mark, say in the great collection at Toulouse, the way in which the Roman sarcophagus gradually grew into the Mediæval tomb. There are all sorts of intermediate types, showing Roman forms of art—corrupted if anyone pleases, but still Roman and not anything else—going on after not only the Roman religion but the Roman dominion had died away.

Early Roman and British Roads.

The name of the first paviour, we fear, is unknown, unless we could identify him with Triptolemus, who was a great improver of Rhodes; but it is the fate of all the greatest benefactors of their kind to be neglected, and in time forgotten. The first regularly defined paths were probably footways—the first carriages broad-wheeled. No record remains of what materials were used for filling up the ruts; so it is likely in those simple times when Enclosure Acts were unknown that the cart was seldom taken in the same track. As houses were built, and something in the shape of streets began to be established, the access to them must have been more attended to. A mere smoothing of the inequalities of the surface over which the oxen had to be driven, that brought the grain home on the enormous plaustra of the husbandman, was the first idea of a street, whose very name is derived from stratum, levelled. As experience advanced steps would be taken to prevent the softness of the road from interrupting the draught. A narrow rim of stone, just wide enough to sustain the wheel, would, in all probability, be the next improvement; and only when the gentle operations of the farm were exchanged for war, and the charger had to be hurried to the fight, with all the equipments necessary for an army, great roads were laid open and covered with hard materials to sustain the wear and tear of men and animals. Roads were found to be no less necessary to retain a

conquest than to make it, and the first true proof of the greatness of Rome was found in the long lines of military ways by which she maintained her hold upon the provinces. We may be sure that no expense was spared in keeping the glorious street that led up her Triumphs to the Capitol in excellent repair. All the nations of the "Orbis Antiquus" ought to have trembled when they saw the beginning of the Appian road. It led to Britain and Persia, to Carthage and the White Sea. The Britons, however, in ancient days seem to have been about the stupidest and least enterprising of all the savages hitherto discovered. After an intercourse of four hundred years with the most polished people in the world, they continued so miserably benighted that they had not even acquired masonic knowledge enough to repair a wall. The rampart raised by their Roman protectors between them and the Picts and Scots became in some places dilapidated. The unfortunate natives had no idea how to mend the breach, and had to send once more for their auxiliaries. If such their state in regard to masonry, we cannot suppose that their skill in road-making was very great; and yet we are told that, even on Cæsar's invasion, the Britons careered about in war-chariots, which implies both good roads and some mechanical skill. We think it a little too much in historians to ask us to believe both these views of the condition of our predecessors in the tight little island; for it is quite clear that a people who had arrived at the art of coach-making could not be so very ignorant as not to know how to build a wall. If it were not for the letters of Cicero, we should not believe a syllable about the war-chariots that carried amazement into the hearts of the Romans, even in Kent or Surrey.

Standard of the Arts.

Art can never give the rules that make an art. This is probably the reason why artists in general, and poets principally, have been confined in so narrow a circle; they have been rather imitators of one another than of nature, and this with so faithful a uniformity and to so remote an antiquity that it is hard to say who gave the first model. Critics follow them, and therefore can do little as guides. We can judge but poorly of anything whilst we measure it by no other standard than itself. The true standard of the arts is in every man's power; and an easy observation of the most common sometimes, or the meanest things in nature, will give the truest lights, where the greatest sagacity and industry that slights such observation must leave us in the dark, or what is worse, amuse and mislead us by false lights. In an inquiry it is almost everything to be once in a right road.

A New Style of Architecture.

A mind educated in the knowledge of Italian and Gothic architecture, and afterwards admiring and teaching itself Norman and Romanesque art, must necessarily contain a strange medley of ideas, and find it most difficult in designing to free itself altogether from their influence; indeed, if actual originality is demanded in designing afresh, we had better not try, for into one of the established styles we must run. That one man should form an actual original style never has occurred, and probably never will occur; but he may lay the foundations for one, and in every alteration he makes from his model does so. If fancy and richness of design is needed, nothing can surpass Gothic and Moorish. The Florentine, Grecian and Palladian styles are severe enough for anything, but the intermediate style is wanting. Elizabethan is coarse and grotesque; Norman good, but rough and deficient in beauty. None of these can fix themselves into established styles; they are weighed and found wanting. No, nor can any style of the past be fitted entirely for the present, but they all fill up their allotted places in the museum of art, and as at the Natural History Museum we may see the gradual, nay imperceptible, change from a marmot to a lion, so in some future time will architecture stand as a complete system, of which each style forms only a separate link. Instead of Gothic architecture we shall have church architecture; instead of Italian, palatial; instead of Elizabethan, Grecian, Gothic, Egyptian, Romanesque, we shall have street architecture, railway architecture, bridge, shop, cottage and manufactory architecture.

Correspondence

Ketton Freestone.

Sir,—Our attention, as the solicitors of Lady Northwick, has been drawn to an article in your paper of the 2nd inst., page 16, in which you comment generally upon the alleged decay of the old Ketton freestone quarries, which belong to her ladyship, and observe that Major Braithwaite, an extensive landowner in Rutland, and whose property includes the village of Edith Weston, knowing that "the old Ketton quarries were about worked out," has opened quarries of his own in Edith Weston.

This is a *very gross misstatement indeed* as to the Ketton quarries, and the meagre explanation (if it can be called so) in your issue of the 9th inst. is an altogether insufficient way of meeting the matter. Not only are the Ketton quarries not worked out but they are in a most flourishing condition and producing more freestone than ever and of as good quality as ever, and only recently Mr. Thomas Caswell Molesworth has taken from Lady Northwick a mining lease for sixty years of 60 acres of ground in the centre of the parish of Ketton, the whole of which acreage, besides a very extensive area beyond, undoubtedly contains freestone of the same unexceptionable character as the quarries of Ketton have yielded for generations past. This lease has been expressly granted for the purpose of developing the Ketton freestone, and Mr. Molesworth has for some time past been engaged in laying down very costly machinery, in the fullest confidence that a greater development than ever will take place in this valuable stone.

It is a very grievous thing that such a statement as you inserted should be so recklessly made, and we have to call upon you to publish this letter, and not only so, but in common fairness to write an article in your next number, the 16th inst., contradicting your former statement, and expressing your regret for having inserted it.

It is hardly necessary to add that the publication of such a statement as you have made gives to our client and her tenants a legal right to substantial damages unless the method we have above proposed for counteracting its effect is complied with.—We are, yours faithfully, Curtler, Davis & Curtler.

Sansome Place, Worcester:
December 14, 1898.

[The statement we published came from a correspondent who has hitherto proved himself to be trustworthy. It was not the intention of the writer of the article, or of anyone associated with this Journal, to diminish the value of Ketton stone, or of the quarries from which the material was taken. The quality of the stone has been so well established for centuries that any attempt to affect the sale injuriously would be considered ridiculous by architects and builders. What was intended to be suggested, although it might not be as clearly expressed as is desirable, was that in case of any deficiency of supply of Ketton stone another excellent stone was obtainable in the district. In other words, the introduction of any reference to Ketton stone was intended to suggest quality, and not to discuss any question of quantity. All who have had experience in the use of Ketton stone, or have examined the old buildings in which it was used, will desire the quarries to be inexhaustible.—Ed]

GENERAL.

The City Lands Committee have obtained authority to retain the services as assessor of Professor Aitchison, R.A., at an honorarium of 400 guineas, in connection with the approaching competition in the designs for the rebuilding of the Sessions House, Old Bailey.

Mr. E. O. Sachs has installed the first section of the electrical stage appliances at Drury Lane Theatre. By its aid the finest terraces can be formed in a few seconds or the deepest caves arranged for underneath the stage by smply pressing a button. Whole scenes can be rapidly raisied or lowered, and transformations made with the greatest ease.

A Travelling Studentship of 50*l.* for the encouragement of the study of decoration is offered by the Painters' Company. It is open to competition by students between the ages of twenty and thirty-five in any recognised school of art or other institution devoted to the study of applied art in any form, and situate within the limit of the larger metropolitan postal area. Particulars may be obtained from the clerks, Painters' Hall, 9 Little Trinity Lane, E.C.

A Local Government Board inquiry was conducted at Herne Bay on Saturday on the application for a loan of 40,000*l.* required for the renewall of the sea-wall and parade there, which was so extensively damaged in the great gale in November of last year. The clerk to the Council, in the course of his evidence, said damage was at that time caused to the whole of the sea-front and the lower part of the town, some 200 houses being affected. The sea-front was temporarily repaired at a cost of 700*l.* It was explained by Mr. Baldwin Latham that the new sea-wall would be 1,924 yards long and 20 feet to 25 feet high, being so constructed that it would allow of the promenade being widened by 15 feet. Evidence in support of the scheme and in opposition having been heard, the inquiry was closed.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

BRADFORD.—Jan. 2.—Designs are invited for erection of a central fire-brigade station. Three premiums are offered, viz. 100*l.*, 50*l.* and 30*l.* Mr. George McGuire, town clerk, Bradford.

BURNLEY.—Jan. 14.—The Burnley School Board invite designs for a new higher-grade school and pupil-teachers' centre, to be erected in Ormerod Road, Burnley. Competition is limited to architects having offices within 60 miles of Burnley. Mr. E. Jones, clerk, Town Hall, Burnley.

HARROGATE.—Jan. 2.—Competitive designs are invited for erection of a pump-room, &c., the cost of which must not exceed 8,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* Mr. Samuel Stead, borough surveyor, Municipal Offices, Harrogate.

HULL.—Jan. 1.—Designs are invited in competition for a central public library in Albion Street. Premiums 50*l.*, 30*l.* and 20*l.* Mr. Sidney R. J. Smith, 14 York Buildings, Adelphi W.C.

CONTRACTS OPEN.

ANTRIM.—For erection of a pair of villas at Whitehaven, co. Antrim. Mr. John Russell, architect, 16 Waring Street, Belfast.

ASHTON-UNDER-LYNE.—For erection of school buildings, Newmarket Road, Taunton, Ashton-under-Lyne. Mr. Thomas D. Lindley, architect, Market Avenue, Ashton-under-Lyne.

BARNSLEY.—Dec. 19.—For erection of three houses, with outbuildings and boundary walls, at Wombwell Junction. Mr. John Robinson, architect, Wombwell.

BARNSTAPLE.—Dec. 21.—For alterations and additions to Imperial Hotel. Mr. W. C. Oliver, architect.

BELFAST.—Dec. 20.—For erecting dressing-rooms, stores, &c., at the probationary wards of the workhouse. Messrs. Young & Mackenzie, architects, Donegall Square East.

BELFAST.—Dec. 21.—For erection of a Methodist church, Ballymacarrett. Messrs. J. J. Phillips & Sons, architects, 61 Royal Avenue, Belfast.

BICESTER.—Dec. 20.—For erection of an additional class-room at the Crockwell infants' school. Mr. J. F. Jones, Littlebury, Bicester.

BIRKENHEAD.—Jan. 3.—For erection of pay gates and buildings at the entrance at Rock Ferry Pier. Mr. Charles Brownridge, borough engineer, Town Hall, Birkenhead.

BIRMINGHAM.—Dec. 23.—For erection of printing and publishing offices and shops at the corner of Church Street and Cornwall Street, for the *Midland Sporting News*. Messrs. Owen & Ward, architects, 71 Colmore Row, Birmingham.

BLACKPOOL.—Dec. 20.—For erection of platform, platform roofing, cab approach from Chapel Street, &c., at Central Station, for the Lancashire and Yorkshire and London and North-Western Joint Railways. Mr. C. W. Bayley, secretary, Hunt's Bank, Manchester.

BRADFORD.—Dec. 20.—For erection of stabling for eleven horses, loose and sick boxes, harness-room, coach-house, cart-shed, &c., at Pannal Street, Great Horton. Messrs. John Drake & Son, architects, Queensbury.

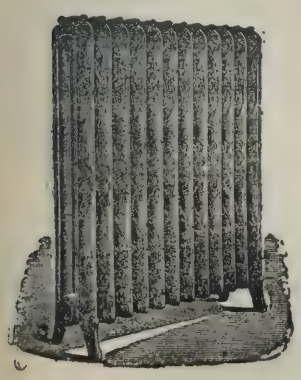
BRIDLINGTON.—For erection of two houses in St. John's Walk. Mr. David Petch, architect, Victoria Chambers, Huntriss Row, Scarborough.

BRIDLINGTON QUAY.—Dec. 19.—For altering 34 Queen Street. Messrs. Brodrick, Lowther & Walker, architects, Central Chambers, Bridlington Quay.

BURY.—For additions and alterations to mill in Wash Lane. Messrs. James Sellers & Son, architects, Union Chambers, Bury.

COLCHESTER.—For extension of the Colchester Steam Laundry. Messrs. Oliver & Dodgshun, architects, Carlisle.

CRANFORD.—Dec. 30.—For alterations and repairs to the Dockwell isolation hospital, near Cranford, Middlesex. Mr. F. C. Greville-Smith, clerk to committee, 172 High Street, Hounslow.



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DARTMOUTH.—Dec. 24.—For ventilating, painting and repairing the Guildhall and offices. Mr. T. O. Veale, surveyor, Castle View House.

DARTMOUTH.—Dec. 31.—For erection of stone boundary walls and public latrines on the reclaimed land, North Parade and Mayor's Avenue. Mr. T. O. Veale, surveyor, Castle View House, Dartmouth.

ELLAND.—Dec. 17.—For alterations to the Royal hotel. Mr. Raymond Berry, architect, Arcade Chambers, Commercial Street, Halifax.

FAREHAM, HANTS.—Jan. 16.—For erection of brick, steel and concrete superstructures of infirmary walls, sanitary blocks, boiler-house, tall chimney shaft and other works connected therewith, at the County Lunatic Asylum, Knowle, Fareham. Mr. W. J. Taylor, county surveyor, the Castle, Winchester.

FLIXTON.—Dec. 27.—For constructing two tanks, each 130 feet long, 18 feet wide and 10 feet deep, at the sewage farm, Irlam Road. Mr. Hooley, Council Offices, Urmston.

FYLINGDALES.—Dec. 20.—For erection of a seaside cottage at Fylingdales, near Robin Hood's Bay. Mr. Jas. Ledingham, architect, District Bank Chambers, Bradford.

GLASGOW.—Dec. 21.—For construction of latrines at Camphill. Mr. A. B. M'Donald, city engineer, City Chambers, Cochrane Street, Glasgow.

HALIFAX.—Dec. 19.—For erection of business premises and house in King Cross Street. Mr. C. F. Thompson, architect, The Arcade, Lancaster.

HALIFAX.—Dec. 23.—For erection of block of semi-detached houses near Stump Cross, Shibden. Mr. Joseph F. Walsh, architect, Lancashire and Yorkshire Bank Chambers, Halifax.

HARROGATE.—For erection of four houses, Park Avenue. Messrs. Bland & Bown, architects, North Park Road, Harrogate.

HEREFORD.—Dec. 28.—For erection of two new blocks and other additions at the Hereford County and City Asylum, at Burghill. Messrs. Giles, Gough & Trollope, architects, 28 Craven Street, Charing Cross.

HUDDERSFIELD.—Dec. 21.—For erection of two shops and dwelling-houses in Fartown Green Road, Fartown. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

HUDDERSFIELD.—Dec. 23.—For alterations and additions to the Boot and Shoe inn, and erection of cottages, &c, at Birchencliffe. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

LEAMINGTON.—Jan. 2.—For erection of entrance lodge to Victoria Park. Mr. Frederick G. Cundall, 41 Parade, Leamington.

LEICESTER.—Dec 23.—For erection of working-class dwellings in Winifred Street. Mr. T. H. Fosbrooke, architect, Market Street, Leicester.

LONDON.—Dec. 22.—For sundry repairs, &c, at the casual wards, Great Guildford Street, S.E. Mr. G. D. Stevenson, architect, 13 and 14 King Street, E C.

LOUGHBOROUGH.—Dec 20.—For erection of club premises in Baxter Gate. Mr. W. T. Hampton, Swan Street, Loughborough.

LOWER EDMONTON.—Dec. 20.—For erection of infants' school at Eldon Road. Mr. John Moule, clerk, School Board Offices, Upper Edmonton.

LUTON.—Dec. 19.—For alterations at the Chapel Street Board school. Messrs. Brown & Son, Market Hill, Luton.

MICKLEOVER.—Jan. 9.—For erection of two new wards and sundry other works at the Derby County Asylum at Mickleover, near Derby. Mr. J. Somes Story, county surveyor, County Offices, Derby.

NEWCASTLE-ON-TYNE.—For erection of a shed. Fownes Forge and Engineering Company, Limited, St. Bede Works, Tyne Dock.

NEWCASTLE-ON-TYNE.—Dec. 19.—For pulling-down and rebuilding Hutchinson's Buildings. Messrs. Joseph Potts & Son, 57 John Street.

NOTTINGHAM.—For erection of a terrace of five houses in Scott's Street, Bulwell. Mr. Fred C. Martin, architect, Angel Row, Nottingham.

NOTTINGHAM.—For alterations and additions to new premises, Long Row. Mr. C. Nelson Holloway, architect, Newcastle Chambers, Angel Row, Nottingham.

NOTTINGHAM.—Jan. 3.—For erection of superstructure of the workhouse. Mr. Arthur Marshall, architect, King Street, Nottingham.

PORTSMOUTH.—Dec. 19.—For erection of stands, &c., on the Portsmouth football and athletic ground at Fratton. Mr. Alfred H. Bone, architect, Cambridge Junction, Portsmouth.

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RAINHILL.—Dec. 22.—For additions and alterations to the church in the grounds at the County Asylum. Mr. Jas. Gornall, clerk and steward, Rainhill.

SCOTLAND.—Dec. 19.—For erection of house, shop and bakery in Queen Street, Brandenburgh. Mr. John Milne, architect, Elgin.

SCOTLAND.—Dec. 27.—For additions and alterations at Morebattle parish church. Mr. James Henderson, heritors' clerk, Morebattle.

SELBY.—Jan. 11.—For erection of public baths. Messrs. W. Hanstock & Son, architects, Branch Road, Batley.

SHEFFIELD.—Dec. 24.—For building wall round land for additional burial-ground at Wales. Rev. G. L. M. Rees, the Vicarage, Wales, near Sheffield.

ST. PANCRAS.—Dec. 22.—For erection of two chapels at the workhouse, King's Road. Messrs. A. & C. Harston, architects, 15 Leadenhall Street, E.C.

SUSSEX.—Dec. 30.—For erection of an engine-house, boiler-house, coal store, chimney shaft and dwelling-house at the site of their new works in the parish of Denton, for the Newhaven and Seaford Water Company. Mr. F. S. Courtney, architect, Broad Sanctuary Chambers, Westminster.

SWANSEA.—Dec. 19.—For additions and alterations to Waunwen Board school. Mr. G. E. T. Laurence, architect.

WADEBRIDGE.—Dec. 27.—For alterations, additions and repairs to the Commercial hotel. Apply to the Manager at the hotel.

WALES.—Dec. 22.—For erection of a carriage bridge over river Dee at Corwen. Mr. H. Croom Johnson, engineer, Egerton Street, Wrexham.

WALES.—Dec. 27.—For erection of county police buildings, Blaenau Festiniog. Mr. T. Taliesin Rees, architect, Hamilton Chambers, Birkenhead.

WELSHPOOL.—Dec. 21.—For alterations to premises, Broad Street. Mr. Frank H. Shayler, architect, Welshpool.

WEST HAM.—Jan. 7.—For enlargement of hospital at Southern Road. Mr. Edwin T. Hall, architect, 57 Moorgate Street, London, E.C.

WHITBY.—Dec. 21.—For construction of a wall to enclose the semicircular area of grass, &c., opposite the quadrant forming Royal Crescent, and the corresponding quadrant unbuilt upon. Mr. Thos. Keat Scott, surveyor, Whitby.

WHITEHAVEN.—Dec. 21.—For erection of two semi-detached dwelling-houses at Padstow. Mr. J. S. Moffat, architect, 53 Church Street, Whitehaven.

WHITEHAVEN.—Dec. 24.—For rebuilding 8 King Street. Mr. J. S. Moffat, architect, 53 Church Street, Whitehaven.

WILLENHALL.—Dec. 30.—For supply and erection at new cemetery, Bentley, of a span-roof greenhouse, 30 feet by 12 feet, with glass frame, and complete with heating apparatus. Mr. Chas. J. Jenken, engineer, Town Hall, Willenhall.

WINDERMERE.—Dec. 27.—For erection of Urban District Council offices. Mr. Robert Walker, architect, Windermere.

TENDERS.

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For erection of a post office at Arbroath.

Calder Bros.	£4,199	0	0
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Christie & Adamson	3,627	0	0
D. ADAMSON, 38 Yeaman Street, Forfar (*accepted*)	3,500	0	0

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For erection of a country house, stabling, lodge, drainage, road-making, &c., at Baildon. Messrs. ISITT, ADKIN & HILL, architects, Prudential Buildings, Bradford

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Slater & Son, Leeds, plumber	1,779	0	0
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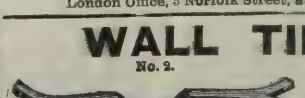
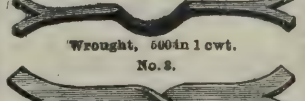
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For construction of about 450 yards of 9-inch pipe sewer, with sewage tank, manholes, &c, in Ramsey. Mr. T. W. GOLDS, surveyor, Landermere Road, Thorpe-le-Soken.

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T. Moran	225 0 0
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T. CANHAM, Weeley, Colchester (*accepted*)	196 0 0

HAWORTH.

For erection of sixteen houses at Mytholmes, near Haworth. Messrs. JOHN JUDSON & MOORE, architects, Keighley.

Accepted tenders.

Bottomley & Sutherland, contractor.
J. Hartley, joiner.
J. Greenwood, plasterer.
W. Thornton, slater.
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Accepted tenders.

J. Brown, Bingley, excavator, mason and bricklayer.
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For providing halls for boys, girls and infants, reseating and re-lighting class-rooms in existing school, boys' staircase, providing cloak-rooms for all departments, removing and refixing girls' and infants' existing covered playground, providing teachers' room for infants, and new drawing class-room, Gillespie Road. Revised accommodation :—Boys, 368 ; girls, 368 ; infants, 464 ; total, 1,200.

Willmott & Sons	£8,327 0 0
Staines & Son	1,292 0 0
F. Gough & Co.	8,084 0 0
W. Shurmur	7,985 0 0
G. S. S. Williams & Son	7,984 0 0
W. Whiteley	7,950 0 0
W. Scrivener & Co.	7,940 0 0
McCormick & Sons	7,897 0 0
J. Grover & Son	7,818 0 0
C. Cox	7,654 0 0
E. Lawrance & Sons	7,521 0 0
R. A. Yerbury & Sons	7,472 0 0
L. H. & R. Roberts*	7,168 0 0

For improvements—providing halls for all departments, new infants' entrance, re-lighting end class-rooms of boys, girls and infants' departments, The Slade.

Johnson & Co.	£4,300 0 0
A. White & Co.	4,167 0 0
Edwards & Medway	3,835 0 0
F. & H. F. Higgs	3,732 0 0
Kirk & Randall	3,695 0 0
J. & C. Bowyer	3,645 0 0
W. Johnson & Co., Limited	3,597 0 0
E. Triggs	3,511 0 0
J. Garrett & Son*	3,340 0 0

For providing and fixing auxiliary mains and additional radiating coils, Westbourne Road.

J. & F. May	£125 0 0
G. Davis	120 0 0
W. G. Cannon & Sons	100 0 0
E. Oldroyd & Co., Limited	95 0 0
J. Grundy	85 2 6
J. C. Christie	84 10 0
Duffield & Co.*	80 0 0

* Recommended for acceptance.

LONDON SCHOOL BOARD—*continued.*

For improvements and revised accommodation :—Boys, unaltered ; girls, unaltered ; infants, 572 ; net gain of 6 infants' places, Olga Street.

J. Longley & Co.	£20,986 0 0
Kirk & Randall	20,983 0 0
W. Shurmur	20,846 0 0
J. Chessum & Sons	20,374 0 0
E. Lawrance & Sons	20,155 0 0
G. S. S. Williams & Son	19,830 0 0
F. & F. J. Wood	19,666 0 0
C. Cox	18,977 0 0
J. & M. Patrick	18,957 0 0
C. Miskin & Sons*	18,245 0 0

For providing and fixing larger boiler, providing additional heating surface in three classrooms in each department, and also in lavatories, Old School, Risinghill Street; and providing auxiliary heating in two classrooms in each department, also in corridors, cloak-rooms and lavatories to Enlargement.

J. Esson	£375 0 0
J. Grundy	366 0 0
J. Wontner-Smith, Gray & Co.	360 0 0
Dargue, Griffiths & Co., Limited	355 13 0
G. Davis	335 0 0
J. & F. May	330 0 0
W. G. Cannon & Sons	329 0 0
Bates & Pearce*	271 10 0
J. Defries & Sons, Limited	246 0 0

For gravelling roadways and paths, Gordon House, Isleworth.

D. Bigg	£110 0 0
Speechley & Smith	78 0 0
S. N. Soole & Son	75 0 0
C. Little	72 0 0
H. Moyes*	68 10 0

For cleaning interior, Wirtemberg Street.

W. Johnson & Co., Limited	£188 9 0
Maxwell Bros., Limited	181 0 0
H. & G. Mallett	144 0 0
Holloway Bros.	135 0 0
Rice & Son	115 0 0
E. TRIGGS (*accepted*)	109 0 0

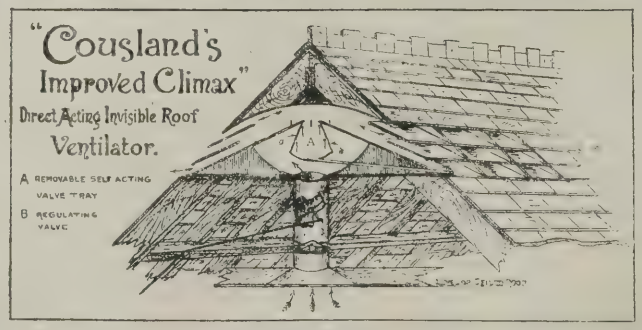
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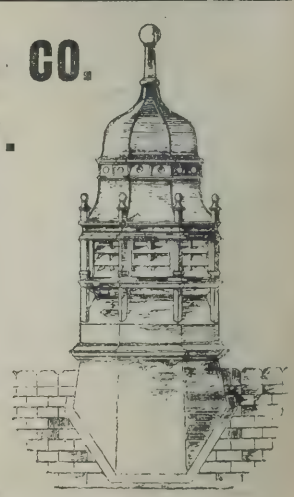
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LONDON SCHOOL BOARD—*continued.*

For altering positions of two partitions, providing stepped flooring, Kindergarten gallery, &c., and cleaning interior of school, the Whittington.

G. Chase & Son	£1,043 5 0
W. Hornett	500 0 0
T. Cruwys	479 0 0
E. Triggs	454 0 0
Stevens Bros.	431 10 0
F. T. Chinchen	403 0 0
MARCHANT & HIRST (*accepted*)	388 0 0

For painting exterior and cleaning interior, St. Jude's Commercial Street.

Johnson & Co.	£257 0 0
J. F. Holliday	235 0 0
J. Haydon	227 0 0
J. Kybett	223 0 0
W. Bunce	212 0 0
A. W. Derby	205 10 0
G. Wales	191 18 0
G. Barker	188 0 0
W. BROWN (*accepted*)	184 10 0

For cleaning interior, East Lane (old portion).

Holliday & Greenwood	£240 0 0
A. White & Co.	219 0 0
Johnson & Co.	210 0 0
W. Brown	192 10 0
W. Banks	187 11 6
E. TRIGGS (*accepted*)	170 0 0

For painting exterior and cleaning interior, Larkhall Lane.

Holloway Bros.	£275 0 0
R. S. Ronald	274 0 0
T. Gregory & Co.	260 0 0
Maxwell Bros., Limited	255 0 0
E. Triggs	202 0 0
Rice & Son	195 0 0
J. Garrett & Son	186 0 0
E. B. TUCKER (*accepted*)	184 15 0

For cleaning interior, the Latchmere junior male school.

R. S. Ronald	£150 0 0
O. Craske	81 0 0
B. E. Nightingale	56 0 0
E. B. TUCKER (*accepted*)	49 11 0

SCOTLAND.

For repair of east pier of Dysart Harbour.

A. FRASER, JUN., Kirkcaldy (*accepted*)	£323 0 0

THAME.

For construction of stoneware and other sewers for the interception of the sewage of Thame, with manholes, inspection shafts, flushing tanks, outfall works and engine-house. Messrs. JOHN TAYLOR, SONS & SANTO CRIMP, engineers, 27 Great George Street, Westminster.

J. JACKSON, The Broadway, Plaistow, London, E. (*accepted*)	£4,977 0 0

TORQUAY.

For erection of the Central Hotel. Messrs. E. APPLETON & SON, architects, Torquay and Paignton. Quantities by Mr. C. SEWELL APPLETON.

E. P. BOVEY, Torquay (*accepted*).

WALES.

For erection of a mixed school at Caegarw, Mountain Ash, to accommodate 250 children. Mr. T. W. MILLAR, architect, Oxford Street, Mountain Ash.

Moore & Elsworthy	£2,715 5 0
F. Mills	2,338 17 0
Harries & Davies	2,000 0 0
T. W. Davies	1,985 0 0
W. Williams	1,820 10 0
C. JENKINS & SONS, Porth (*accepted*)	1,800 0 0

WALSALL.

For constructing a surface-water sewer of 12-inch earthenware pipes in Field Street, Bloxwich, and a surface-water sewer of 9-inch earthenware pipes in Sandwell Street.

J. A. ATKINS, Ryecroft, Walsall (*accepted*).

WALTON-ON-THE-NAZE.

For raising and making-up the shore road and works in connection therewith. Mr. THOS. H. NIXON, surveyor, 5 Lessar Avenue, Clapham Junction, S.W.

B. W. Glenny	£2,597 1 9
G. Double	2,516 0 0
H. J. Linzell	2,489 0 0
F. B. Pitcher	2,075 0 0
J. Moran & Son	1,925 0 0
H. Stone	1,890 0 0
D. MACKENZIE & SON, Clacton-on-Sea (*accepted*)	1,795 0 0

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WHITTLESEA.

For plumbing, glazing and painting six houses. Mr. F. H. Cooke, surveyor, Peterborough.

A. J. Aveling	£62 10 0
J. Count	59 0 0
E. Butler	53 10 0
W. H. Darling	51 0 0
E. B. Haynes	51 0 0
G. Brummitt, Woodstone (*accepted*)	50 0 0

WOOLWICH.

For extension of premises, Powis Street. Messrs. Church, Quick & Whincop, architects, Woolwich.

Munday & Son	£4,126 0 0
Balaam Bros.	3,930 0 0
Turtle & Appleton	3,833 0 0
H. L. Holloway	3,832 0 0
Chapman	3,815 0 0
Thomas & Edge (*accepted*)	3,794 0 0

Mr. E. V. Bailey, of Climax Works, Birmingham, informs us that he has purchased the old-established business of Messrs. Edwin Cotterill & Co., and that he will continue to manufacture the fire and burglar-proof safes, patent locks, cash and deed boxes, &c., for which that firm has a reputation of long standing. He has also acquired the business of Messrs. H. S. & F. L. Fear, manufacturers of door springs and every description of swing centres, which business, as many of our readers are aware, has been in existence upwards of sixty years. The businesses will be combined and carried on at the above address under conditions favourable alike to makers and consumers.

The workmen engaged in all but one of the different branches of the building trade in Birmingham made an application to the employers twelve months ago for an increase of wages. At the expiration of the six months' notice a halfpenny per hour was conceded, and the increase came into operation on April 1 last. The branch which did not participate in the increase was that of the bricklayers, but now they have applied for an advance, and it is considered probable that a concession of a halfpenny per hour will be made to them in April next.

BUILDING AND BUILDERS.

The contract for the work of rebuilding St. Peter's Church, Oldham, has been let. The estimated cost of the whole building is 12,000*l.*

Lord Roberts last week laid the foundation-stone of the Soldiers' Victoria Hall and Institute at Dover, about to be erected as a memorial of the Diamond Jubilee of the Queen.

At Thornaby on Friday the foundation-stone was laid of a new Primitive Methodist church and Sunday school in Peel Street. The new church will accommodate 450, and the cost is estimated at about 3,000*l.*

A portion of a sewer in course of construction at Stanningley, Leeds, subsided, and a workman named Coates was crushed to death. About 4 tons of earth fell upon him. A dozen other workmen had narrow escapes.

A site for a church-house at Liverpool has been purchased for 48,000*l.* The ground is at present occupied by offices at the corner of Lord Street and South John Street, known as Clarendon Buildings.

The design of Mr. Ness, Dundee, has been accepted for a public hall for Pitlochry. The total cost of the completed building, which will have accommodation for 600, is estimated at about 2,500*l.*

A handsome and commodious theatre is about to be erected at Finsbury Park. The plans, which are now before the County Council, include a spacious stage and an auditorium which will hold about 3,000 persons. Messrs. Murray & Foster, Adelphi, are the architects.

A scheme for the erection of a church for the large and growing population of South Retford and Ordsall has been set on foot, and a most eligible site has been secured. If the whole scheme cannot be carried out at first it is hoped that the nave of the permanent church, costing, say, 3,500*l.*, may be completed.

A pier is about to be erected at Fleetwood on the Fielden Esplanade, and immediately opposite Balmoral Terrace. The total length, including the jetty, is to be 1,300 feet, and upon it will be erected a handsome pavilion, with turrets and dome, rising some 60 feet. An extensive stage is to be built where first-class entertainments will be given.

The foundations are being prepared for a colossal hotel which is about to be erected at Buxton. The land, 8½ acres in extent, has been purchased from the Duke of Devonshire for

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6,900*l.*, and the building alone will entail an outlay of 125,000*l.* It is to be thoroughly up-to-date in all particulars, to accommodate about 300 guests, and is to be completed by the year 1900. The architects are Messrs. Bodley & Garner, of London. From its position it will command magnificent views of the surrounding country.

A MEETING of Wesleyans was held in Darlington Street chapel, Wolverhampton, last week to consider a scheme to rebuild the edifice in a more modern style and provide further accommodation. It was explained that the chapel was originally erected in 1824, since which it had been enlarged and altered in many ways, and it was not sufficiently commodious for the 1,000 people who attended the Sunday evening services. The building required renovating, which would be very costly, and a scheme for rebuilding it at an estimated cost of 9,000*l.* was considered preferable. A resolution was adopted in favour of the scheme.

PRINCESS CHRISTIAN visited Brixton on Tuesday in order to lay the foundation-stone of the new church which is arising on the site of the old Christ Church, whose dilapidations rendered it unsafe for public worship. The new building, which is being erected from the plans of Mr. Beresford Pite, architect, will be reared on land adjoining the present church. It will be built in the Early Christian style, and is planned to seat 1,200 people without obstructions to sight or sound. A capacious west porch with a front cloister will face the Brixton Road. Part of the scheme of rebuilding was the erection of a parochial hall at the back of the church, and this has now been completed. The cost of the building is estimated at 12,000*l.*

AT the City Police Court, Coventry, on the 10th inst., Thomas Broughton, of Clarendon Street, Earlsdon, was summoned at the instance of the city engineer (Mr. J. E. Swindlehurst) for an offence against the Corporation's building by-laws. The town clerk (Mr. L. Beard) told the magistrates that the by-law was one of importance, but had to a considerable extent been disregarded for some time. It provided that each individual who erected a building should upon the completion thereof send a written notice of such completion to the engineer, and give him an opportunity of inspecting the building. The defendant put the defects pointed out to him right as soon as the legal requirements were pointed out to him. This was the first case taken under the by-law, and Mr. Beard did not press for a heavy penalty. Mr. Maddocks, for the defendant, said the latter's wife was the real owner of the property, and sold it before it was completed. Alderman Marriott said the by-law would be strictly enforced in the future. A fine of 5*s.* and costs was inflicted.

AT the monthly meeting of the Morecambe District Council on Monday a large number of plans for new buildings were submitted and approved, and as an evidence of the activity of the building trade in the town the plans committee had found it necessary to hold two meetings to dispose of the business before them. The plans of the Morecambe Pier Company for fore-bay and entrance to the pier were again before the committee. The sub-committee reported that they had met the directors, who had promised to consider the Council's proposals, but no reply had been received from them. It was resolved that the plans be not passed. A sub-committee was appointed to consider the question of obtaining a more regular boundary line for the eastern portion of the district, and if considered advisable, to confer with the Lancaster Corporation on the subject. The surveyor was instructed to prepare plans and sections of the structural works required in the making of thirty-three new streets.

THE Shrewsbury Town Council held a special meeting on Monday, when Alderman Herbert proposed that application be made to the Local Government Board for authority to borrow 3,500*l.*, for technical science and art instruction. He explained that the Horticultural Society had offered a site for the school at St. Julian's Friars, free of cost, and the managers of the School of Science and Art had offered to hand over to the proposed new school all their models and appliances in the existing schools. Mr. H. Farmer seconded the proposition. Mr. G. Evans condemned the proposed site as the most unsuitable in the town, and proposed another—The Priory—which could be purchased for 2,700*l.*, including the house, which could be made suitable for the school. Much discussion ensued, and the proposal of Alderman Herbert was finally adopted.

OWING to the large and growing increase of business in Arbroath Post Office the Department have found it necessary to provide more accommodation, and the erection of buildings in Hill Street, immediately opposite the present offices, is about to be commenced. The site of the new offices, adjoining the County Council Buildings, is 125 feet in length by an average of 46 feet in breadth. On the ground-floor there will be a large public office, 28 feet by 22, entering from a vestibule, and from this office will be entered the telegram delivery room and the

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postmaster's room. Adjoining the public office, and communicating with it, the plans show a sorting office about 43 feet by 41, in connection with which are retiring-rooms for the postmen and sorting clerks, a store-room, barrow shed and lavatories. A yard which may be taken in at a future time if necessary separates the office from the County Council Buildings. The battery-room, 20 feet by 12, and a basket store complete the accommodation on the ground-floor. On the first floor the plans show the telegraph instrument-room, 40 feet by 22, entering from which are the telephone-room and a store-room. The offices are to be built of Grange stone dressings, with an elevation in Renaissance style, a conspicuous feature on which will be the Royal arms carved on a panel at the top of the main building. The plans have been prepared by Her Majesty's Board of Works, Edinburgh.

The plans for the new electricity station which is about to be erected at Coplawhill, Glasgow, comprise complete engine-house, boiler-house, coal stores and battery room, and also sundry offices, workshops, covered-in yard, and delivery yard and stores. The roof of the boiler-house is constructed of strong steel girders, supported by heavy cast-iron columns, designed for the purpose of carrying large open water tanks in which the condensers or cooling towers will afterwards be placed, and there are similar columns and girders for carrying the overhead coal tanks. Two chimneys, each 11 feet in diameter inside and 20 feet outside, and 200 feet in height, are included in the plans. The total cost of all the buildings, including engine foundations, boiler foundations and boiler settings for the whole plant which may ultimately be put into the station, and which will amount to about 15,000 horse-power, will probably be 49,051*l.*; but this estimate does not include the cast-iron tanks over the boiler-house, nor does it include a new line of railway siding which will require to be run from end to end of the buildings, nor certain hoists for coal trucks, sundry rails, coal tanks, and appliances for dealing with the fuel supply over the top of the coal stores. These accessories will in all probability cost a further sum of about 10,200*l.*, thus bringing the total for buildings and condensing and coal store facilities up to 59,251*l.*

The foundation-stone of the new Jenny Lind Infirmary, which is in course of erection in Norwich, from designs by Messrs. E. & E. T. Boardman, were laid on Tuesday last. The new building will consist of two wards, each forming a separate wing, in the centre of which will be the administrative block. The wards are planned so as to secure the maximum of fresh air and light, and will be very lofty. The completed building will be a handsome structure both in design and detail, and will form a great contrast with the antiquated premises so long occupied in Pottergate Street. The administrative block, which has been built up to the first floor, is of brick with stone dressings. The nurses' sitting-rooms and bedrooms will be on the upper floors. In the rear of this block will be the domestic offices, which will be ready to be roofed in a few days. At present only one of the wards. that on the western side, is being erected. This is in accordance with the expressed wish of Lord Leicester that nothing should be built for the maintenance of which there were not the necessary endowments. For the purpose of carrying out the plans of Mr. Boardman in their completeness, an additional sum of 5,000*l.* will have to be provided by the public; while another sum of 1,000*l.* is necessary for defraying the cost of furnishing and endowing that portion of the infirmary which it is contemplated to finish in the first instance.

ELECTRIC NOTES.

At the monthly meeting of the Morecambe District Council on Monday, tenders amounting to 4,480*l.* for additional electric-light plant were recommended for acceptance.

At a special meeting of the Shrewsbury Town Council, held at the Guildhall on the 12th inst., a letter was read from the Local Government Board sanctioning a loan of 30,463*l.* for the purchase of the undertaking of the Shropshire Electric Light Company and the extension of the works.

Colonel A. J. Hopper, R.E., recently held an inquiry at the Rochdale Town Hall, with respect to an application on the part of the Corporation to borrow 30,000*l.* for electric-lighting purposes. There was no opposition to the application.

Mr. Frederick Yorke, M.I.E.E., Glasgow, visited Blairgowrie last week, and with Mr. Lake Falconer, architect, examined various sources of power with a view to the introduction of electrical lighting into the town. Mr. Yorke was favourably impressed by the means available for the objects in view, and expressed his conviction of the practicable nature of the scheme. A syndicate is, it is said, being formed with a capital of from 8,000*l.* to 10,000*l*

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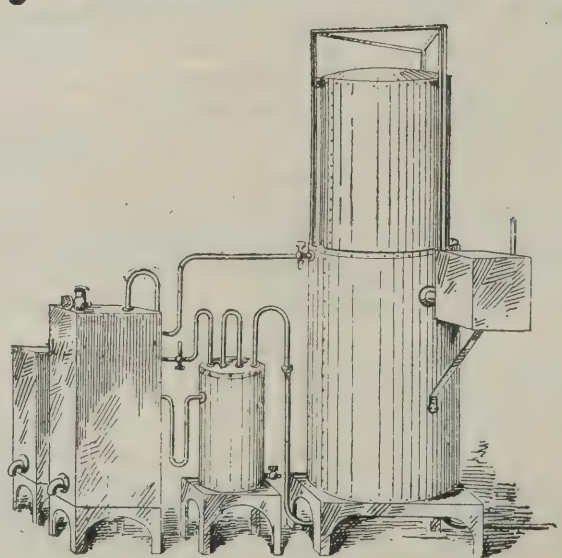
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MAJOR-GENERAL CROZIER, R.E., an inspector under the Local Government Board, held an inquiry last week, in the Council-chamber at the Birkenhead Town Hall, into an application by the Town Council for sanction to borrow 15,000*l.* for purposes of electric lighting. The town clerk explained that the money was required to provide machinery for increasing the generating power at the central electrical station, and also for providing new mains within the borough to meet the demand for the supply of electricity. Mr. Bates, engineer, gave evidence in detail of the proposed expenditure, and there was no opposition.

AN inquest was held at Southampton, on Tuesday, on the body of a man named Day, aged thirty, who was killed on Monday while laying electric mains for the Corporation. The deceased, who lived at 54 Wilford Road, Stoke Newington, London, was in the employ of the contractor, W. T. Glover, of Manchester. He was joining cables, and accidentally putting his hand on a fully-charged wire was instantly killed. The coroner said it would be necessary to adjourn the inquiry Men employed like the deceased should wear non-conducting gloves. The widow stated that the deceased's name was Davies, Day being only assumed. The inquiry was adjourned for a week.

THE new and very complete electric-lighting station which has been erected at Eccles, and was opened with ceremony on Wednesday evening, has been conceived and carried out with praiseworthy enterprise by the Corporation, and henceforth the streets of the town and many of the shops and places of business will be illuminated by electricity. A sum of something like 12,000*l.* has been spent upon the works in Cawdor Street, Patricroft, and the necessary plant. This latter consists of two Lancashire boilers, 28 feet long and 7 feet 6 inches broad, and two steam alternators, each of 200 horse-power, and each capable of supplying 4,800 eight candle-power lamps. The engines are of the marine inverted type, running at the rate of 2,000 revolutions per minute, and being directly coupled to the alternators. There are also provided accumulators, which will maintain 1,000 eight-candle-power lamps for seven hours. These accumulators are charged from the alternators by means of a motor generator, this latter, in its turn, being run by the accumulators, and supplying electricity direct to the mains. The system of distribution adopted is the high tension alternating current, at a pressure of 2,000 volts, which is reduced on the consumers' premises to 200 volts. This system has been selected owing to the exceedingly scattered nature of the district to be supplied. It is intended to carry out the whole of the public lighting of the borough, as already indicated, by means of electricity, and this will involve a supply of some 1,700 lamp columns. At the present moment there are about five miles of mains laid in the district, and applications have already been received for over 4,000 eight candle-power lamps. About thirty miles of streets will eventually be lighted. The work has been carried out by Mr. S. V. Clirehugh, M I.E E., of the firm of Messrs. Lacey, Clirehugh & Sellar.

THE annual general meeting of the Institution of Civil Engineers of Ireland was held on the 7th inst. in their meeting hall, 35 Dawson Street, Dublin, when the following were elected as officers and council for the year 1899:—President, W. W. Wilson; vice-presidents, Edward Glover and John Henry Ryan; council, William Anderson, Robert Cochrane, Louis E. H. Deane, Joseph H. Moore, William Purcell O'Neill, William Ross, Samuel J. Shannon and Prosser A. H. Shaw; hon. secretary, Marmaduke Backhouse.

THE new Mental Asylum at Lewisham, which has recently been erected by the Board of Guardians, is a handsome and commodious separate building, which has been erected on vacant ground formerly a part of the workhouse property, and consists of two wards, each measuring 29 feet 6 inches by 24 feet 4 inches. Each ward holds eight beds. There is an acute ward for special cases, together with padded rooms for both sexes. The lighting, ventilating, drainage and kitchen arrangements are of the latest and most approved kind. The formal opening of the building was performed last week. The cost was a trifle over 3,700*l.*

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VARIETIES.

The Illinois Steel Company has decided to attempt the manufacture of cement from slag, of which large quantities have accumulated around the works.

Owing to the insanitary state of the Forest Gate schools, the Poplar Board of Guardians have at last decided to sell the site and to build new schools, possibly at Shenfield.

The work of erecting a handsome memorial to the late Right Hon. Edward Stanhope in the centre of the Market Place at Horncastle, Lincolnshire, is now complete. The cost of the memorial is nearly 400*l.*

The second members' meeting of the Liverpool Architectural Society will be held at the New Law Library, 41 Castle Street, on Monday next, the 19th inst., when a paper will be read by Mr. Talbot Kelly on "Saracenic Architecture," with limelight illustrations.

Steps are being taken for an immediate resumption of the restoration of the great west front of Peterborough Cathedral. The south-west angle is to be treated in the same manner as the north-west so far as restoration may be found to be necessary.

At a meeting of the Scarborough Town Council it was stated authoritatively that the new marine drive and sea wall, which the Corporation are constructing round the Castle Hill at a cost of some 80,000*l.*, will not be completed before the summer of 1900, a year beyond the original time.

The Painters' Company offer a travelling studentship of 50*l.* for the encouragement of the study of decoration. It is open to competition by students between the ages of twenty and thirty-five in any recognised school of art or other institution devoted to the study of applied art in any form within the limit of the larger metropolitan postal area.

An extraordinary accident occurred at Southend on the 10th inst., whereby the pier was cut in two. A small pleasure yacht, the *Dolphin*, in a strong wind dragged its anchor and was driven broadside on to the structure, which was completely severed and damage done to the extent of nearly 2,000*l.*

The new premises of the Govan section of the Glasgow United Young Men and Women's Christian Association were opened on Saturday afternoon. The building, which is a four-storey one, has a frontage to Water Row on the east side and Manse Lane on the north side. On the first floor are a library, a reading-room, the secretary's room and several ante-rooms, while on the second and third storeys are a number of class-rooms and several large halls. A gymnasium, measuring 34 feet by 27 feet, occupies the whole of the fourth flat. The cost, including the purchase of the site and furnishing, amounts to about 7,500*l.*

The magnificent block of buildings for the Higher Grade Schools which has been in course of erection for the past twelve months in connection with St. George's Church, Hanover Square, has now been completed, and was opened on Tuesday last by the Duke of Cambridge. The schools are erected partly on the site of the old schools and partly on a piece of land given by the Duke of Westminster, and they form a very imposing feature of South Street, where they are situated. Their cost has been about 17,000*l.*

A considerable part of the fishing harbour at Auchmithie, near Arbroath, was destroyed by the gales a few weeks ago, and at the annual meeting of the Auchmithie Harbour Trust it has been resolved to apply to the Scottish Fishery Board for a grant towards the repair of the harbour. Auchmithie Harbour was built a few years ago to take the place of the natural harbour and beach which had for centuries been used by the fishermen. Three-fourths of the cost was provided by a grant by the Fishery Board and the remainder was raised locally.

The Metropolitan Tribunal of Appeal had before them on Wednesday a matter under the London Building Act involving the question of the extent of the County Council's authority over the construction of corner houses in the laying out of streets. Mr. Seaman, the appellant, secured in 1886 the sanction of the Board of Works to a contract by which he became the builder of houses, &c., upon freehold property in Mozart Street, Paddington, and under it he now proposed to erect a building at the corner of Mozart Street and Bravington Street. The London County Council, however, decided that under the Act the two frontages of the house must be uniform with the respective streets to which they were adjacent. The view of the builder, however, was that corner houses should be treated as having a frontage in only one of the streets. The Tribunal decided that the house would have to be regarded as being in both streets, and the decision of the London County Council and their superintending architect was upheld.

Magdalene Church, Belfast, an extensive building situated in a densely populated district, has been entirely destroyed by fire. The fire brigade was quickly on the scene, but despite their efforts the church was burned to the ground.

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ON the 3rd inst. the Bishop of Coventry dedicated the new church mission room at The Cotteridge. The erection of the room forms part of the scheme of church extension in King's Norton parish, details of which were recently given in these columns, when the memorial-stone of a new church at Stirchley was laid. This work has become necessary in consequence of the rapid increase in the population of the parish, and will cost altogether rather more than 10,000*l.* The Cotteridge portion of the extension will cost 2,500*l.* It is a substantial building, but already it is seen that it will not afford sufficient accommodation for the rapidly-growing district.

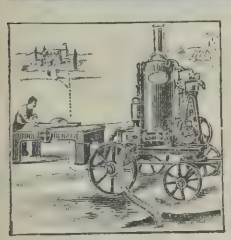
A TERRIBLE accident occurred on the Goole Canal at Sykehouse on Friday evening, whereby Mr. Wigan, the resident engineer at the new canal which is being cut between the Goole Canal and the Sheffield Canal, and a man named Robert Cawson, lost their lives. It appears Mr. Wigan and some men were standing on a platform on some piles at the dam made at the junction of the new cutting, when, it is believed, a plank gave way, and the crane was precipitated into the water, carrying Mr. Wigan and Cawson, the crane-driver, with it. Another man named Masters was badly injured. Word was conveyed to Aire & Calder's offices at Goole, and Mr. Barling, chief engineer, immediately left with Dr. Blair for the scene of the disaster. At the time of telegraphing neither body had been recovered, and it is feared they are both under the crane. Mr. Wigan was formerly on the engineering staff of the Leeds and Liverpool Canal.

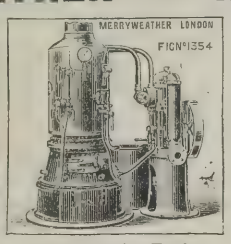
AS a preliminary to filling in with mosaic work one of the three vacant spaces in the central hall at St. Stephen's, the panel over the entrance to the corridor leading to the Commons lobby has just been opened up for the reception of Sir Edward Poynter's cartoon of St. David. This will immediately face the presentment of St. George, by the same artist, which was erected some years ago, and the brilliant colouring of which is always a source of admiration when the hall is lighted. It is expected that by the time Parliament reassembles in February next the work will have been completed, leaving only the panels to the right and left, in which are to be placed the late Mr. Albert Moore's designs of St. Andrew and St. Patrick, to be filled in.

THE inaugural concert took place on the 7th inst. of the handsome suite of public halls which has been presented to the burgh of Pollokshaws by Sir John Sterling-Maxwell of Pollok, M.P. The new hall is built on a very convenient site at the corner of Barrhead Road and Bengal Street, the style of architecture being a phase of the Renaissance. The principal entrance is from Barrhead Road, the door being under the clock tower. Immediately on the right there is a spacious vestibule and a corridor with cloak-rooms and other recesses in front. The large hall, which has a gallery and balconies, accommodates about 800 people, the small hall, which also has a gallery, accommodating about 200 people. There are various ante-rooms, &c., kitchens and janitor's house. The total cost may be roughly estimated at between 16,000*l.* and 20,000*l.*, and, in addition, Sir John has intimated his intention of making an annual gift of 100*l.* to insure that there shall be no deficit.

A THOROUGHLY comfortable and well-appointed home for the nurses attached to the Leeds General Infirmary was opened on Monday. The structure is of three storeys, with basement, and has frontages to Thoresby Street and Sunny Bank Street. At the junction of what may be termed the two wings is the entrance porch. The architecture is of the Domestic character; there is little of a decorative nature in the exterior, but pleasing effect has been obtained by the general grouping and proportion. The material is red brick relieved with stone dressings from the Morley quarries. Accommodation is provided in the new Home for fifty-two nurses, each having a separate room. Their comfort in other ways has been studied. On the ground floor of the east wing, with a southern aspect, are two day-rooms—one for the sisters and the other for the nurses—and also a writing-room. On the north side is the recreation-room, 30 feet by 25 feet, and not far off is a small visitors'-room and a small kitchen for the preparation of light refreshments, the ordinary meals being taken in the hospital. In the courtyard at the back is a bicycle shed, with stalls for thirty-two machines, for many of the nurses participate in the popular recreation. Everything within the home is, like the exterior, plain, neat and substantial. The rooms and corridors are well lighted by day, and at night illuminated with the electric light. The heating is effected by low-pressure hot-water piping and radiators. Ventilation has received careful attention. All the bedrooms are cross-ventilated by means of air-inlets in the outer walls, with valves under control, and hinged fanlights over the doors opening upon the corridors. Fresh, warmed air is also introduced. In the principal day-rooms the vitiated air is extracted by automatic ventilators and extraction flues. All the sanitary fittings are of glazed ware. The architect of the building is Mr. W. H. Thorp, and the erection has been carried out under his supervision.

MERRYWEATHER on WATER SUPPLY TO COUNTRY MANSIONS, &c.

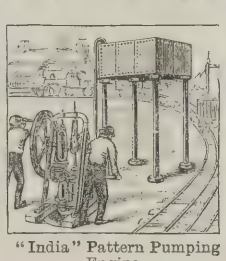

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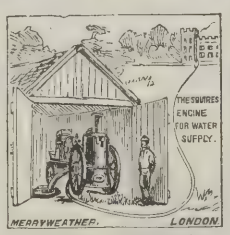


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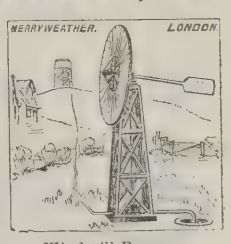


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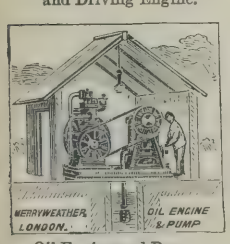

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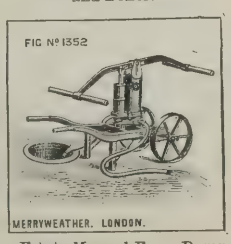
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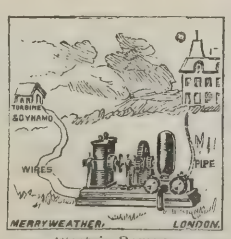
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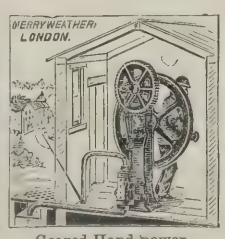
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TRADE NOTE.

THE new Infectious Diseases Hospital, Burnley, for the Burnley Joint Hospital Board is nearing completion; it is being erected from the designs and under the supervision of Mr. F. S. Button, M.Inst.C.E., Burnley. The whole of the wards are being warmed and ventilated by means of Shorland's patent double-fronted Manchester stoves with descending smoke-flues, Manchester grates, exhaust roof-ventilators and special inlet panels.

VENTILATION OF THE HOUSES OF PARLIAMENT.

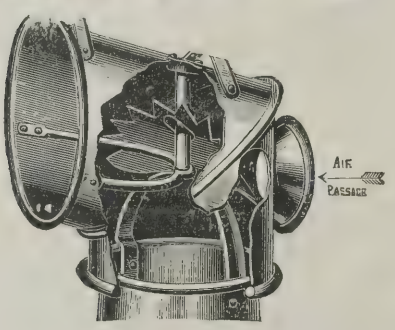
IN a paper on the "Ventilation of Tunnels and Buildings," which was discussed on Tuesday at the Institution of Civil Engineers, Mr. Francis Fox referred to the ventilation of the Houses of Parliament. These buildings, he pointed out, were erected in 1836 by the late Sir Charles Barry, and, considering that they were designed for the requirements of sixty years ago, it was not surprising that they were unsuited to the necessities of the close of the nineteenth century. For the work which then had to be transacted the committee-rooms were doubtless of ample capacity, and the ventilation arrangements were evidently the subject of much thought and consideration; but, unfortunately, they had not been extended concurrently with the growth of public and private business in Parliament. The vitiated air was extracted by furnaces in the roof, the fresh air being filtered through cotton wool, cooled or warmed as required, and pumped into the chambers by fans and machinery. But this having been done, much of the good was undone, the air being admitted through open matting on the floors on which were wiped the feet of people coming from the muddy or dusty streets of Westminster. Need it be wondered at that occasionally there were epidemics of influenza and other maladies among honourable members of Parliament? In addition to this grave state of affairs, the quantity of air admitted was wholly insufficient, the condition of the lobbies, the division lobbies and the committee-rooms being most objectionable and dangerous. Cases of blood-poisoning had come under his notice, and on behalf of the counsel, Parliamentary agents, solicitors, engineers and other witnesses occupied in the committee-rooms, he would appeal to the authorities to ameliorate the condition of affairs. It might be difficult and costly completely to remodel the Houses of Parliament, but there was no difficulty in providing at once silent, quick-running electric fans in connection with every room. This would extract the vitiated air, and the fresh air could be admitted in proper situations—certainly not through the floor. This ought to be done before the ensuing session, for the present condition of affairs prevented the business of Parliament and Parliamentary committees from being properly carried on.

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THIS company is to be congratulated on the success which it has achieved in the short time it has been established. We have availed ourselves of more than one occasion to direct attention to the fire-resisting qualities of the wood treated by the company's patent process, and are pleased to see that the chairman (Mr. E. Marshall Fox) was able at the second ordinary meeting of the company, which took place at the Westminster Palace Hotel, to speak of the substantial progress of the company and its roseate future prospects. Mr. Marshall Fox pointed out that it had been considered advisable to establish a commercial working plant in this country to treat the wood and to supply it, demonstrating either the goodness or the badness of the product. Works have been erected at Fulham, and the cost of the buildings, plant and machinery amount to 25,899*l*. The works occupy some 3½ acres of land, and consist of huge cylinders, tanks, locomotive engines, &c., for carrying on the business on a very large scale. Without disparaging the works in America, which had been in operation for three years supplying the Government of the United States, he thought he was right in saying that the company's works were the most complete, the best equipped and capable of a greater turn-out of the product. It is not alone for building purposes that the company desire to apply their wood, but to cause it to be adopted in the building of ships. Mr. Marshall Fox stated that it was brought before the British Admiralty about eighteen months ago, and they had made very extreme tests of it at Chatham and elsewhere. The result of all these tests that the British Government had made was that they had given

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the company orders, about two months ago, for the woodwork of the new Royal yacht representing about 300,000 feet. He was happy to be able to state that two consignments of that had already been inspected and passed by the Admiralty surveyor. The first consignment had been sent to Pembroke and was being worked up for the Royal yacht, and had given the most complete satisfaction. Following on that, within the last few weeks the Admiralty had specified non-flammable wood for four new battleships, two new cruisers and twelve torpedo-boat destroyers which were about to be laid down. The company had the full specifications before them from the shipbuilder, but it was not possible to make any definite statement as to the amount of woodwork that would be required; but he might safely say that it would occupy their works at Fulham, large as they were, day and night for more than a year. Further, it was stated that H.M. Board of Works have ordered the wood to be used in an addition which is being made to the British Museum.

THE CORONET THEATRE.

THE summonses against Mr. Edward George Saunders, manager of the new Coronet Theatre, at Notting Hill Gate, for keeping the building open without a license, have been heard at the West London Police Court. Mr. Avory described the case as a flagrant violation of the law, and he was instructed, in the event of it being proved, to ask the magistrate to inflict the full penalty on each summons. A letter was received on November 8 from the defendant stating that the theatre would be opened on the 28th, but on an inspection in the morning the building was found incomplete and unfit for the reception of the public. It was also found that there had been a serious deviation from the plans, as the width of the passages and doors had been reduced. In spite of the warning the theatre was opened, and was still being kept open. The excuse was that the house was booked to be opened, and the manager was faced by a large crowd who might have wrecked it. Defendant chose the evil of opening the house rather than lose money which was coming in. If he had given notice to the public there would not have been a crowd nor any fear of a riot. Mr. Avory said that he wished it to be understood that there was a clear intention to enforce compliance with the law, and that persons attending the theatre were liable to be arrested by the police.

Mr. Rose-Innes suggested that the magistrate should view the theatre, as the defects looked well on paper, but did not exist in fact.

Mr. Rose did not accede to the suggestion, remarking that he could judge a play but not a building

The architect of the Council was examined as to his report, and in answer to a question said there was danger in one passage leading from the dress circle. At one point it was 3 feet 9 inches wide instead of 4 feet 6 inches, allowing only two persons to pass abreast instead of three. It had not more panic doors than any other theatre. The building opened into three streets, and had a splendid frontage.

Mr. Rose-Innes: It has admirable exits for the public?

The witness: It has exits according to the regulations of the County Council.

Further evidence went to show that attempts were made to comply with the regulations, but that they were not complete on the 7th inst. when the assistant visited the theatre. The officials had not heard of any accident through the opening of the theatre.

Mr. Rose-Innes applied for an adjournment for time to consider the evidence and to call witnesses.

Mr. Rose directed the attention of counsel to the fact that the defendant had not a license in one case nor a certificate in the other.

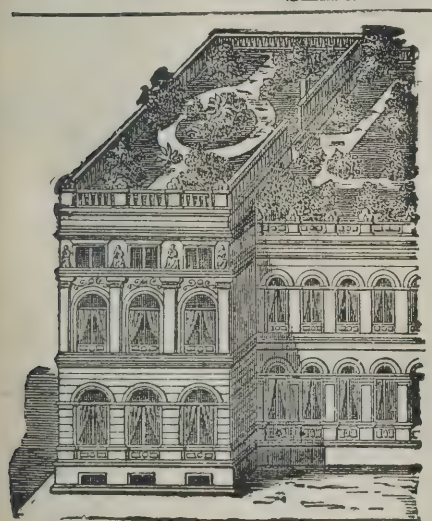
Mr. Rose-Innes admitted that the defendant was technically wrong, but he was placed at the time on the horns of a dilemma. He said that there was not any danger in opening the theatre.

Mr. Sprague, the architect who prepared the plans, said that the regulations were now complied with, and they were practically completed on the opening night. The exits were excellent, and equal to those of any other theatre.

The defendant said that he was the managing director of the theatre, and had had considerable experience. He attended the Council when the license was refused. He returned, and found a crowd. Every seat in the house was booked. Having determined to open the theatre, he provided extra firemen, and there was perfect safety. Every part was well lighted. All the requirements were now absolutely completed. He had been put to heavy expense to satisfy the Council. He never told the committee that they must go for penalties. Up to the last moment he acted under the advice of Mr. Sprague, who led him to believe that a license would be granted.

Mr. Rose-Innes having addressed the magistrate in mitiga-

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tion of the penalties, the magistrate said that the defendant had opened the theatre in deliberate violation of the law. He saw nothing to lead him to reduce the penalty, and imposed a fine of 20*l.* for each night, amounting to 160*l.* With regard to the certificate regulating the means of escape from fire, he took into consideration that there was no danger, and imposed a penalty of 10*l.* for each night, amounting to 70*l.* In all 230*l.*, with 10 guineas costs.

Mr. Rose-Innes gave formal notice of appeal.

LONDON COUNTY COUNCIL WORKS DEPARTMENT.

The finance committee of the London County Council have prepared the half-yearly statement of works executed by the Works Department up to September 30, 1898. There are some large and serious losses again revealed, although it is noticeable that the most important losses have occurred in connection with works commenced when the works committee was in existence, and before the present manager of works, Mr. Adams, was appointed.

With reference to estimated engineering and architectural works the statement is divided into two portions, one dealing with the works begun under the late management and the other with those begun under the new régime, brought about as the result of the inquiry of the special committee on the Works Department. In the first division four works are reported upon, the final estimate for which was 78,708*l.*, whilst the actual cost has been 103,429*l.*, revealing a loss of 24,721*l.* when the cost is balanced against the estimates. The most serious loss has been incurred in the construction of the Lewisham sewer. This work was undertaken by the department in May 1895, on an estimate from the engineer of 54,092*l.* The actual cost of construction has been 77,016*l.*, showing an excess of cost over estimate of no less than 22,924*l.* The manager of works in his report upon the reason for this large excess explains the difficulties which cropped up during the execution of the work. He mentions that, although the work was accepted by the department in 1895, it was not completed until April 1898, and that during that period increases in the rates of labour and material took place, seriously affecting the cost of the work, which in the first place had been undertaken at prices which did not allow of any margin. He understands that during the construction of the first portion the river Ravensbourne broke into the works two or three times, causing serious damage and requiring heavy expense in pumping and repairs. From what has been explained and from his own observation when he took the work over on his appointment in February 1897 it would appear that there had been serious neglect or incompetence in the carrying on of the work by those immediately in charge, and this was borne out by the fact that the late manager had to make changes in the staff, and the acting manager, during the interim, had to make further changes, and in taking the work over he had also found it necessary to do the same. These he puts down as the principal reasons for the excess in cost over estimate before his appointment, which amounted to 19,722*l.* Since his appointment there has been a further excess of cost over estimate of 3,201*l.*, and of this he thinks 1,000*l.* may be set down to the period of the reorganisation of the work and rearrangement of the staff, whilst the remainder is practically accounted for by the extraordinary charges for establishment during the year 1897-98, which, owing to the small amount of work entrusted to the department, rose from 8 per cent. to 16½ per cent., or an addition to the cost of 1,991*l.* In their report recommending the Council to sanction the payment of the excess cost in regard to the Lewisham sewer, the main drainage committee submit a statement of all works executed by the department for the committee, exclusive of the Lewisham sewer. This return shows that on eighteen works estimated to cost 101,354*l.* there has been a saving of 3,264*l.*, whilst on a large number of jobbing works there has been a saving of 2,943*l.*

On each of the other three works commenced under the late management, and now reported upon, there has been a loss. On the erection of dwellings for the housing committee on the Green Street and Gun Street, Southwark, site, estimated to cost 18,279*l.*, there has been an excess of 1,467*l.*; on the construction of the approaches to the Vauxhall temporary bridge, estimated to cost 3,940*l.*, an excess of 263*l.*, and on the construction of the foundations and basement to the Battersea river fire station an excess cost of 64*l.* In regard to estimated works commenced during the present management—that is, since February 1897—there are eight included in the statement. On these there is a balance of cost below estimate, or a saving of 3,720*l.* Losses are shown on five of the works amounting in all to 729*l.*, but these losses are counterbalanced by savings amounting in the aggregate to 4,449*l.* The largest saving is



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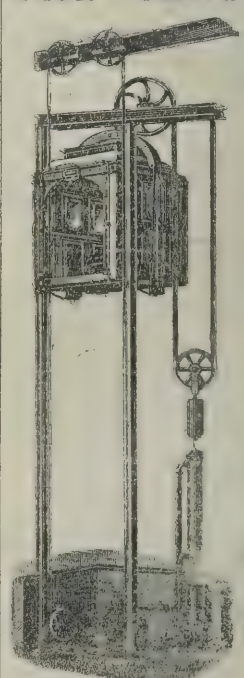
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shown on the construction of sewers and roads in connection with the Millbank Estate. The estimate for this work was 9,326*l.*, whilst it has been executed for 4,494*l.*, showing the large saving of 4,376*l.*, of which 1,179*l.* is due to payments from persons desiring to shoot earth and hard core upon the site. The largest loss is shown in connection with some paving works in the Blackstock Road, Islington. This work was estimated to cost 2,801*l.*, and actually cost 3,373*l.*, or an excess of 572*l.* The manager explains the excess to be due to the unfavourable position of the site, being 4 or 5 miles from the wharf, and the large cost of cartage. The whole of the twelve works included in the statement show the following result:—Estimate, 92,909*l.*; actual cost, 113,909*l.*, or a total balance of cost above estimate of 21,000*l.*

A further statement showing the totals with reference to all the estimated works carried out by the department since its creation in 1892 reveals the fact that upon the operations of the department in regard to this class of work there has been a total loss of 50,239*l.* All of this was incurred during the late management. Under the present management there has been a total saving of 9,373*l.*, so that the balance of loss, all of which is attributable to the late management, is 40,866*l.* On jobbing works executed by the department under a schedule of prices since 1895 there has been a saving on the schedule value of 6,185*l.*

In their report accompanying these statements the finance committee draw special attention to a feature of the returns which, they think, shows in a clear light the necessity for keeping the department sufficiently employed, because, whilst the annual amount of general expenses varied but little from year to year, the percentage to cover such expenses must vary with the amount of work done by the department in the year. The first four works reported upon were carrying a charge for general expenses working out at about 9½ per cent. of the total cost. That charge included interest on and the repayment of capital. The committee were not satisfied that this charge was as low as it ought to be, for in the case of the last seven works reported upon the general charges represented no less than 15 per cent. of the total. The amount of work executed by the department during 1897-98 was 173,739*l.*, and that for 1898-99 was estimated at 240,000*l.* For the next two years the work in sight, together with that which might be reasonably expected, would probably be sufficient, but the committee were considering the possibility of regulating in some way the volume of work to be kept in hand.

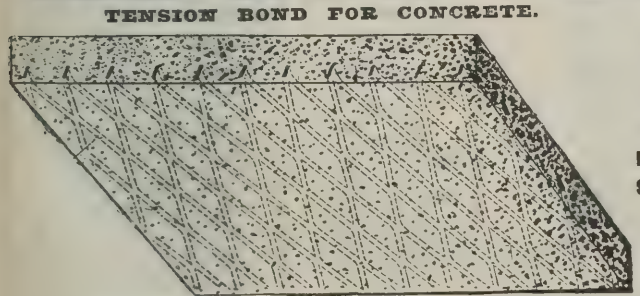
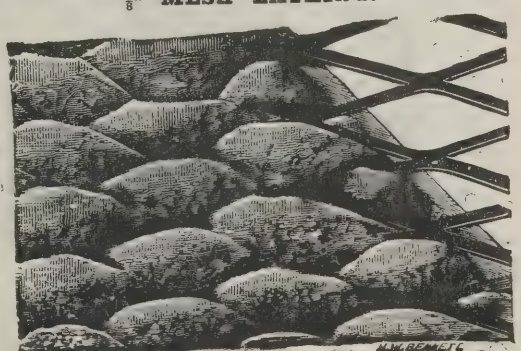
A REMARKABLE BUILDING SCHEME.

THERE is building in Newhall Street, says the *Birmingham Post*, an edifice which its originator hopes will play an important part in social and economic progress. The name of the founder will give a clue to his object. It was with Mr. W. T. Smedley, the leader for many years of the Hospital Saturday movement, that the building and the scheme of which it forms part began. Hospital Saturday will be an important partner, perhaps for some time the predominant one, in the scheme, but many more things are in view, and greater things seem to be foreshadowed. Like Hospital Saturday the scheme is meant to be self-supporting, while its promoters do not disdain the friendly shove-off which Hospital Saturday, in some of its enterprises, has received and has followed up to such good account. To this end the building has been shrewdly plotted out. The promoters have taken on a ninety-years' lease, from the Colmore trustees, a corner site with a frontage of a hundred feet to Newhall Street, and one of 265 feet to the street sometime known as Bread Street—a street with a past—which having been extended to Newhall Street has now become reputable under the name of Cornwall Street. The rear of the site is bounded by New Market Street.

In Newhall Street the scheme will exhibit its commercial aspect. All the rooms on this (the more valuable) side will be to let, and thus the enterprise is expected to pay its way. This part of the Colmore estate is rapidly improving. Its professional and commercial occupants are increasing yearly in number, and Newhall Street is the recognised home of the consulting physicians. Doctors' chambers therefore and suites of offices will occupy the Newhall Street front. Architecturally dissociated from this part of the scheme by a bank at the corner, the industrial, social or philanthropic section presents its front more modestly, yet in no way abjectly, to Cornwall Street. The whole site measures 3,010 square yards. By taking a large area, including a good deal of back land, the promoters have secured sufficient for their purpose at a very low rate for the locality, namely, at an average of about 3*s.* per square yard.

From the Newhall Street level the building will rise to the height of four storeys, the attic storey in the front being continued as a mansard in Cornwall Street. The material will be red brick, plentifully enriched with bands, mouldings and arches of buff terra-cotta. Having in view the use to which the Newhall Street side will be put, the architecture there will

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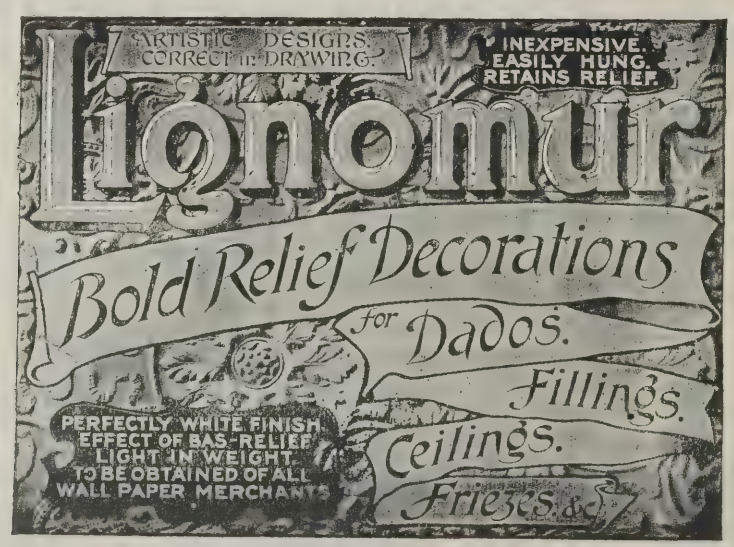
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be almost domestic in its character. The design has been adopted by the architects (Messrs. Essex, Nicol & Goodman) from that of an Elizabethan mansion. The frontage will be ornate but not florid, the details well-balanced, and the general effect, in the materials selected, cheerful but dignified. The front, recessed from the street line so as to give room for a palisaded area, will be broken at each end by projecting sections crowned by gables of curved outline. Each of the two middle sections will have a series of bay windows carried up to the third floor and topped with an ornamental parapet, while the Elizabethan gables will be higher and of bolder character. The high-pitched roofs of the gables in front and the mansard roof at the side will be of grey-green slates. At the corner an octagonal turret will be carried up to the full height of the gables. The middle entrance leading to the public hall, which forms an important part of the scheme, will be a projecting porch with a boldly-moulded arch and pediment. A smaller entrance of similar design will be provided for the officers' staircase, and in the base of the turret will be a large arched door for the bank, the adjoining window of which in Newhall Street will be similarly treated. The Cornwall Street side of the front block will be in similar style to the Newhall Street frontage, but the façade will not be broken. On the ground-floor seven large round-headed windows will light the bank offices, and the upper two storeys will have square two-light windows, while the windows of the mansard storey will be of similar contour to the front gables, and will be joined by a handsomely-decorated parapet.

The Workmen's Hall block, with its subsidiary buildings, will extend to New Market Street. Its architecture will be in harmony with the rest, and the material will be the same, but a little greater freedom and picturesqueness of treatment will help to give it due prominence. The middle bay will have two high-pitched gables and a partly-timbered roof. This will be flanked by two bold projecting bays containing the principal entrances, and each surmounted by an ornamental parapet and a turret, while two projecting bays will connect the block with the bank section. This rear block will have four storeys. The ground floor, corresponding with the basement of the front portion, but given a greater height by the drop in the level of the street, will be laid out partly as a club. It will have a smoke-room (35¼ feet by 62¼ feet), a dining-room (44½ feet square), a games-room (35 feet by 31¼ feet), with a porter's-room, a servery a bar and other conveniences, and committee-rooms for the institutions using the building. The rooms above will serve as offices, for the institutions using the building. The bank will have a spacious public office, with ample private accommodation in the way of rooms for managers and clerks, &c. The doctors' rooms, entered by their own doors from Newhall Street, will be on either side of the main entrance, three suites being provided on the ground floor and four on the first floor. Twelve suites of offices will be included in the lettable space of the front block. The public hall will form an important part of the scheme. It will hold from 1,700 to 2,000 persons, and thus will supply the want that has long been felt of an assembly-room not so difficult to fill as the town hall, but larger than those at present in use. It will be available for such purposes as public meetings, balls, bazaars, concerts and theatrical entertainments. There will be a well-equipped stage, 80 feet by 28 feet, with green-rooms, dressing-rooms, scene-dock and every theatrical appurtenance, and a sunk enclosure for the orchestra. The auditorium will measure 90 feet by 64 feet, with a height to the centre of the elliptical ceiling of 48 feet and to the wall-plate of 36 feet. On three sides will be a gallery rising to the top of the room, and having eleven tiers at the end and five at the sides. Access to the gallery will be given by corridors running round the hall at different levels. The hall, which will be handsomely decorated, will be divided into bays, with circular heads cutting into the elliptical roof, and forming a coffered ceiling. The stage will be structurally isolated from the auditorium, and will have an iron curtain, while there will be an ample number of exits from the hall. The principal entrance will be by the large doorway in Newhall Street, and having a long and wide corridor. Adjoining the hall there will be large rooms available for meetings, or for supper-rooms and drawing-rooms; while catering for parties has not been overlooked in the plans. The entrance corridor, about 134 feet long, should solve the waiting-at-the-door difficulty as far as this building is concerned.

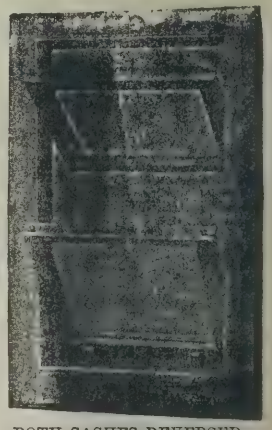
Many uses suggest themselves for the accommodation provided in this building. Hospital Saturday of course will have its headquarters here, and so will gain another such element of permanence as it received from the establishment of the convalescent homes, with the additional advantage that it will be constantly before the eyes of the men, women and children of Birmingham. The "Home Clubs"—formed by ex-patients of the convalescent homes—will have their natural abiding-place here, and their aid, now so great, to the progress of the movement will be turned to even better account. It is hoped that trade societies and other workmen's organisations,



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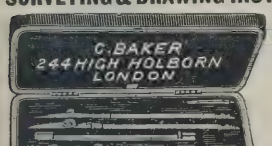
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friendly and co-operative societies, and other aids to self-help, and philanthropic organisations conducted by the working classes, will make the place their home. The clubrooms should afford excellent and social educational advantages. It is suggested that they should be open to members of all the societies using the building. The bank at the corner standing half-way between the commercialism of Newhall Street and the philanthropy of Cornwall Street, still has its future hanging in the balance. Let to an insurance company it would add largely to the return on the investment; used as a workman's savings bank it might work something of a social revolution. There is nothing in Birmingham like the Yorkshire Penny Savings Bank, which, with its numerous branches, has been such a practical and powerful preacher of thrift. Mr. Smedley hints at something even greater. A savings bank with a branch in every factory could collect, even on the present Hospital Saturday basis, and with the same number of contributors, 25,000*l.* a year. This represents a capital of 800,000*l.* Supposing the money were bound to remain at compound interest for twenty years, the accumulation would be enormous. As for the investment of this capital, Mr. Smedley's motto for the workman in a small way, who may have to follow his work from one part of the town to another, or from the town altogether, is not "Buy your own house," but "Buy your own houses." The money, in fact, could be placed in the safest of all investments—real property, and especially cottage property—with the advantage that the men being, though only in a collective sense, their own landlords, would think of health and comfort as well as profit. This is but one of many things which may come out of the Workmen's Hall in Cornwall Street. What the scheme at present amounts to is this:—A company has been formed with a capital of 40,000*l.*, the dividend on which is limited to 4 per cent. in any one year. The company has power under its articles of association to undertake any financial, commercial, trading, or other operations as may be thought desirable for its commercial success. It may undertake, found, subscribe to, or otherwise aid any enterprise likely to be beneficial to the working classes, either directly or indirectly. The establishment of a workman's bank is one of the things specially referred to. The capital of the company represents the estimated capital outlay on the scheme. Taken as a whole the enterprise is supposed to represent a good 6 per cent investment. The letting of the Newhall Street block is relied upon to pay the stipulated 4 per cent., while the letting for workmen's purposes, which will be at low rents, will furnish a fund which may be used for the redemption of the capital, in order that the building may in the end become public property. The amount as yet subscribed is 23,000*l.* This is sufficient to justify proceeding with the building, the walls of which are already above the ground. Whether the rest will have to be raised by mortgage or not depends upon the favour which the scheme finds among those in a position to help it forward. The principal shareholders at present are Mr. Richard Cadbury (chairman of the company), Mr. W. Pilkington, Mr. A. Pilkington, Sir John C. Holder, Mr. A. M. Chance, Mr. J. H. Wilkinson, Councillor Murray, Mr. A. B. Holingsworth, the contractor for the building (Mr. J. Bowen), the architects, and Mr. Smedley.

EDINBURGH AND LEITH MASTER BUILDERS' ASSOCIATION.

THE annual dinner of the Edinburgh and Leith Master Builders' Association was held in the Royal British Hotel, Edinburgh, last week, and was attended by over 120 gentlemen. Mr. John Lownie occupied the chair, and in welcoming the delegates who were present from Glasgow, Perth, Dundee and Aberdeen, said the building trade all over the country was in an exceptionally busy condition; in fact, the time they lived in was very aptly described in a very old book as a time of pulling down and a time of building up. The toast of "The Queen and the Royal Family" having been honoured, the Chairman proposed "The Magistrates and Council of Edinburgh and Leith," remarking that our municipal representatives deserved well of us. Councillor Douglas acknowledged the toast. He could assure them the members of the Corporation appreciated the kindly remarks made by such associations as that. Some thought they were a very extravagant Corporation. There was something to be said for that, because they had entered of late years into very large schemes, but the Corporation felt that through time they would be a great benefit to the citizens generally. He mentioned such schemes as the widening of the North Bridge and the reconstruction of North Bridge Street. As in the tramways they had, no doubt, the charge laid that they had been very long in pushing forward the work and getting it finished, and had the original ideas been carried out the tramways would have been running ere this; but such a demand was made on the members of the Council for extensions throughout Edin-

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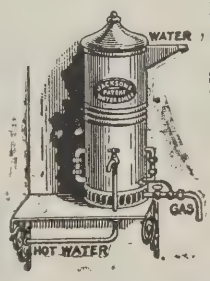
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burgh that they felt bound to give way, and the consequence had been that they were not really completed yet with their cable system. When, however, it was completed it would be a paying concern, and would be very advantageous to the citizens generally, and when electricity came to be the motor power of the country they would be able to lay it down quite easily. Councillor Fisher, Leith, also acknowledged the toast. Mr. Rex submitted the toast of "The Edinburgh and Leith Master Builders' Association." Mr. William Forrest, replying, said their Association was started about eighteen or nineteen years ago with a membership of something like sixty, composed wholly of masons. They had now a membership of over 170, and they had amalgamated with them joiners and plumbers, and he hoped they would press forward towards having all connected with the building trades united into one. "The representatives and members of kindred associations" was proposed by Mr. Drysdale, and replied to by Mr. Forbes, Mr. M'Ewan and Bailie Selkirk (Glasgow), ex-Bailie M'Leish (Perth), Mr. James Worling (Aberdeen) and Mr. James Buirie (Dundee). Mr. Drysdale proposed "The architects and surveyors," which was acknowledged by Mr. Hunter Crawford, who referred to the loss the profession had recently sustained in the death of Mr. Hamilton Beattie; and by Mr. Carfrae and Mr. Lawrence. "Our merchants and contractors" was proposed by Mr. Elliot, and responded to by Councillor Graham Yool (Leith). Other toasts followed.

SANITARY SCIENCE.

THE questions set by the examiners in practical sanitary science for the candidates at the Sanitary Institute on December 2 and 3 were as follows:—

1. What is the law relating to the diffusion of gases? What bearing has this on the ventilation of living rooms?

2. Describe the wet and dry bulb thermometers. State how the relative humidity of the atmosphere can be arrived at by means of this instrument.

3. What is meant by "ground air" and "ground water"? What circumstances affect the movements of each, and how may they get polluted?

4. Specify the construction and materials of a fireproof floor 60 feet long and 20 feet wide, capable of bearing a distributed weight of 25 tons.

5. How can a schoolroom best be ventilated? What should be the size of inlets and outlets provided, and what should be the relative positions of these openings?

6. Describe briefly a refuse-destructor and its uses. What temperature is usually maintained to destroy ordinary town refuse, and what percentage of clinker remains after cremation?

7. In what state of combination does the largest proportion of nitrogen exist in fresh town sewage? Shortly describe the treatment you would recommend for defecating the sewage and utilising the nitrogen compounds in solution.

8. A drain with a fall of 1 in 40 has a velocity of flow of 3 feet per second; what velocity would be secured if the same drain is relaid with a fall of 1 in 30?

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

25155. Thomas William James, for "Improvements in the manufacture of artificial marble, granite and the like."

25252. Edward Henry Carlyon, for "Improvements in puzzle-bricks for instructing children."

25304. Reginald Haddan, for "Improvements in the process of manufacturing artificial stones."

25360. Charles Marson, for "An improved artificial stone for buildings and the like."

Specifications Published.

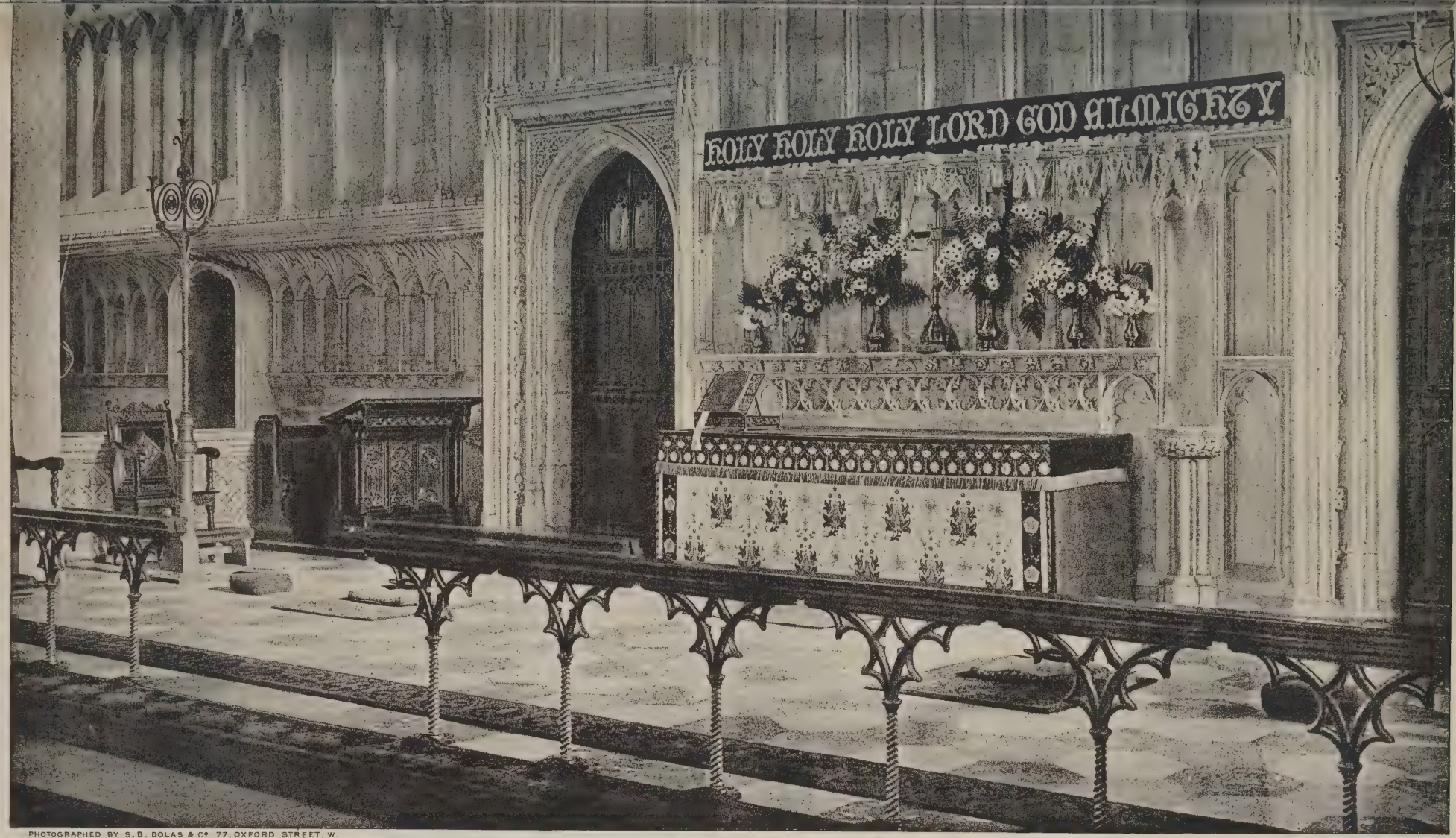
9263. Cummings & Cooley, for "Stone sawing machines."

18231. Bachmann Vogt, Weiner Konig Kirchner and Jorg, for "Electrical appliances formed of artificial stone."

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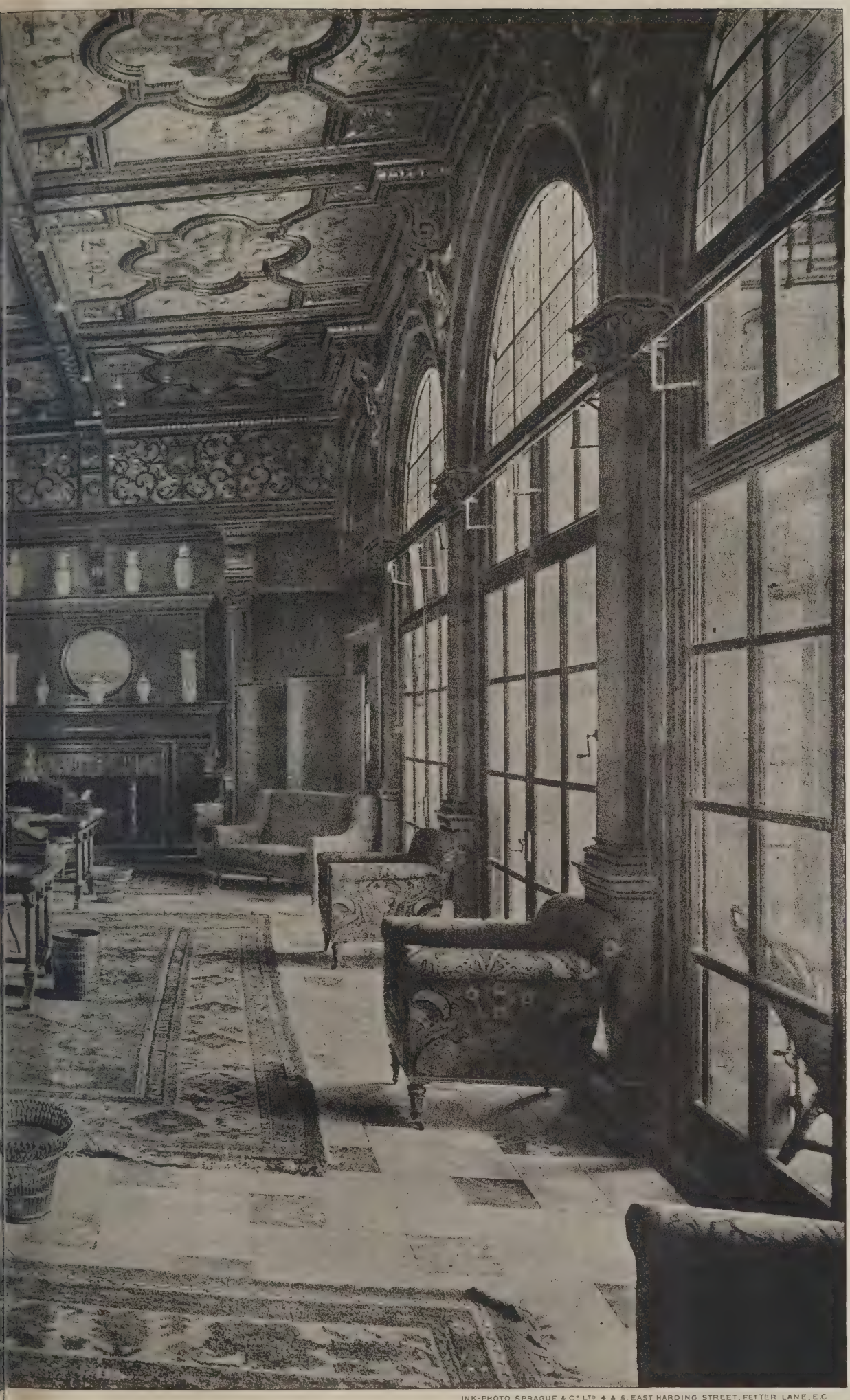
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CATHEDRAL SERIES, No. 180.—ST. ALBAN'S: THE SCREEN.



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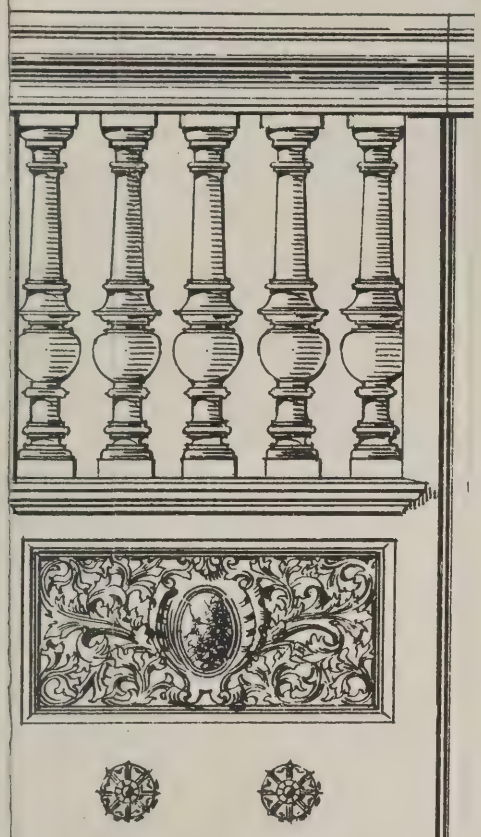
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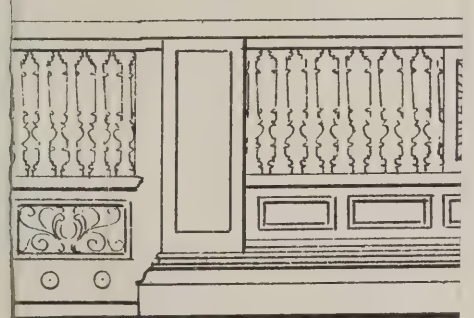
AND: WRITING ROOM.

UTT, Architect.

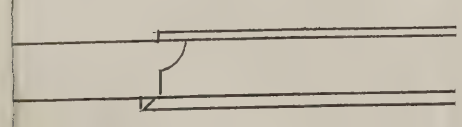
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EDRAL.





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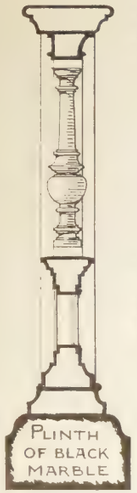


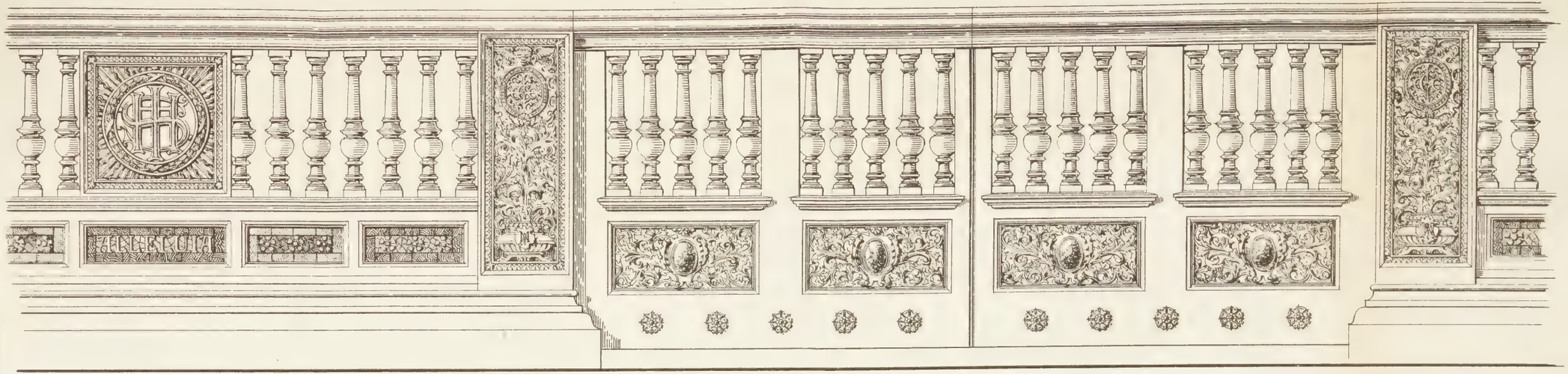
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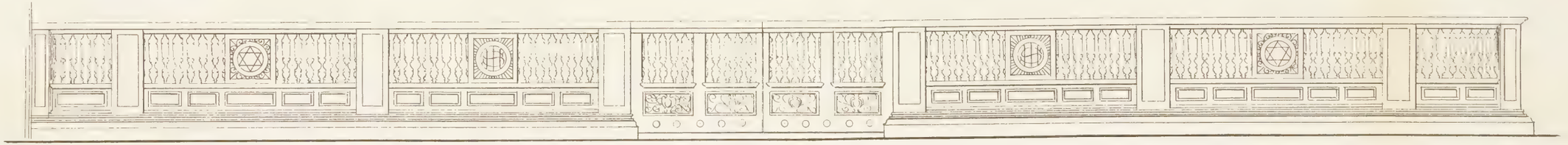
COMMUNION RAILING OF BRASS —— CANTERBURY CATHEDRAL.

SCALE 1½" INS TO A FOOT.

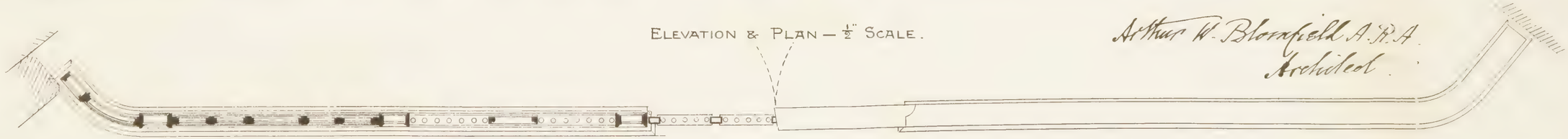
SECTION







ELEVATION & PLAN — ½" SCALE.



THROUGH PANELS & BALUSTERS

PLAN OF CAPPING

Arthur W. Blomfield A.R.A.
Architect.

The Architect.

THE WEEK.

A CURIOUS case (FINCH *v.* WOODROW) of contractor's liability was heard in the Court of Appeal on Saturday. The plaintiff, who owned a public-house in Bishopsgate Street Within, agreed with the defendant, a builder, to carry out alterations, the most important being the construction of a fireproof flooring over the refreshment bar. It was agreed that business was not to be interrupted during the works. One day a part of the ceiling fell on three customers in the bar. The accident was caused by a workman stepping on a steel joist before it was fastened, when it tilted and caused some of the plaster to fall. The customers threatened actions against the plaintiff, but the defendant said that he assumed responsibility, as he was insured for his own workmen and the public. A trial action was brought, and judgment was given for 50*l.* with 29*l.* 6*s.* 8*d.* costs. The money was paid by the insurance company and handed over to the plaintiff. The two other customers then claimed damages, and the plaintiff paid money into court. The insurance company, however, refused to pay any more damages on the ground that it was a mistake to have paid the first sum. The plaintiff consequently brought an action against the defendant. The jury found that the accident was caused by defendant's workmen, but the judge considered that the plaintiff was not liable to his customers, and therefore could not sue defendant upon his agreement to indemnify. Lord Justice SMITH considered that the defendant did not carry out his contract, since the business was interrupted and three customers were injured. The customers who brought the actions could not be non-suited, and therefore the defendant was bound by his promise to indemnify the plaintiff. Lord Justice RIGBY concurred on similar grounds. Lord Justice COLLINS said the defendant ought to have taken reasonable precautions for the protection of those who were in the bar. Under the circumstances the plaintiff was therefore entitled to recover. Apparently, the builder, as is not unusual, took too much for granted. The agreement with the insurance company is likely to have been misunderstood, and as the contract with the plaintiff was not in writing it is no wonder it was indefinite. The builder's notion was that the liability between himself and the plaintiff was mutual.

MR. THOMAS DREW, R.H.A., has for the third time been elected as president of the Royal Institute of Architects of Ireland. There could not be a more significant testimony to his efforts to obtain adequate recognition for the profession of architecture in Ireland. The Institute has now central offices in Lincoln Place for meetings and for the use of members, with whom may be included the members of allied societies visiting Dublin. The ancient name of the thoroughfare was "Patrickswell Lane, leading by Slicer's Lane to the pleasure-ground known as the Folly, in the suburbs of Dublin at Lazy Hill." One of Mr. DREW'S suggestions was the appointment of a standing art committee, which was adopted after his address. There is much need of a censor in Dublin. Works of at least two English architects are in danger. Trinity College, of which Sir WILLIAM CHAMBERS was architect, is to be degraded by an enlargement which is suggestive of artisans' dwellings. The City Hall, which was originally the Royal Exchange—a building designed by THOMAS COOLEY—is surmounted by a dome. It is contemplated to transform the central space beneath into offices for the municipal officers. Sky-signs are becoming common and advertisement hoardings appear to be more profitable than the houses they enshroud. There is much else which offends the eyes of visitors, and for their sake, if the natives are indifferent, we hope the Institute's interference will be accepted in goodwill.

THE late Baron FERDINAND DE ROTHSCHILD, who died suddenly on Saturday last, was not much known as a patron of modern British art. But he possessed one of the storehouses from which the organisers of Winter Exhibitions of the Royal Academy could draw attractive works. Many amateurs were looking forward to the time when the pictures he was able to buy from the SIX Collection in Amsterdam last year would be seen in Burlington House. It was remarkable that although he prized many of the Dutch masters, he was indifferent to REMBRANDT. The Baron's examples of portraits by REYNOLDS, GAINSBOROUGH and ROMNEY were among the best existing. But of late he preferred works of early painters, and the one picture which he confessed to covet was VAN EYCK'S *John Arnolfini and his Wife* in the National Gallery. In his country house, Waddesdon Manor, which was designed by a French architect in the style of Chambord, there was a marvellous collection of French workmanship of various descriptions. It is to be hoped several of the objects will find their way to the National collection. Unlike many wealthy people, Baron FERDINAND did not buy with the intention of displaying his wealth by forming a museum of costly things. He sought after whatever gave pleasure to himself, and he was a gentleman whose taste was cultivated. On that account Waddesdon Manor is a treasure house with far more unity than is commonly seen when there is unlimited wealth to buy curious, beautiful and historic objects.

IT is generally satisfactory to Englishmen, and especially at the present juncture, when they find Frenchmen flattering them by imitation. For the sake of our neighbours we must wish they had not thought it would be advantageous to have a Workmen's Compensation Act. The measure has not yet passed the Senate, but coming events cast their shadows before. One victim has been sacrificed to the immature Moloch. In Paris the builders are busy, and consequently there is an unusual demand for stone-workers. But a few days ago one of the trade threw himself out of a window of his dwelling in the Rue des Amandiers and was killed. Why did he commit suicide? Simply because he could not obtain employment. He was married and was the father of six children. Under the new law that is fatal to a workman. The indemnities are so large that employers will not engage men who will leave claimants to set up a legal demand for compensation in cases of accidents. If he were a bachelor he could have earned at least eight francs a day, including Sundays, but as the father of a family he was doomed to starvation and suicide.

BREAD-CRUMBS are supposed to be more useful than indiarubber in cleaning plans. But the most experienced surveyor could not have anticipated that a use for them would be discovered in the cleaning of frescoes, although bread is employed to freshen wall-papers. Professor CHURCH, who is devoting much attention to MACLISE'S pictures of WELLINGTON at Waterloo and NELSON at Trafalgar, proposes to apply a shower of bread-crumbs to the wall-paintings. Chemical washes appear to be dangerous, and it is not unlikely that the gentle friction of particles of baked flour would be more effective. At all events, there is not much risk in the experiment.

THE Bradford City Council recently sought for competitive designs for a central Fire Brigade station. As the conditions were considered to be unfair, the Bradford Society of Architects and Surveyors offered various suggestions for the amendment of them. For instance, it was originally stated, "That if the works be carried out under the supervision of one or more of the competitors whose designs have obtained the premium, then the said premium or premiums shall be merged into and become part of the architect's commission," from which it might be concluded that the works could be divided among some competitors. Owing to the remonstrance of the Society that condition has been abandoned. Originally there was no guarantee that an assessor would be called on. It is now said that if the Council determine to do so the nomination shall be left to the President of the Institute of Architects. Originally the 5 per cent. commission was to include payment for quantities. Now there is an addition of 1½ per cent. to meet that expense. The time for sending in designs has been extended from January 2 to February 1, 1899. A margin of 10 per cent. over the 10,000*l.* proposed to be expended will be allowed.

CHRISTMAS: A REVERIE.

[BY A CORRESPONDENT.]

AT Christmas I consider the houses I have designed in a peculiar, or, let us say, in a seasonable light. During the rest of the year if I think of them it is as structures or as property. I see them not as they appear to outsiders, but with their internal arrangements manifested. I dare not say they are perfect even in my eyes. I am glad when I find the houses are occupied, for every architect must desire to see his clients rewarded for the investments in which he was the agent. A vacant house may mean the break up of a family, and in such cases there is no hope of reparation, for it is vain to ask—

> Ah! when shall they all meet again,
> As in the days long since gone by?

The only answer is the French preacher's "Toujours! jamais! Jamais! toujours!" A house to let may, however, signify inconvenience or sundry discomforts, and that is not an agreeable discovery for an architect; or it may be evidence of a decline in the value of a neighbourhood, which he may imagine he should have foreseen. For these reasons and others, consideration of the houses that we have planned does not always afford unmixed joy.

At Christmas time it is possible to think of them as homes, and by that one word how much is conveyed? Sir HENRY WOTTON described the English home as "the theater of a man's hospitality, the seate of self-fruition, the comfortablest part of his own life, the noblest of his son's inheritance, a kind of private princedome, nay, to the possessors thereof, an epitome of the whole world." But much more could be said concerning the treasure which the home can yield, and it is never more productive than at the close of the year. "Is it not plain," asks EMERSON, "that not in senates, or courts, or chambers of commerce, but in the dwelling-house must the true character and hope of the time be consulted?" It is as the scene of events which have more than individual interest that I endeavour to contemplate the houses in which I claim an abstract or imaginary ownership. Although I know all about the roofs, as I have no ASMODEUS to help me I cannot remove them. I must therefore trust to fancy to see relatives and friends gathered in the rooms and rejoicing in a hospitality which blesses those who give more than those who receive, and to see reconciliations sealed, hope inspired, pity bestowed on some. The arrangement of the rooms as I think assumes an interest which I am afraid I did not anticipate when I laboured over the drawings, and I claim to have had a share in the light and warmth which enhance the heartiness of the hosts. That young and old rejoice I take as partly an effect of my work, and any pains I may have taken are rewarded.

If put under examination I must, of course, admit that all my visionary pictures are delusions. My acquaintances who profess to have discovered the realities of life are confident that Christmas, with its aids and appurtenances, are the most melancholy of all things. There is no sincerity, it is said, in the ostentatious overflowing of spirits, no more real joy in the gatherings at houses than is found among the assemblies of "supers" in the pantomimes. In both the effects are "got up" for the occasion, and the stage management of the theatre is supposed to be exhibited on a diminished scale in private houses. Poor houses, in which all parts were so simple and truthful when they left the architects' hands! All this cynicism is no more true than the rejoicing it would dispel. It is only one of the signs of—

> The hardening of the heart, that brings
> Irreverence for the dreams of youth,

and age as well as youth can have its consoling dreams. Whatever we come across is pleasing or the reverse according to the valuation we make of it, and Christmas festivities can become a source of pleasure to onlookers as well as participators. The wise Vicar of Wakefield said that nature had made him find as much delight in happy human faces as other men discovered in the colours of a tulip or a butterfly, and we suppose he did not exhaust the pleasure. It is true, Christmas dinners are not always feasts of reason and flows of soul, and DICKENS's description of one under the most favourable conditions may not be comparable with any of the Banquets of the Learned of which ATHENÆUS was the reporter. But when contrasting the two, it is well to take into account the difference of the races.

To a Greek a bowl of wassail, a boar's head, a turkey, a sirloin of a prize ox, plum pudding, mince pies and the like would appear to be the elements of a feast that was adapted for barbarians alone. On ordinary days a Greek could subsist on a few olives, with bread and cheese. When he was invited to a banquet he expected to fare on dishes that to English appetites would be ridiculous if not repulsive. Readers of "Peregrine Pickle" will remember the attempt to revive ancient elegance in eating, and how Mr. PALLET, the painter, on tasting the soup, "seemed to be deprived of all sense and motion, and sat like the leaden statue of some river-god, with the liquor flowing out at both sides of his mouth," and how, when he recovered, he expressed a preference for burning brimstone. After tasting one or two of the dishes the honest artist declared he would not give one slice of the roast beef of Old England for all the dainties of a Roman emperor's table. At last, however, the smell of some of the stuffing was so intolerable to him that in his hurry to escape he brought down the table and scalded the guests. Critics who object to English dinners will find a lesson in SMOLLETT's novel, in which the real effects are suggested of dishes which in an antiquarian essay may only excite surprise. There was much else beside the dishes which made an ancient banquet dangerous.

The English Christmas festivities were always those of men who were healthy in mind and body. They originated with the Northern sea rover who—

> High on the beach his galleys drew
> And feasted all his pirate crew
> Then in his low and pine-built hall
> Where shields and axes deck'd the wall.

The unrestrained spirit which inspired those early carousings prevailed for many a century, and it was excusable if once a year the burthen of life was lightened, although there was not much refinement in word or action. As SCOTT wrote:—

> England was merry England, when
> Old Christmas brought his sports again.
> 'Twas Christmas broach'd the mightiest ale;
> 'Twas Christmas told the merriest tale;
> A Christmas gambol oft could cheer
> The poor man's heart through half the year.

Impressions are less enduring in our time, and I doubt if a model pauper could be made happy for three months or three weeks by the recollection of an exceptional Christmas dinner, while the majority of hosts know too well that their guests' memories vanish in a more brief time. Only the feasts which disagree with us are likely to be remembered.

But whatever the effects, we can always best judge of a people by their dinners. Instinct is a better guide than fashion in the choice of food and drink. What best agrees with Englishmen can be grown or reared in England. All FITZSTEPHEN of Canterbury said in the twelfth century remains true, namely, that there is no need to seek in Asia or Africa for delicacies when there were always available "roast, fried and boiled viands, large and small fish, coarser meat for the poor, with venison, fowls and small birds for the rich, without going beyond the country." A great many of the importations which are in use may be pleasant, but they are injurious.

Although I have been led almost mechanically to write about Christmas fare when thinking of houses, the subject was not in my thoughts when I allowed myself to fall into a reverie. I am not an epicure, although I know many artists who pride themselves on their inventive skill in cookery. I believe, however, that the meals of a people are as trustworthy a clue to character as any other we can discover. In England they never corresponded with those of countries which are denominated Classic. The difference may be due to custom, or may be caused by physical qualities in the people. Whatever the origin, there is no doubt of its existence.

In literature we have had a similar experience. Although for hundreds of years the Universities have endeavoured to acclimatise Greek and Latin in this country, they have not prevailed. It cannot be said that one scholar has succeeded in employing either language in a work of sufficient length to compel acknowledgment of his power by foreign critics. Nor can the imitations of Classic works in English be considered as equal to similar attempts by Frenchmen. Nor can it be said that the ablest English sculptors have caught the Greek spirit. The public are not, however, dissatisfied, for what interest can gods and goddesses have for them? In architecture, and in it alone, the necessity of keeping close to Greek and Latin models became so imperative that slavish copying was the result. The national spirit was in reality as indifferent to Greek or to Roman buildings as to Greek or Roman dishes, but influences were brought to bear which made it indispensable that the ancient models should be reproduced with fidelity. When one sees the examples of the Classic period which for a time passed over England, one wonders how Christmas festivities could have been held with such chilling surroundings. At present a Classic hotel is dreary enough to the eye of travellers. What must have been "a home," however stately, which was treated in the same fashion? Was there ever a sincere regret expressed when the style was superseded? We may at least be certain that nobody who was once at a Christmas party in a mansion which was described as Classic would care to renew acquaintance with it.

Yet there are comfortable houses at the present day which show a relationship to that style. It is, however, Classic which has suffered a sea change on reaching us. An ancient would say the style had lost refinement and the qualities which used to give it character. I am afraid there is a perversity among us which makes light of deviations from a sublime original. When CHAPMAN'S "Homer" appeared there were men of exquisite taste in England, and they appreciated the free treatment of the Greek poet's work beyond any literal rendering of his lines, because, much as they loved fidelity, they loved inventiveness still more. Nor was there an outcry when, in "Troilus and Cressida," the Trojans were described as more deserving of success than the Greeks. Thought was always free in England, and who could prevent the men of SHAKESPEARE'S time from believing that HECTOR was a braver soldier than ACHILLES or that DIOMEDE was inferior to TROILUS? To a purist the play is an extravaganza, an unworthy travesty of the noblest of poems, but even in matters of taste the English mind submits to dictation with difficulty.

My reverie has already gone far enough, and it is time to recover before arriving at depths which would be perilous. What I would assert is that at a time like the present there is something to monopolise the thoughts of an architect who for twelve months has been toiling in a prosaic manner in his art. The chance of a brief period of liberty cannot be seized. But if the thoughts must run upon architectural subjects there is no necessity to fix them on quantities, estimates, tenders, extras and similar subjects which do not always afford relaxation. I have allowed my fancy to roam as it liked, and in the end I do not think less of the style of building which appears in outline on my drawing-board, although I must own it would not please an architect of Athens or Rome.

THE MYSTERY OF MICHEL ANGELO'S POEMS.

IT is commonly assumed that when LORENZO THE MAGNIFICENT invited MICHEL ANGELO, then a lad of fifteen and an apprentice to a painter, to become an inmate of his palace in Florence he was displaying surprising condescension. In one sense the act could be so interpreted. But it should be remembered that, although the young artist's father LODOVICO was so mercenary as to insist on payment as if the affair were a slave-dealing transaction, yet the BUONAROTTI were of a higher lineage than the MEDICI. The latter belonged to a family of druggists, and came from Magelli, a village at the foot of the Apennines. MICHEL ANGELO on his father's side was, as VASARI tells us, descended from the most noble and most ancient family of the Counts of CANOSSA, and his mother was also of noble birth. The Florentines, whether nobles or plebeians, were fond of lucre, and his contemporaries may have considered the ex-Podesteria was only acting wisely when he turned LORENZO'S admiration for the young MICHEL'S abilities into a source of revenue. But a genealogist would say the prince did not have to stoop much when he received the pupil of GHIRLANDAJO into his house in 1490. Nor was it as a menial the youth received five ducats monthly, and a violet-coloured mantle occasionally.

LORENZO had promised to treat the lad as if he were one of his own sons. Three of them were then living—PIERO, who succeeded his father and was allowed to rule for a couple of years; GIOVANNI, afterwards known as LEO X.; and GIULIANO, who at his death was a French duke as well as a Florentine prince. There were also four daughters, of whom the youngest was LUIGIA. MICHEL ANGELO was welcomed among them as if he belonged to their family. He sat at table with them, and shared with them the instruction of POLITIAN and other masters. At the meetings of the Platonic Academy, which were among LORENZO'S relaxations, he was able to meet with LEON BATTISTA ALBERTI, PICO DELLA MIRANDOLA and other glories of the Renaissance. An impressionable youth like MICHEL ANGELO was able to inhale knowledge almost without labour. They were happy days, although occasionally envy disturbed them, as in the case of the unfortunate TORRIGIANO. But they lasted only four years. The MAGNIFICENT died, and as VASARI says, "MICHEL ANGELO returned to his father's house in great sorrow for his loss;" and well he might, for whatever were his political faults LORENZO was generous to young BUONAROTTI. CONDIVI says that MICHEL ANGELO suffered so much that for several days he was unable to work, a circumstance that, more than words, reveals the state of the artist's mind.

Can we suppose that the younger MEDICI were all proof against the fascinations of the youthful genius? Was Platonism dominant in the household? The portraits we have of MICHEL ANGELO suggest a stern, if not morose man, and it is easy to conclude that his character had never changed, and that he was never much of a ROMEO. Before he received the blow from TORRIGIANO he was a handsome as well as a vigorous youth, and there was no reason to prevent him from submitting to love's influence like the majority of Italians of his own age. LANDOR, in a "Conversation" between VITTORIA COLONNA and MICHEL ANGELO, makes the lady say, "Before we go into another state of existence a thousand things occur to detach us imperceptibly from this. To some (who knows to how many?) the images of early love return with an inviting yet a saddening glance, and the breast that was laid out for the sepulchre bleeds afresh." We can imagine such words were really spoken, for LANDOR'S sentences would not be unworthy of issuing from the lips of a COLONNA; but, if so, would they excite no train of recollections in the mind of MICHEL ANGELO? Much as he may have admired VITTORIA in his old days, we cannot consider she was his first love. Was all MICHEL ANGELO'S admiration for beauty while he was an inmate of LORENZO'S house restricted to the "valuable antiques and excellent pictures" which were to be found in the gardens and galleries? If that were true of him, then PIERO MEDICI was justified in employing him throughout a whole winter in making statues of snow.

The sculptor was not a man to "wear his heart upon his sleeve for daws to peck at," and although he was all ready to break out in the presence of a pope or a prince, he never gave many opportunities to spies or tale-bearers. But a man of his genius must at times have had thoughts which required to be uttered by different means besides marble or fresco. So great an admirer of DANTE could not despise poetry as if, like painting in oils, it were an occupation adapted for women alone, and a commentator who could occupy twenty-four pages with a dissertation on a sonnet of PETRARCH did not need WORDSWORTH'S advice, 'Scorn not the sonnet.' A collection of MICHEL ANGELO'S sonnets and madrigals appeared in 1623, having been edited by his grand-nephew from manuscripts which are in the Vatican. The poems were not entirely a surprise, for some of them were printed during the lifetime of the artist. That many of them were inspired by the mature VITTORIA COLONNA is more than probable, for although

another hand may have written her name upon them, yet the peculiar ideal character of the sentiments and the reverential admiration expressed, as if the writer were addressing a beatified personage, tend to that conclusion. But in the collection there are others which are not entirely etherealised. Can we suppose they are compositions of his youthful days, when, as Vasari records, he gave proof of boldness and animation in all he did? According to the same authority, at the time of Michel's birth the constellation Venus exhibited a friendly aspect, and why should not Luigia de' Medici come under the celestial influence?

If a name were mentioned in one of the sonnets or madrigals, the theorist's task would be simplified. Poets, however, appear to consider that nomenclature belongs to prose alone. Besides, in that age and in Italy it would be treason to aspire to the consideration of a princess. Tasso came to grief for introducing "Eleonora mia" in a verse which he kept from publication. Michel Angelo possessed qualities which foretold renown, but a princess, although of a commercial family, was a princess, and for an artist to hope for her hand was as foolish as to love "a bright particular star and think to wed it." Anyone who is eager to solve the mystery contained in the artist's poems must therefore make the experiment for himself. There are the lines: are they addressed to an elderly or a young lady, are they inspired by the idolatry of youth or by the reflection of age? Moreover, some of them may have another aim. Dante's "Beatrice" appears at times to be an impersonation of virtues and sciences, and Michel Angelo may have often indited some of his sonnets to his art. The whole series is almost as much of a puzzle as those of Shakespeare, but we are never disposed to desire after reading them that they were never written. However obscure, they reveal the beauty of Michel Angelo's mind.

Thackeray was mortally offended when Edmund Yates referred to his flattened nose, which was caused by a blow at school from young Overend. We can then understand how the effect of Torrigiano's stroke would cause agony to a handsome young artist when he found his face was transformed. Now the twenty-first madrigal reveals suffering of that kind. Michel Angelo wished to represent another image, presumably a portrait of the lady he addressed, but every failure appeared to him to be a portrait of himself. "Do what I will," he says, "I can only carve my afflicted features." If the old Michel Angelo could express himself in that way his greatest admirer would admit that he was excessively vain, and we may therefore conclude that the madrigal is a revelation of youthful distress. For the same reason Vittoria Colonna, who was elevated above the ordinary weaknesses of women, would hardly be flattered by continuous allusions to the beauty of her face. She must have known that age had laid its hand upon her, and she was too ascetic to wish to become a second Cleopatra, who could not be withered by years. It would not please her then to be told by the artist that a beautiful face could transport him to heaven, and make him live among the elect in a circle where few mortals were admitted. Vittoria was sensible, for she was a reformer, which was a dangerous vocation at the time, and with her sense of duty it would not be complimentary to be told that her votary could not turn away his eyes from hers without losing the light which was to show him the path to Paradise, an idea which is an anticipation of Tom Moore's lyrics. Vittoria was besides a widow, for she had married the Marquis Pascara, and the allusions therefore to a damsel would not be applicable to her, although in no other way could he address Luigia de' Medici. For instance, in the fourteenth madrigal he says, "Natura ogni valore ogni bellezza in donna ed in donzella pose."

From what he writes about Vittoria it would not be difficult to make a portrait of her, for Michel Angelo not only suggests the form of the features, the colour of the hair, the character of the complexion and peculiarities of costume, which probably were not often changed, for the lady was puritanic, but also recalls the honest, frank expression which was natural to a woman of her character. It was known to many that Michel Angelo admired Madame Pascara, and apparently he made no effort to conceal that fact. But, as we have said before, it would be a crime to give any indication of the Medicean princess. The poet does not mention her name, but he is careful to avoid saying one word which his enemies or rivals could turn to his disadvantage and which would wound her susceptibilities. We do not profess to be able to discriminate between the two or more series of poems which are to be found in the collection, but we believe they could not have a common origin, and that if carefully studied by artists who can appreciate the peculiar turns of thought they would afford a revelation of Michel Angelo's inner life, and become a mental biography of the painter, sculptor and architect.

It is certain, however, that any reader who comes to the perusal with an unbiassed mind will allow that the common theory about Vittoria Colonna being the sole inspirer of the sonnets and madrigals can only be acceptable by supposing that Michel was an unskilled poet, and could not adapt himself to circumstances, or that the elderly pair used to recreate themselves by philandering as a boy and girl who were in love's first dream.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last at Conduit Street, Professor Aitchison, R.A., president, in the chair.

The Hon. Secretary announced the decease of Henry Bridgford, elected Fellow in 1888, and of Professor Hayter Lewis, who was elected Associate 1845, Fellow 1852. Professor Lewis was hon. secretary for a period, and had been twice elected vice-president, serving that office from 1865-67 and 1878-82.

On the motion of the President, seconded by Mr. John Slater, a vote of condolence with the relatives of Professor Hayter Lewis was passed.

The President announced that the Council had voted a sum of 10*l.* towards the memorial of the late Charles Garnier.

Mr. Bernard M. Drake read a paper on

Some Practical Hints on the Production and Use of Electricity for Lighting Country Houses.

Mr. Drake said that to the multifarious knowledge of the architect must now be added a grasp of the "practics" of electric lighting and its attendant paraphernalia. He should confine himself to the practical points which crop up daily in an architect's office, and are searched for in vain amongst the text-books at his disposal. In lighting a country house, the first question concerns the provision to be made for the generating plant, and where it shall be put. The various developed methods at disposal are:—(1) Steam-engine; (2) petroleum engine; (3) gas engine; (4) water-wheel or turbine; (5) wind engine; (6) primary battery. The advantages and disadvantages of each method were fully considered by the author, whose own experience was that a combination of gas and petroleum, or turbine and steam-engine, gave the best results. Each case, however, required an individual study of the local conditions and working requirements before deciding what would be best; it was not a matter which could be safely left to the decorator or hot-water engineer to diagnose. From whatever source the power is obtained, the dynamo for ordinary requirements is the same, except that it requires to be fitted with a flywheel for use with petroleum and slow-speed gas-engines, providing the engine has to be run while the lights are used. Where only required for charging the accumulators this may be omitted, as it wastes power. The most important features in the dynamo for country-house lighting are:—1. Absence of sparking, which wears out both brushes and commutator; 2, perfect balance of the armature or revolving portion of machine, vibration being one of the causes of what are known as flats on the commutator; 3, strong shaft and wide bearings; 4, good automatic lubrication, the best form being a loose ring revolving in an oil bath; 5, absence of heating—undue heating of the armature and magnets causing unnecessary loss of efficiency. The accumulator is a necessity in every country-house installation, and the position of the room for its accommodation requires careful consideration. For reasonable distances up to 150 yards the engine and accumulator-rooms should be placed alongside each other, as the attendant can see that each cell charges up equally, which is essential to success. Where the current is brought from a distance, or where the light will always be supplied from the accumulator alone, a considerable saving can be made in the cost of cables by separating the engine and battery-room. There must be no direct communication between the dynamo and cell-room, or the cotton insulation will be found to rot off the dynamo after a few years. In selecting a type of accumulator the main question is absence of attention, which can only be obtained by having the

plates well apart, say half an inch, so that any detached portions fall away instead of bridging across and exhausting the cell. The author considered that a clear space between the plates was also preferable to enclosing them in any form of celluloid bags or wrappings, which soon become clogged with oxides. The use of a registering meter is recommended in the engine-room as the best check on the amount of coal, oil or gas consumed. The engine-house should be placed with due regard to prevailing wind, and not less than 50 yards from the main building. The author next considered the questions of first cost and working cost, giving data applicable to average country-house installations, from which also could be determined the class of motive power to be adopted. Results were also given of a week's recent test with a modern generating plant for a large installation of 2,000 lights. In discussing the lighting of rooms the author emphasised the necessity of having light and dark portions and, as it were, semi-tones. A room lit equally throughout gives a flat effect, and is neither artistic nor restful. A bright light causes an involuntary contraction of the pupil of the eye, and causes a tired feeling which may ultimately result in eye troubles. The ignorance of electricians concerning this simple fact is probably responsible for the complications ascribed by oculists to the electric light itself. The secret of a restful light is the illumination of a large surface with an absence of any dazzling spots of small area. In a room thus lit the pupil of the eye expands to its full limit, and the weakest eyes can read with comfort. To get this result either the rays must be diffused by transmitting them through a large shade, or reflection must be resorted to and the direct rays be projected on the walls and ceiling from some hidden source. The illuminated surface is then greater than that of even the largest shades and the effect more restful. This treatment in the case of light-coloured walls and ceiling is capable of wide adaptation. A combined shelf and picture rail containing a row of hidden lamps for reflected light had been employed by the author, and pretty effects could also be produced with small lamps concealed in the overmantel and in china cabinets. Coming to the question of fittings in old houses, the existing candle fittings have often to be adapted, as being in accordance with the style of the room. As regards the objection that imitation candles are inartistic, it must be remembered that the designer had the candle in view as the basis of his outline, and without it the proportions are wrong and the drip cups and other parts meaningless. An incandescent lamp springing direct from a candle socket is a squat abortion that has nothing to commend it. In these cases every effort should be made to get the precise effect of candles without their disadvantages, and as far as possible to conceal the fact that electric light has been employed. Examples were shown of the way in which old fittings may be treated without detriment to their appearance, and attention was called to the economy of shading only the front of lamps placed against a wall, for thus the full advantage of reflection is obtained, and an 8 candle-power lamp will take the place of a 16 candle-power if totally enclosed. There were also shown a few typical fittings made expressly for electric light. Having touched upon the fittest materials for shades, the colours of which should be tested before making a selection; the objections to working the lamps into plaster-work in the ceilings instead of using metal fittings; the precautions to be taken to avoid risk of fire from the heated lamps, the author concluded with some hints on the treatment of the different rooms, passages and staircases. In adapting candle fittings to a dining-room table the wires are distributed by a patent connector lying under the table centre, and neither the table nor the cloth is pierced. One of the best effects produced by the author was in the dining-room at Chatsworth, where powerful lamps were hidden in reflectors at the base of the pictures all round the room; thus pictures and ceiling were illuminated and the rest of the room remained in repose. In drawing-rooms, which should be brilliantly lighted, the author preferred o light principally from the walls and from standards, as a top light is unbecoming to ladies, causing dark shadows under the eyes. In picture lighting top as well as base reflectors are frequently necessary with large pictures.

A second paper on

Practical Applications of Electrical Power

was read by Mr. H. R. J. Burstall. In defining the scope of his paper the author said he proposed to deal with the general principles underlying the application of electrical power, to describe a few typical forms of apparatus, and to discuss the question of the cost of power under ordinary circumstances. Electrical power, as distinct from lighting, in buildings for non-manufacturing purposes, may be generally applied to, roughly, five classes of use—lifting and hoisting; ventilating; driving machinery for small trades and for domestic purposes; pumping; heating and cooking. In all except the last class electrical power is applied by means of electric motors, the type varying according to the purpose for which the motor is required. Most motors are supplied from a continuous current system, the electrical pressure varying from 100 to nearly 500 volts, 200 to 250 volts being the most usual. Describing the general type of motor and its method of working, the author showed that the regulation of speed and power in it is carried out entirely by electrical methods, no sort of governor, as in a steam or gas engine, being as a rule required. Motors used for the purposes under consideration are usually supplied at a constant electrical pressure, and generally made in three types. Where constant speed is required, a shunt-wound motor is used. When a large turning effort is required and not a constant speed, a series motor is used. A compound type is employed in certain cases. It is sufficient to know not only the power required for a particular purpose, but also the conditions of running, before selecting the type of motor desired, and this selection can only be made from previous knowledge of the work or by experiment under working conditions. The author explained how the motors were regulated to avoid waste of energy. The speeds of electric motors, as usually supplied, range from 1,000 to 1,500 revolutions per minute for sizes from one to five horse-power; but motors running at from 200 to 500 revolutions per minute can now be had at reasonable prices. Slow-speed motors are largely on the increase, the extra first cost being compensated for by the reduced wear and tear and by the advantage gained through direct coupling the motors to the machines. The special machinery and apparatus required in the application of electrical power to each of the five uses above mentioned were next discussed and described. In lifts, although the broad principle of electrically driving them is quite a simple one, the actual machinery has to be most carefully designed and arranged, special motors and switches and gear being employed to insure efficiency and economy. In ventilation electric motors form the best driving power for operating fans, whether large fans for the ventilation of a building on some complete system, or small fans for extracting the air from particular rooms, or even for stirring up the air in any room in the manner of a punkah. Special care is required to avoid the noise of the machinery, and fan and motor should, wherever possible, be carried not from the sides of the air trunk, but quite separately from a substantial wall. Noise is often caused by the pulsations of the air set up by the improperly shaped blades of the fan. In this case little can be done except to alter the fan. The loss during transformations of energy from the boiler furnace at the generating station to the coils in the heating apparatus is so considerable that heating by electricity cannot compete with direct heating by means of gas or coal for any purpose where a large quantity of heat is required. As, however, ordinary heating operations in a house are carried on under conditions in which the heat utilised is but a small proportion of that generated, it is possible, by properly applying the electric energy, to use such a large proportion of the energy as heat that competition with coal and gas is rendered possible when other considerations as to dirt, &c., are taken into account. Generally speaking, heating by electricity is applied by passing a current through coils of wire of high resistance; the wires are embedded in an insulating covering, and are heated, together with their covering, to the temperature required. Another method, in the author's opinion of great value, is to pass the current through a number of glow lamps, the lamps being proportioned so that their filaments are not completely incandesced, the room then being heated by radiation as with an ordinary fire or gas stove. The lamps are arranged in special reflectors so as to obtain a "beam" of heat rays. The apparatus is simple, easily fitted and understood, and free from risk of breakdown. The heat obtained being radiant heat, does not produce the enervating feeling produced more or less by all methods of heating by warming the air, and the effect produced is similar to that from an incandescent gas stove or bright red coal fire. The author then discussed the question of cost. Electrical energy is charged for at the rate of so much per Board of Trade unit, a unit being an amount of electricity which will keep an eight candle-power lamp alight for about thirty-five hours. This amount of energy is equivalent to 1·34 horse-power exerted for one hour. The Corporation of Edinburgh charge 1½*d.* a unit for power. In London the average charge is from 3*d.* to 4*d.* Private installation on a reasonably large scale, and economically worked, would cost at from 2*d.* to 3*d.* per unit. A passenger-lift for carrying nine persons, running at a speed of 175 feet per minute, will require about 0·06 units per journey, taking the average of the day's work. This, at 4*d.* per unit, will work out at about one farthing per journey. In ventilating, generally and very approximately speaking, 1 horse-power is required to deal with 20,000 cubic feet per minute, which would correspond to about ¾ of a unit per hour, and, at 4*d.* per unit, would cost 3*d.* per hour. Small machinery may be driven by electrical power for 54 hours per week at a cost of 48*l.* 6*s.* per actual horse-power per annum. An electrical pump. 1 horse-power, will require the expenditure of about 1½ unit per hour. For heating, an ordinary electrical radiator suitable for a small room, costs, at 4*d.* per unit, from 4*d.* to 8*d.* per hour. The Dowsing glow-lamp radiators require about ¼ unit per lamp,

and a radiator of four lamps, sufficient for a small room, would cost 4*d.* per hour at the 4*d.* rate. An appendix to the paper gave a number of figures in tabular form as to the cost of cooking apparatus. In installing electrical machinery the regulations of the various fire offices as to the use of electric motors should be borne in mind so as to avoid any trouble after the apparatus is installed.

Remarks were made on the papers by Messrs. E. W. Monkhouse, John Slater, Beresford Pite and E. W. Hudson.

DEMOLITIONS IN FLORENCE.

THE following reply to the memorial addressed to him on "The Proposed Demolitions at Florence" has been sent by the Marchese Pietro Torrigiani, the sindaco or mayor, to Sir Edward Poynter and other signatories :—

Gentlemen,—The memorial you have addressed to me regarding the alleged proposal to demolish ancient edifices important in Florentine history and art has greatly surprised me, though at the same time, as a Florentine, I cannot but feel a certain pride in thinking that our precious monuments should be so well known abroad and that men of your eminence should make themselves the mouthpiece to urge their conservation. Rest assured, however, that the vandalisms feared do not and could not enter into the programme of the Florentine civic administration, which, chosen by the votes of the citizens themselves, has ever had a full cognisance of the duties imposed upon it as guardian of the treasures and the interests of the citizens. The information that has been supplied to you must be based upon a misconception of those who have thought that the colonnade between Porta Rossa and Piazza San Biagio was a continuation of that of Piazza Vittorio Emanuele, instead of being merely the end of the work of resanitation of the part of the city formerly called the centro.

When the Communal Council was called in 1886 to choose definitely from among numerous projects drawn up to liberate Florence from the shame and detriment devolved upon her by the existence of those quarters comprised between the Vie Tornabuoni, Cerretani, Calzaioli, and Porta Rossa and the Piazze del Duomo and San Biagio, the one accepted was that which endeavoured to reconcile all the various desires the citizens had for many years expressed. This did, indeed, contain a plan to continue the colonnade of the resanitated centro as far as Via Cerretani on one side and the Ponte Vecchio on the other, which project would have met the wish to procure to the city the advantage of a prolonged colonnade that should connect with the Lung 'Arno degli Archibusieri and that of the Uffizi. But that portion of the plan which was accurately studied in every detail, and which was sanctioned by Royal decree and by the application of a special sanitation law, did not extend beyond the ancient Via dei Boni, now Via Pecori, on one side and the Palazzo Canacci on the other. It is this plan alone which has been put into execution and which will be completed. The other portion of the colonnade, merely drawn as a project, could not and would not be effectuated for many years to come, as the Commune is already engaged in too many works of public utility to undertake any other not called for, as was that of the centro, by the supreme exigencies of hygiene, morality and public safety. This I have already declared in a sitting of the Communal Council which took place May 30, 1897, when the council decreed to acquire Palazzi Giandonati and Canacci. More than this, the historical artistic commission charged by the Commune to watch over the demolitions and excavations of the centro desired to obviate the possibility of the suspicion that we have been careless of the importance of certain historical edifices, which by the rough project of this plan seemed threatened with destruction if the colonnade had been continued. (These plans did not, however, comprise all those named in your memorial, and to which you thought it needful to draw my attention, almost as though you imagined me not aware of their existence.) In consideration, therefore, of the historical and artistic value of these edifices, which the Commune fully apprehends, the commission presided over by me, in its meeting held May 20, 1897, nominated a sub-committee charged to study how to reconcile the construction of the colonnade without prejudice to the edifices that merit preservation, and both this sub-committee and the Municipal Technical Office have carried out their tasks with happy results. And so well did these results correspond with the desired aim that the Society for the Defence of Old Florence, constituted under the presidency of Prince Corsini on May 15, 1898, on presenting me with its statute on June 15, 1898, could only express a desire in conformity with that already expressed by the sub-committee on March 30, 1898.

Make yourselves easy, gentlemen, that the Commune has for the moment no intention whatever of adventuring upon any works not demanded by the requirements that modern life imposes in the interests of hygiene, viability and commerce. Should these demand fresh demolitions, our Administration will leave behind it the elements for computing them without destroying buildings precious to history or art.

As to the Ponte Vecchio, or the houses upon it, no one has contemplated this destruction. Concerning the squalid quarters that are interposed between Borgo San Jacopo, Sdruccioli dei Pitti, Via Maggio and Via Guicciardini, whenever this needful sanitation be taken in hand there is no intention of destroying any such houses or characteristic towers as can be preserved in the interests of hygiene.

You, gentlemen, have expressed to me your emphatic protest against the irreparable injury of imaginary demolitions, and I, on my part, can but protest as emphatically against the suspicions involved in your memorial that the civic representation of Florence is careless of its own historic and artistic monuments.—I have the honour to be, gentlemen,

Pietro Torrigiani, the Syndic of Florence.

DEPARTMENT OF ANTIQUITIES IN EGYPT.

IN a letter to the *Times* Mr. John Ward, F.S.A., writes:—The French Government left us alone in 1882 to carry out the saving of Egypt from rebellion and restore the finances of the country if we could. We have done both, made good soldiers of her sons, who reconquered the Soudan under our generalship. We are now engaged in doubling the supplies of irrigation, and so increasing the wealth of the land in a similar degree. We have been sixteen years employed thus. During all this time we have allowed the French to control the important Department of Antiquities—that is, the Cairo Museum—and any antiquity in the land, whether discovered long ago or still unearthed. All the chief officials of the Department are Frenchmen selected in Paris, and all their inspectors and underlings are selected by the head of the Department. The museum is in great need of attention; few of the exhibits are labelled, and those labelled are in French. Nine-tenths of the visitors are English-speaking tourists and residents speaking Arabic. A new museum is much needed, as the Gizeh Palace was condemned six years ago as being a very hazardous structure in case of fire. The Administration of Antiquities undertook to provide a new museum in Cairo. Plans were selected and a contract accepted for this much-needed work some three years ago. The foundations were found insufficient to bear the structure, and all the work has been stopped for upwards of a year. Had this new museum been in Sir William Garstin's hands it would have been far advanced towards completion. In all appearance there will not be a new museum unless we undertake, as we ought to do, the sole direction of this important Department.

Another great abuse exists. The French have sole control of the antiquities in the neighbourhood of Cairo and of the entire Pyramid fields, extending for 70 miles, along the Nile. There are no custodians of these monuments (save a few tombs at Sakkarah), and the Great Pyramids and Sphinx are left to the mercies of the Bedouin Arabs, who rifle the tombs and sell the spoil. There are 10,000 tombs as yet unscientifically explored, it is believed, by competent authorities. The neighbourhood of the Great Pyramid is unsafe, and there is no proper police force within 7 miles. A friend of mine told me recently that his two daughters went up the Great Pyramid (he, being an aged man, could not go). They had travelled about the world, and thought the country, being under English protection, would be quite safe. They were followed up the Pyramid by two wild, fierce Arabs, who terrified them, threatening to throw them down the steep sides if they did not deliver up their money, which they did. Their father could not wait to prosecute, as their steamer was to sail the next day. There is another grievance of the French management, that when Mr. Petrie was anxious to explore the Pyramid cemeteries (as he did the Pyramids themselves in 1880) he was refused. The director said he wanted to keep those places for himself. By the way, the excuse for not appointing custodians over this district is an idle tale that Napoleon derived some aid from the men of this tribe, and pledged his royal word that they should never be interfered with. The Society for Preservation of Ancient Monuments of Egypt (founded by Sir Edward J. Poynter, P.R.A.) brought pressure to bear when the tombs of Beni Hasan were plundered in 1889, and guardians and iron gates were put on all important monuments of Upper Egypt. But in Lower Egypt, with 100 visitors to every monument for one in other places, no care whatever is taken of the finest monuments in the world.

No person is allowed to make excavations without official authority—that is a good rule. But how is it carried out? The Arabs dig where they please and sell their stolen goods to the museum authorities; one well-known dealer got 2,000*l.* recently for things he had rifled from a tomb. They sell the smaller finds openly, and the dealers ship them to America. But if Mr. Petrie, for example, wants to excavate anywhere, he is kept waiting months before he gets a reply, and then is not

given the place he wants. Of course everything he finds is offered to the museum. But if a Frenchman wants to dig the case is different. Before Mr. de Morgan resigned his charge of the museum he licensed M. Amélineau, of Paris, to dig where he pleased for five years. It is feared that many of the important discoveries made by this gentleman may have had no scientific record made of them. It is very important that all "finds" of forgotten dynasties should be registered for use of patient investigators. Mr. Petrie and Mr. Naville (acting for the English Egypt Exploration Fund) always publish clear scientific records of all their researches. Mr. de Morgan, when director, also published scientific accounts of his finds (which were made with the public funds of Egypt), but all his reports were printed in the French language, and were not available to the visitors of the museum without purchasing them at a very high price.

As you say in the *Times* of November 30, "There is no nation in the world except ourselves that would tolerate such treatment," and it is high time for the British to take the antiquities and the new museum in hand. The museum should have all labels with at least French and Arabic, and every article correctly named.

CRICHTON PARISH CHURCH.

TO claim to have the most-vandalised pre-Reformation church in Scotland is, says the *Scotsman*, no mean bid for distinction in a country where the heritor has been abroad in the land for so long, and where "heritor's Gothic" has become at once a classification and a reproach; and yet the parishioners of Crichton need have small fear of their claim to such notoriety being refuted. It will take a big record indeed to break theirs.

Given a beautiful Gothic church, with chancel, tower and transepts—the nave was never finished; with ashlar stone interior and lofty vaulted roof 30 feet high; with stone-mullioned and cusped-tracery windows of gorgeous mouldings; given this, and the problem being how best to vandalise it—here is how the heritors in whose charge the ancient collegiate kirk of Crichtoun was left solved the problem. By walling-off the chancel from the transepts to begin with, thus obtaining a fine rectangular interior exactly suited for galleries. By erecting three galleries round this chancel, placing the pulpit on one of the longer sides, which necessitated the building up of the two original doorways and the complete or partial building up of three original windows, and the consequent cutting of new doors and windows to take their place. By erecting two great porches without and by wainscotting and ochreing the walls within. And, finally, by using one transept for a family vault and the other for the gravedigger's tools, the large windows of both being built up with stone and lime rubble.

It may be suspected that this description is not without a touch of caricature. The fact remains that all this vandalism was actually carried into effect. Of the original seven windows three and a half were built up, and three new ones were cut out in their place—through walls 4 feet 6 inches in thickness, too. Two of the new gallery doors were through old windows; even humour, in the lack of reverence, might have saved the heritors from the perpetration of this atrocity. But they had none. It was a matter of no importance how the worshippers entered, whether by door or window. The base was hacked from the sedilia; the hole for a gallery beam was cloured in the top of one panel; the three panels were filled with lath and plaster, flush with the wall. The rich capitals on the pillars of the chancel arch suffered a like fate in the interests of gallery beams; even the moulding of the arch itself could not be plastered over before it had been hacked and scarred. One indignity only did the poor old building escape, and that was, indeed, proposed in all seriousness by one of her worthy elders, anxious to add to the tale of the heritors' enormities. "You see, sir" (this is the minister), "I've been having my parlour done up, and the painter has just made the ceiling beautiful. All that our church needs is to have a nice light paper put on to cover the old dirty stone."

Of course the explanation of all this Philistinism was that by this means the heritors were enabled to enjoy the privilege of privacy, or at least of exclusiveness in their public worship. The chief heritor had his private gallery under the chancel arch, with his own wooden stair, once painted white, leading up to it; three other heritors had the gallery opposite the pulpit for their own exclusive use, with special porch and two separate doorways. The third gallery was for the village folks; the farmers and their hinds sat below. It was a perfect arrangement. So much so, that in the Statistical Account of 1845 we read that "within the last twenty years the church has undergone a thorough repair, and is now one of the most handsome and comfortable in all the country."

The church stands on the bank of the infant Tyne some 400 yards north of Crichton Castle, and was founded by Chancellor Crichton in 1449 "in thankfulness and gratitude to Almighty God for all the manifold deliverances He had vouchsafed to him." It was at that time that the greater part of the castle—familiar to all students of Marmion—was built by the chancellor. Messrs. Macgibbon and Ross tell us that probably the same masons were employed on both.

It may be of interest to the public to know that the church is at present being restored to some of its former beauty. For the old building a brighter day has dawned in the history of its fortunes, so far, at least, as the heritors are concerned; for it is in great measure by the splendid liberality of the chief of them, and under his personal supervision, that the present restoration is being carried out.

GLASGOW ARCHÆOLOGICAL SOCIETY.

THE monthly meeting of the Glasgow Archæological Society was held in the rooms, 207 Bath Street, Glasgow, on the 15th inst., Mr. George Neilson, vice-president, in the chair.

Mr. Brydall, St. George's Art School, read a notice of "Arms and Armour at Eglinton Castle, and Scottish Swords," &c. The first part of the paper dealt with armour and arms at Eglinton Castle, and described two sixteenth-century suits of armour—one, finely engraved and gilt, having been worn by the father of the present Earl at the Eglinton tournament. In the same collection is a German war saddle of the fifteenth century, covered with bone or ivory, and beautifully engraved, as well as two glaives and a halbard. An account was given of the two-handed swords of the Laird of Lundie and the one, formerly in Clackmannan Tower, with which Catherine Bruce knighted the poet Burns and Dr. Adair, remarking that she had as good a right to confer the title as some other people. The use and method of handling these huge weapons were explained and described. Notice of a fine silver-handled Ferrara broadsword which belonged to Viscount Dundee gave Mr. Brydall an opportunity of bringing together and up to date the few facts known of the smith so famous in Scotland for his sword blades. Andrea Ferrara was in business with his brother Giovan Donata in Belluno, in Friuli, about the year 1585, long before which Ferrara blades were made. Piero Ferrara was a contemporary and Cosmo Ferrara was about two generations earlier. The handle of the Scottish broadsword, sometimes confounded with that of the claymore, was the same as those carried by the guards of the Venetian doges. The paper concluded with notes on ancient spurs and stirrups, and was illustrated by highly-finished drawings from the originals.

Mr. James White read a paper on "The Old Lands of Partick and the Mills Thereof." He stated that the old lands of Partick, according to the old rental of the university, showed that the barony of Glasgow was divided into four wards—these being Partick, Govan, Badir-manok and Cuikis. Speaking generally these old rentals showed that the old Glasgow of to-day was on the old lands of Partick, while the Partick of to-day was on the Govan lands. The lands of Govan included all the barony to the south of the Clyde, nearly all of it west of the Kelvin, and the ward of Partick extended from the Clyde to Cadder and from the Kelvin to Shettleston. One interesting fact was that in 1596 one side of the Molendinar was in Partick and the other side in Glasgow. The farmers of the Partick and Govan wards were restricted and bound to grind their corn at the mill of Partick, the district thirled being called sucken and the payment named multure. During the months of May and June 1893 a number of letters appeared in the *Glasgow Herald* on this subject, but the writers of these were unable to arrive at any decision. From the papers he was showing he thought he could prove the accuracy of all the mills of Partick, of which there were four—two waulk mills, one wheat mill and one meal mill. The meal mill was the mill of Partick, otherwise known as the Archbishop's Baronial Mill, and was supposed to have been built in 1136. That was the real Glasgow mill. The first waulk mill was built in 1507, the second in 1517; the bakers built their own wheat mill in 1568. A most interesting fact occurred when, on April 1, 1571, Crauford took the castle of Dumbarton. For that he received a gift of the mill of Partick, which was the most valuable possession belonging to the cathedral in those days, and was still the largest payer to the cathedral in the old victual payment. Crauford granted a bursary—known as the Crauford or Bishop's Bursary—to the university in 1576. In 1577 Crauford built the old bridge at Partick, which crossed the Kelvin at his mill. The Bishop of Glasgow pressed Crauford to give up the mill, so in April 1599 he resigned it into the hands of the bishop. Early in 1608 the city of Glasgow found itself in debt, and the only way out of it was to get a monopoly of the mills; and the whole city, Dean of Guild, and merchants and others agreed to be thirled in that year, but when the city leased the mills they were not allowed to multure from the tenants grinding at the mill.

At the close of the papers the authors received votes of thanks.

NOTES AND COMMENTS.

The intimation given to the Metropolitan Asylums Board by the solicitors of Messrs. Kirk & Randall, the contractors, that the firm claimed 34,445*l.* for delays in the erection of the Grove Hospital caused by the non-supply of drawings or imperfect ones, and delay in the supply of drawings by the Board's architect, is a serious affair for the Managers and the ratepayers of London. The subject has been referred to the works committee, and will of course receive serious consideration. In a case of the kind it is difficult to fix or to apportion the liability, for an architect may be alone at fault, but if the employer has contracted that plans are to be supplied at a fixed time, and they are withheld, then of course he is responsible for the architect's delay, just as in a case of ordinary agency. But if there is no express stipulation about the furnishing of plans, the courts are likely to assume that one is implied, and the case will then turn on what is the length of the period within which the plans should have been given. That a contractor reckoned on delay in receiving plans as one of the contingencies for which he was to be prepared is a plea which a judge could not be easily persuaded to accept.

Copies of Parliamentary plans are occasionally valuable to railway companies, for as the number printed is limited there is a possibility that after several years a copy for reference may not be forthcoming. But there is no public interest in such documents, and they are not to be found in the British Museum or Record Office. Plans sometimes find their way to waste-paper shops, where they are treated with no more respect than newspapers or transactions of learned societies. It was therefore a remarkable event when on Monday a sum of twenty-six guineas was paid for a copy of the plan lodged in 1832 for the London and Birmingham Railway. It had undoubted historic interest, and was the more rare because the copy lodged in the Private Bill Office was destroyed by the fire of 1834, which afforded Charles Barry his great opportunity. The scale is the usual 4 inches to a mile. The Act received the Royal assent on May 6, 1833. Two years after another Act was passed for extending the line from Camden Town, which was intended to be the original terminus, to Euston Grove. The works were commenced in June 1834. The section to Boxmoor was opened in July 1837, and as far as Tring in the following October. In April 1838 the extension to Denbigh Hall was completed, and the part between Birmingham and Rugby. The passenger traffic between Rugby and Denbigh Hall was worked for five months on the high roads by ordinary coaches. George and Robert Stephenson were the engineers, but the work was mainly overlooked by the latter.

It is understood in Belfast that Mr. William Henman, of Birmingham, will be selected as architect for the new Royal Hospital. The buildings will cost at least 150,000*l.* There are a great many architects in the Ulster capital, and a work of that magnitude would be a boon to the majority of them. But there is no organisation and little *esprit de corps*, and as a consequence there is a tendency to accept low fees in order to secure commissions. Besides, it is common to submit to the caprices of clients to an extent that is not professional. It cannot be said that the bestowal of an important commission on a stranger is considered as unsatisfactory by all the architects who live in Belfast. There will be no chance of the adoption of the Dutch auction principle in order to discover the architect who will accept the smallest commission, and when the precedent of sticking to an established custom is once adopted, there is a chance that fair play will eventually prevail.

It is time the Doges' Palace in Venice should be treated as the Parthenon, or, in other words, regarded as an international treasure. If we read between the lines of the reports which are in circulation it becomes plain there are at least two parties of officials at war over the building. The Council of Fine Arts in Rome decline to be responsible for the safety of the palace, while the Fine Arts Minister maintains there is not even "a shadow of danger." The official architects in Venice confirm the view, while many of the unofficial architects consider the building is settling, owing to disturbances of the walls caused by sinking of the foundations. Every architect who has visited Venice and studied the buildings knows that for years past there have been apprehensions about the safety, not only of the palace, but of other important buildings. Officialdom will not deliberate about the means to be adopted to insure safety, but in a despotic way insists on the carrying out of its peculiar remedies, which are not always of a kind to inspire confidence. What should be done would be to invoke the judgment of foreign experts who have had experience in riverside work. A report by a few English and Dutch architects would be more reassuring to those who love Venice than any declarations in the Roman Parliament House or official reports. Meanwhile, it would lighten the load on the walls by the removal of all the old books in the library, or whatever can cause a catastrophe on the smallest scale.

According to Mr. Baillargé, the city engineer of Quebec, wind is very freakish in its effects in his city. He mentions a case where four octagonal kiosks were unaffected by a gale, whilst a fifth, which was in the midst of them, "had its sheeting bent, twisted and torn off, while the entire roof framing of cast and wrought-iron, well bolted together, was wrenched from its eight supporting columns. The whole roof, weighing 2½ tons, was raised to a height of some 40 feet, and carried a distance of about 300 feet, where it was dropped in a broken condition on the glacis in the rear of the terrace." The stress on the roof must at least have been 100 to 120 lbs. per square foot, yet the anemometer recorded only 59 lbs. Mr. Baillargé considers that the anemometer is affected by the wind which, passing round its periphery, sucks out the air behind it, and creates a vacuum against which the atmospheric pressure on the opposite side reacts. He considers that with long narrow surfaces, such as bridges, anemometrical pressures can still be relied on.

A battle of styles has commenced in Nuremberg. The *casus belli* is a design for the new theatre. Herr Seeling, of Berlin, who is a specialist, was asked to give a design. Instead of adopting the Classic, which makes Berlin appear as if it were turned out of a mould and was an iron casting occasionally covered with paint, he employed the picturesque, if fantastic, style which is associated with Nuremberg. The design was no sooner seen than it gave rise to controversy. Artists and amateurs took sides with alacrity, as if they were glad of any occasion to break the monotony of everyday life. According to one party of æstheticians the Nuremberg style is peculiarly unfitted for theatres. The façade, it is said, should indicate the character of the building, and that is impossible if many-curved gables, bow windows, and figures of strange animals are liberally introduced. Evidently there are men in the old city who believe that for theatres Semper was the law-giver. Herr Seeling is not to be convinced by the arguments of his adversaries, and the more they say against his design the stronger becomes his conviction that the style he has adopted is the only one suited to the place. He is opposed to the commonplace style which was adopted at an earlier time, and which is evidence of the influence which French architecture, however debased, exercised in Germany. But it is said in reply that the old architects who designed the Nuremberg mansions simply adopted the style which generally prevailed in their time, and why should not their successors imitate them? The best modern theatres, it is said, are the realisation of conclusions which are derived from utility, and their purpose is made as manifest as if expressed in words. The new Nuremberg theatre should be no less convincing to the spectator. Herr Seeling maintains that his building will also be declaratory of its use, although in keeping with those which make the town attractive. How the battle is to end cannot be foreseen, but whatever is the result it is interesting to have definite principles inspiring the combatants.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: FROM SOUTH-EAST.

PORT SUNLIGHT, BIRKENHEAD.

THE COACH AND HORSES, CLERKENWELL.

SUMMER HOLIDAYS AMONG FRENCH CATHEDRALS.

By the Author of "Ecclesiologia Germanica," &c.

(*Continued from page* 379.)

VI.

Le Mans.

DURING the two days and a half which we devoted to studying the architectural glories of Le Mans, we saw the choir of its cathedral—the work as of angel architects *—under every condition. Never did it look lovelier than about half-past seven on the first evening of our visit, when the setting sun was dyeing with gorgeous colours from the old stained-glass the choir piers,

whose light shafts
Cluster like stems in corn sheaves.

Modern improvement has robbed Le Mans of much of the charm it possessed for people of an artistic temperament. Indeed, the whole city between the railway station and the cathedral is as jejune as the Rue Jeanne d'Arc at Rouen, and what picturesque bits have escaped the clutches of the improver are fast disappearing, or are already doomed. The whole side of one street and those debouching from it—the Rue Gambetta—leading down to the river Sarthe from the Place de la République, had been removed at the time of our visit, and the eye rested upon a wilderness of rubbish, dreary in the extreme. Doubtless the removal of these old tortuous streets is to be rejoiced at from a sanitary point of view; but the best part of the city is, at the present writing, a symbol merely of the last quarter of a century. The backs and gables of the houses in the old parts of the city, and the odours around them, remind one not a little of the most densely peopled by-streets and lanes of old Chatham. Slate, brought in large quantities from Angers, fifty miles off, has been largely used in the construction of the houses, and in consequence imparts a dusky tint to these old and curious quarters of Le Mans, through which, sluggishly just here, the Sarthe pursues its course. Further down the river is most picturesque, admirably suited to boating, bathing and other aquatic pleasures, while the scenery bordering it is a replica of that so well known to lovers of "our river." Fields, polled willows, poplars, quickset hedges, mills, and so forth, forcibly assert the characteristic of British pasturage, accentuated by the briar-grown winding lane and the thatched cottage so dear to English minds.

But the whole of the old part of Le Mans is not unsavoury. That in the immediate vicinity of the cathedral is certainly clean and sweet; while from the summit of the steep declivity, through which a tunnel has been cut, or from the top of the flights of steps winding round the old walls with their remains of bastions, superb views of the surrounding country can be obtained. Few French cathedrals are more majestically situated than Le Mans. It is built almost north and south, but for the purposes of description we will assume that it orientates properly. It stands, as we have said, upon a species of plateau rising very abruptly on the riverside, but more gradually on the opposite one as approached from the railway station and the busy part of the city; in fact, there is a gentle rise in the ground at Le Mans all the way from the station to the cathedral.

Seen for the first time, the external outline of Le Mans Cathedral is not a little perplexing, owing to the situation of its tower, which, planted against the face of the southern arm, gives one the idea that it consists only of a very short nave and extravagantly grand apsidal transept. But behind this is the nave, long, low and quite invisible from the east. The plan, then, of this cathedral embraces a ten-bayed nave, whose



Le Mans Cathedral: from the S.E.

almost Byzantine-Romanesque character is quite unlike anything in the contiguous province of Normandy, and to which, early in the thirteenth century, shortly after the union of the province of Maine with the royal demesne, was added the present marvellous five-aisled choir, with its eleven chapels, which open not only from the procession path but from the sides of the choir. Being of much greater depth than the generality of chapels in French cathedrals, those at Le Mans impart a peculiarly *rayonnant* effect to the ground plan, and they are so arranged as to leave space for the introduction—with admirable effect—of a window between each. The transepts and south tower are somewhat later than the choir, not being completed till the fourteenth century. Nothing can be greater than the contrast between the long, low Romanesque nave, with its simple round-headed windows in aisles, clerestory and west front, and the soaring Decorated transepts and choir. Many features of interest are presented by this nave, severe though it be. In the shafts and voussoirs of the large Romanesque west window, imparting quite a southern air to it, we observe bands of a brown stone. Very noble is the central door in this grandly simple façade, which, with the outer

* The choir of Le Mans is contemporary with Chartres to whose rugged grandeur it forms a most striking contrast.

walls of the aisles and the lower part of the north transept and tower, are the only existing portions of the eleventh-century building. The upper portions of the nave were rebuilt in the twelfth century, the vaulting recalling that of some of the great Early Pointed churches of the South; while a gem in this severe setting is the southern portal, rivalling in richness the Port Royale of Chartres Cathedral, the north and south doors of Bourges, and one in St. Benigne at Dijon, with all of which it is contemporary (c. 1150).

The tower which, as we have said, adjoins the south arm, giving it the air of a very short nave, is Romanesque in its lower part, and was kept when the Middle Pointed architect removed the original transept. In its upper part the tower is Later Decorated, and built of a richly coloured granite. It terminates square with an iron tourelle at each corner, a larger tourelle, also of iron, surmounting a dome in the centre, and recalls in ensemble some of the rich Late Pointed towers of the adjacent province of Brittany. One feature in the exterior of Le Mans Cathedral strikes us very much, and that is the large Decorated window lighting the wall space above the arch opening from the low nave into the transepts, somewhat after the fashion of that at Gloucester Cathedral, and those eastern nave windows that one sees above the chancel arch in St. Mary Redcliffe, Bristol, Cirencester, Northleach, and other of those Third Pointed churches that form the pride and glory of Western England, though of course at Le Mans its position is reversed.

The exterior of the sacristy—a typal piece of French thirteenth-century work—has recently undergone restoration, and, as well as the chapels surrounding and flanking the choir, abuts upon the terraced gardens of the bishop's palace.

Let us enter—as everyone should enter this loveliest of French choirs—by a small door between two of the radiating chapels on the north, at the top of a long flight of steps. Oh for a mastery of vivid thought, for a wealth of picturing words, that we might adequately give an idea of the greatness and magnificence of this wondrous choir, where the most enthusiastic admirer of the beautiful must pause in sober certainty of having reached perfection. After having seen all those cathedrals entitled to a place in the first class—Amiens, Chartres, Paris, Rheims and Rouen—we may confidently affirm that we are at a loss to particularise any one the choir of which has, for beauty and solemnity, so indelibly impressed its features on the memory as a *chef d'œuvre* in design and execution as that of Le Mans. This ought to arose curiosity, but how many of the countless English visitors to Brittany ever think of returning to England through Paris by way of the old capital of Maine? Proceed we to put ever so faintly the details of this wonderful conception before the mind's eye of our readers.

Taking our stand beneath the eastern arch of the nave, we have on our left the luminous northern transept, with its vast east and west windows and glorious north rose, little inferior as regards its stonework to those in Rouen and Amiens Cathedrals, and showing few, if any, evidences of a declining age. What taste is evinced by the architect in every line and curve of this



Le Mans Cathedral: the Nave.

rose! What consummate skill and mathematical knowledge must have been brought to bear upon the delicate and almost unique fleur-de-lis tracery* of the row of windows below it! A neglected-looking altar, with candles tumbling all sorts of ways, and a heavy Classic reredos, sadly incongruous, but in some respects preferable to the miserable modern Gothic specimens of such instrumenta usually met with in France, reared against the wall, just under this triumph of the Mediæval artist, is too contemptible.

Turning to the right, we see in the south transept the gigantic organ in its Renaissance case with five towers. In front of it is the choir organ. Curious old figures in domed niches adorn the gallery front. The great steeple's abutment precludes a rose here, but floods of light are poured in through the immense east and west windows of this transept. Grandly traceried and of eight lights apiece, they must be among the

* The fleur de lis occurs in the tracery of the aisles of Troyes Cathedral.

largest in France. In front of us are five arches. The centre one, 104 feet high, opens into the matchless choir; right and left is a narrower one, of the same height as the choir arcades, and opening into the first aisle. This is furnished with its own arcade, triforium and clerestory. Another arch, much lower than the other, admits to the outer choir aisle, opening in its turn to the chapels. To square piers are attached slender, reed-like shafts with exquisitely foliaged capitals, from which spring the moulded arches — perfect specimens of Middle Pointed work—of the three bays forming the choir proper. In the apse the architect has given us coupled cylindrical pillars with a slender shaft fixed in where the two join, for stability of effect. Although very tall, the height of these arcades is not exaggerated like those at Beauvais—all charms without overwhelming you. The triforium, usually round the choir, is in this cathedral, as at Coutances and Bourges, transferred to the first aisle, an arcade of trefoils running below the clerestory here taking its place. The painted glass filling the clerestory windows, some of which are of two lights, others of four and even six, rivals that at Chartres in brilliancy if not in profusion.

Turn we now to the inner circumambient aisle, where it is apparent that nothing was spared which could add to the embellishment or excellence of the work, so long as it continued, making one regret that the chapter were compelled to relinquish what was no doubt their original intention—the reconstruction of the nave on a scale of similar magnificence. This is separated from the outer one by a continuous range of richly moulded arches on cylindrical pillars, really of large proportions, but dwarfed by the huge dimensions of those in the choir proper, and whose capitals, carved in varied conventional foliage, must be unrivalled for combined elegance and majesty. Above this arcade is a triforium equally noble in its conception, where the delicacy and refinement evinced in the carving of the shafts, capitals and tympana brings to mind Lincoln, Beverley, Westminster and York. For clerestory we see here varying numbers of uncusped lancets, diminishing in height with the slope of the arch containing them, and glowing with old glass.

Opening from the outer aisle are the eleven apsidal chapels in the Lancet style of the thirteenth century, and therefore the earliest portion of the grandly rebuilt choir. The longest of these is the lady chapel, carefully restored five-and-thirty years ago, when very extensive mural paintings once more saw the light. The parallel sides of this chapel are lighted by three windows of two uncusped lights each, with a quatrefoiled circlet in the head; the apse has five lancets. Here again the old glass rivets our attention; indeed, the violet hues of its gloriously painted quarries are only surpassed by those in the Sainte-Chapelle at Paris.

The other ten radiating chapels, although much deeper than those ordinarily met with round the choirs of France, are not so long as the lady chapel. Each is apsidal with a triplet of lancets, and has a triple dedication. One, however, on the south side—that of St. Gervais, St. Etienne and St. Protais—has its lancets filled with Middle Pointed tracery and modern stained-glass to match. The figures, placed under conventional canopies of a type employed by Messrs. Clayton & Bell in such of their earlier works as those in the apses of St. Mary's, Stoke Newington, Exeter College Chapel and elsewhere, are of unusually good and bright tinctures. A very grandiose portal in the richest and most voluptuous Italian Renaissance protects the chapel of the Sacred Heart, wherein, above the altar, floats a banner with the legend, "Cœur de Jésus, sauve France!" A portal of similar character admits to the sacristy—a noble apartment thrown out from the third chapel in the south aisle, and around whose central vaulting pillar several processional crucifixes are disposed in sockets. Here are fine wainscotting and massively framed portraits of bishops and canons of Le Mans. The brazier for the incense stands down on the floor, and upon the tables the Eucharistic vestments of the colour proper for the day lie spread in readiness for the chapter Mass, which is performed here daily with much ritual and musical dignity.

A very interesting church at Le Mans is that of St. Julien des Près, situated on the opposite bank of the Sarthe, and only conspicuous by a small modern Romanesque western steeple, of so uninteresting a character that we walked nonchalantly towards it expecting to find the rest of the structure equally jejune. We were, however, agreeably surprised to find a cruciform apsidally-terminated church of fine proportions, and this pleasure was by no means diminished when we pushed open the door and were confronted by a noble arcade of isolated Romanesque columns and round arches, exhibiting quite a Durhamian air of "rocky solidity and indeterminate duration." The chancel is Pointed, and has a series of narrow stilted arches in its apse. All the eastern part of the building has received mural decoration, some frescoes above the bays in the triforium space illustrating the life of St. Julien being particularly telling. The situation of the altar in this church, beneath the eastern arch of the crossing at the top of a flight of steps, rendered necessary by the crypt beneath the eastern limb, imparts much dignity and interest to the interior. Behind the altar are arranged the choir stalls, as at Notre-Dame de la Couture, of which we shall speak presently. Above it is a suspended rood, one of the very few we remember ever to have met with in France. Figures of the Blessed Virgin and the Magdalene are seen regarding the rood from slender pillars, one on either side the sanctuary. The high altar, in very good Byzantine, has a tall central cross of the same style, and two blue vases of artificial flowers on a ledge in advance of the six flanking candles. Altogether this church wears a refreshingly Mediæval aspect, recalling very strongly in its ensemble the Rhenish Romanesque St. Cunibert's or St. Martin's at Cologne. But what we desiderate very strongly here, as everywhere in France, are rich hangings and an antependium. It is the presence of such needlework that gives our Anglican sanctuaries so rich an appearance. Evidently this church is in the hands of a curé who takes great interest in its history and architecture, as evinced by a printed history from his pen affixed to the nave piers at the west end above the bénitiers, and concluding with the following note:—"Il est défendu d'entrer dans l'église avec des chiens, avec des paniers, des pots à lait, ou avec tout autre objet qui indiquerait un manque de respect pour la Maison de Dieu."

(To be continued.)

THE POSITION OF ARCHITECTURE AMONG THE FINE ARTS.*

(Concluded from last week.)

THAT which places architecture above the sister arts is that while they, with few exceptions, of necessity record emotions and ideas of the past or present, architecture is, or should be, ever labouring to bring forth a new organic creation, something in sympathy with the needs, the developments, the aspirations of the time.

I want to emphasise this word "new" because the aim to be original is often spoken of as though it were a reproach. I am not defending wild and extravagant designs—though even they show life—but it is of the essence of vitality in art to depict that which has not been, to increase and multiply forms.

You will remember in Viollet-le-Duc's "Habitations of Man" there are two principles represented by Doxius and Epergos. Doxius who sees only in ancient architecture the *summum bonum* of art, and resents all change, who when he travels through the world for thousands of years is always with a sigh looking back to Egypt. This is the spirit of the rules of proportion, the worship of style, the negation of progress in science and art. Epergos, on the other hand, sees in the evolution and development and in the new offspring of architecture an evidence of godlike powers given to man, an evidence that life and not death is the keynote of the world, and he urges us on to strive, not stagnate.

If we approach an architectural design from the point of view of grasping the purposes for which the building is wanted, so planning it that its various parts adapt themselves to those purposes in such a way that all seems natural and harmonious; making the entrance-hall impressive and expressive with dignity, spaciousness and hospitality; arranging our windows so that the light shall suit the purposes of the various apartments, aerating with sunshine the various cubes so that sweetness pervades everything, breaking our large floor areas by columns, forming little surprises by arcaded recesses or galleries affording views of any particular picturesque groupings, and making all to grow naturally from our construction,

* A paper by Mr. E. T. Hall, read at the last meeting of the Architectural Association.

we may produce that which will be both artistic and individualistic, an evidence of thoughtfulness and of the creative faculty. I suggest this in opposition to Mr. Ruskin's or Mr. Fergusson's theories about a building pre-existing with the architecture added. I suggest that a good plan, well thought out on the lines I have roughly endeavoured to sketch, is a work of architecture, although the exterior may be absolutely plain—nay, even uninteresting.

If, however, the exterior is to be ornamental, this effect should not be attained by added ornament having no relation to the interior; but the decoration should harmonise with and suggest the interior and its occupants, just as in a work of sculpture the exterior of a figure suggests the internal framework—the well-developed muscles, the network of nerves, and, above all, the impulse which actuates them.

To attempt a work of architecture by first settling the exterior and then designing the plan and general interior to lead up to it is fatal.

As an illustration of the correct principle of design, let us consider the idea of a town hall. It is first the centre, the heart, of municipal life, whence all other parts of the municipality are governed. It should thus be placed in the centre of a town, in an open square or place. Its various departments—or, to use a conventional phrase, its cells—should be emphasised externally and internally.

The emotions pertaining to each should be considered and depicted, or rather suggested; the relative importance of each to the other should be weighed in locating them; the prison cells, the courts of law, the offices, the entrance and assembly halls, the suite of reception-rooms, &c.; simplicity of plan and easy access to the departments being essentials.

The physical proportions of each group should evolve from these considerations, and, in the mind of the architect, the exterior should grow *pari passu* with them, and should express each group and the unity of the whole.

The design of the exterior should also stamp with expression the mechanical functions of the several parts of the construction, and thus, as the various members of a human body are fitly joined together, the whole conception will convey to him who has eyes to see and mind to appreciate, the idea sought to be expressed.

In times not long past these principles were ignored and the exterior was designed, or rather copied, from a Classic temple—from a building which externally expressed faithfully the one cell which it contained, the abode of the god. Such an exterior has no relation to complex buildings of to-day. Or let us take at the other end of the scale the idea of a workman's small dwelling. My friend Dr. Godfrey Sykes, a well-known medical officer of health, remarked to me lately that the solution of the problem of housing the million should be regarded from the sanitary, social and ethical standpoints. Now the backbone and basis of our social polity in England is the home. The idea of a home is lost when a family is compelled to live in one room. What, then, is the idea of a home? Its central feature is the place of reunion of its various members—the living or common room—well lighted by windows and warmed by a stove or open fire. Where outlay must be restricted, we cannot waste money on passages, and there can be no objection to let the common room be a central hall, with bedrooms opening from it on two sides, the third side containing the scullery, water-closet, &c., disconnected by a ventilated lobby. Each bedroom should have a window and a ventilating flue, while the heat from the common room stove will be sufficient to warm the bedrooms, and so save both the cost of fireplaces and of fuel. Such a humble dwelling will be a home, and a congeries of such homes may be placed side by side in the country or one upon another in a town. In the latter case the staircase should, of course, be external to the houses. The æsthetic in such a dwelling as we have described can be expressed in simple ways, in little thoughtfulnesses of detail, in showing consideration for the housewife's wants and aspirations, making windows that will take flowers, in provisions for fostering modesty, &c.

In considering the expression of construction let us compare two types of buildings, and see the relation of construction to the design. Take a barrel-vaulted church. This vault, having an equal thrust at all parts of its bearing on the wall, demanded and received for its support a massive wall equal in thickness throughout its length, with relatively small openings. In such a case buttresses at any points would be out of place. By contrast, take a groined vault; here the weights and thrusts are concentrated on points, the wall between these points is but a screen, and can be light in treatment, and may be pierced with windows of any size. The points of support, however, require to be of large horizontal section, and buttresses become necessities evolved from the construction. Did time permit, we could trace how this groining and concentration of loads led to all the characteristic features of Gothic design. In Viollet-le-Duc's "Rational Building" we have the whole scheme worked out.

It has a peculiar bearing on the subject of our paper, because it shows how practically a new art development was laboriously worked out from construction.

It teaches us that "art is the result only of sober, cool, intelligent thought and technical knowledge, which is acquired by hard, persistent and long-continued labour," and further, that that labour evolved a result not otherwise to be attained.

M. le-Duc shows that practically the Romanesque builders had before them the remains of Roman vaulted buildings in their country and nothing else. They were not travelled men; they were too poor to import architects from abroad, and not having the command of unlimited labour and wealth like the Romans, they set their intellect to work to devise some means of getting similar results with home material and with home labour. Our author shows how, in the earlier part of the eleventh century, they built barrel-vaulted churches and halls which half a century later fell down; how, profiting by their failures, they again set to work with renewed energy and experience, and gradually, by slow but certain steps, evolved the Gothic groined vault; how this in turn led to the plans of piers; how the capital became a corbel instead of being, as it was in many Egyptian, Grecian and Roman buildings, not a support but only an ornamental termination to a column. This may be seen at Edfoo, where the abacus is of the same width as the diameter of the column, while the capital is projected far beyond it, or, in other examples, where instead of abacus there is a square shaft between the capital and the entablature; and again in the groined vaults of some of the Roman thermæ, where the plan of the vault abutment is a square of the same dimensions as the diameter of the column supporting it; above the capital and below the vault springing is placed the complete entablature of the Classic order.

In some churches, both in Normandy and in England, capitals are dispensed with, but this appears to give weakness to the design. A mark of separation between the function of the arch and that of the pier is of great phonetic value, and as such the capital or impost moulding has commended itself in the great majority of our buildings.

Reverting to the Gothic art-craftsmen, we note how they carried down their arch mouldings into shafts on the face of the reduced piers, and so step by step and line by line a new art development—a new architecture—grew out of and was determined by the construction which it boldly displayed. Gwilt says, "There is more constructive skill shown in Salisbury and others of our cathedrals than in all the works of the ancients put together."

It is not out of place to note in this connection that, while the Gothic shaft grew downward from the moulded arch, the shafts or fillets on the angles of Egyptian pillars grew from below and terminated in the non-functional capital.

We hear of taste in architecture, we hear of genius, but neither one nor the other could have dispensed with the more sterling and laborious qualities which evolved the new Gothic art—an art which has commanded and still commands the admiration of all who see its harvested fruits.

And here it is pertinent in parenthesis to remark on this much misused word taste. It is often spoken of as an intuitive gift, and many who arrogate to themselves its possession dogmatise on matters of art as though the appreciation and knowledge of art need no training whatever. Artists are not so easily made. Taste to be of any value or authority must be the outcome of wide observation, of judicial power of comparison and of education in its widest sense. And even then it is a variable standard which each sets up for himself, the result of his study or environment, and therefore in no way a standard of universal application. To a devotee of Classical architecture the proportions of a Classic column are in the best taste, while those of a Gothic shaft are barbarous, and *vice versâ*.

Of genius in architecture we may say, as Mr. Froude says of the gifts of strength, of wealth, of rank, of worldly power, "It is a splendid instrument if nobly used, but requiring qualities to use it nobler and better than itself."

The architects and craftsmen of our most beautiful Mediæval cathedrals evolved their masterpieces, as we have seen, by laborious study of the materials they had to deal with, of the forces exercised by their material employed in different ways; and the constructive features arising therefrom became the motive on which their design was based. The various phases and incidents of Christian worship and ritual then led to the general planning of their building; the nave, the aisles, the transepts, the chapels, the choir, the chancel, the sanctuary—all made subservient to or rather based on the Cross, the great emblem of their faith—and subsidiary to these, the chapter-house, the library, the offices, the cloisters, &c. In every part we see plan and construction emphasised as integral parts of the art expression. In them there is no room for talk of the work of the engineer and builder first and the clothing of architecture added to this. Architecture as a fine art is everywhere, and the art atmosphere pervades the building not only in architecture, but in painted walls, windows and roofs; in sculptured figures, traceries and canopies, in music, in stately processions of men, in waving banners, in adoring congrega-

tions—the whole having its main aim in rendering glory to the invisible God, a God whose majesty and mystery, as revealed by Christ, led to the soul's uplifting in a way that must have been unknown to the Greeks, whose gods were but deified mortals of whom their votaries could have had but a measurable appreciation.

These were days when art permeated the masses in dress, in pageantry, in village festivals, in guild processions. Be it remembered I speak of the period when the priesthood of the Christian Church were self-denying men, living in a chosen poverty, the teachers, the guides, the protectors of their flocks, drawing to them all that was good and great and generous in rich and poor alike, and before the great canker of worldliness, of wealth, of lust, of power, of intrigue and immorality had sapped their influence for good; before the Pope had in 1489 commissioned the Cardinal Archbishop Morton, his legate, to make inquisition into the charges made against the monasteries, resulting as it did in such a condemnation by the legate as justified beyond question the worst of the accusations. In the earlier times Gothic art was a power to raise men. In the degenerate days towards the early part of the sixteenth century it not only lost its power over men, but it came to stink in their nostrils as associated with the falsity of those who had been its leaders and patrons. And with this loss of faith in the Catholic Church, the cult of Gothic architecture as a living and growing art fell into a trance, and so remained for centuries. The moral shock not only brought about the Reformation, it chastened the laity, hardened their natures, made them puritanical. Their reverence of God was indeed intensified. The virility of the people asserted itself, and the horrors perpetrated in the Western hemisphere by the most Catholic Spanish nation sent such a thrill throughout England that no wonder the gentle and refining influence of architectural art was replaced by zeal and hatred against the system with which it was most closely related.

The energy of the nation was diverted. It became the instrument of Spain's destruction, and in fulfilment of that mission the great men of the Elizabethan era—Drake, Frobisher, Gilbert, Davis (whose name is perpetuated in Davis's Straits), Hawkins, Raleigh and many others—became the pioneers of that colonial empire of which to-day we see the development. The lives of these men are most interesting studies. That they were impressed with a firm belief that they were doing God's work is beyond question. They were human, and some of them blunt, unlettered men with faults grave enough, judged by our standards of to-day; but Froude, Charles Kingsley and Towle give us pictures of the purity of their lives, of their chivalry, their devotion to duty. It was in such an atmosphere and with these heroic surroundings that Shakespeare—as we are reminded by Froude—found living models for the finest and noblest of his dramatic characters; so that if art in one of its phases was banished, it in another blossomed in a way that has never been surpassed.

But while Shakespeare in immortal drama wrote of men and manners, of history and philosophy, architecture remained the history in stone of the past and passing ages, of the life of the nation from generation to generation. Take an old church, begun in the early centuires of our English civilisation, extended, varied; her gloomy interior of the earliest period opened up to light by large windows of a later period, modified in other respects from time to time; the rood-screen, once the line of demarkation between the clerical and the lay, now denuded of its titular ornaments, often removed from its normal position to enclose a side mortuary chapel or a secular lord's pew. Such a church tells us of the evolution of our history and race—whether upwards or in decadence—of sacerdotalism, of puritanism, of the autocratic king or the revolutionary rabble. The beautiful building, the emanation of man's aspiring soul, the offspring of his highest faculty—the creative—breathes of man's high mission, "its tenderness, its heroism, its regrets, its aspirations," as Oliver Wendell Holmes expresses it. Under her sheltering wing she takes his life during his short sojourn here; she hallows his birth, she blesses his marriage, she mourns his death, and she, raised from the earth by his behest, finally takes his earthly part into her reverent keeping.

What so grand as the interior of such a historical work as Westminster Abbey? Her architecture, itself marking epochs in the nation's life, scarred but not marred with monumental records of her sons' self-sacrifice to duty, of their energy, their learning, their great endeavour in all the paths of physical and mental activity. In what gallery of painting or of sculpture can such sublimity be found? Here the sculptor's art appears as handmaid to attend the sister art. Sculpture is most sublime when, as here, it seeks not its own glory but to minister to hers; when it adds the grave and chaste beauty, so peculiarly its own, to the solid qualities of her reposeful dignity.

But while this is true, it is also true that each of the arts has its separate identity, a personality as distinct and as responsible as that of any member of a human family. Each must work out her own salvation, aim for her own ideals, and in such aim she may, and too often does, loosen the ties which bind her to her sister arts.

Yet let us again insist that architecture is organic. Sculpture is a representation of the organic; painting is inorganic, illustrative only.

In architecture sculpture may be used as an organic part of the structure, as figures in a Gothic doorway or as the caryatides in a Classic temple, but in such relation it is an accessory to architecture, a blossom on the tree.

In a somewhat different category we may cite the sculpture on the Parthenon. This is organic, and I particularly wish to refer to the frieze. It has often been conjectured how this frieze came to be placed in the shadow close up to the cornice of the cella within the peristyle. It seems to me this stately procession in such a position, viewed from a short distance, broken up as it is by the columns, appears unending, mysterious, and perhaps was intended to be symbolical of the march of conscious life through all the ages.

Detached works of sculpture are best seen to advantage within or in juxtaposition to a building. Viewed with a natural background of foliage, dissociated from anything architectural, they appear lifeless; but on a background of man's architectural creation they become instinct with life; they are then like jewels of price on the neck of a fair woman, embellishing and embellished. I have referred to our Valhalla, but the Loggia de Lanzi of Florence will be recalled by all as another illustration.

A painted picture is different. It needs, it is true, to be housed, owing to its relatively perishable nature; but for its appreciation as a picture it demands exclusive attention, to be separated from its surroundings, the vision to be bounded by its frame, and the mind of the beholder to be detached from all else.

It is true that painting sometimes selects the position of handmaid to architecture when it is employed decoratively—it may be in a series of historical records locally appropriate to, and fitly forming part of the architectural monument it embellishes. In this case each picture has some harmony with its fellow pictures and with the sombre neutral hues of the stone. In such case painting becomes broader, more catholic. The same applies to painted windows. They form part of the architectural composition; they enrich and beautify it; their detail is there, inviting careful attention, but like the surface-carving on the exterior of a Venetian palace or the walls of a Gothic church, they are primarily the mosaic incrustation giving brilliancy to the whole structure.

Returning to our survey of Gothic architecture, we find that with the downfall of the monastic orders in England, and the continental upheaval brought about by Luther, with the revolt of the laity against the priesthood, Gothic church building ceased, and closely following on its cessation the army of Craft Freemasons was disbanded, or rather dissolved to atoms. The revolt was so complete that Gothic architecture in England was banned as associated with oppression and licentiousness—the virtue and self-abnegation of its artistic founders being forgotten.

Meantime, the revival of the study of Greek literature disclosed to the student as a new revelation a people free, untrammelled, heroic, artistic and godlike, the authors of pure and beautiful architecture, and cultured Europe turned to this fount for inspiration in all its art life.

In Italy, a demand for architectural monuments based on Classic lines found no school of architects at hand trained in the principles of their art, in the sense that the Gothic architects were trained.

The sculptors and painters who were called to design the new Renaissance buildings were not hampered by preconceived theories of design, or, indeed, by technical knowledge of old buildings, and although they sought to create, they were more anxious to build palaces which they might decorate than works of architecture. They built, it is true, large buildings, but in few of them is the art a natural outcome of the construction. Many are frankly but backgrounds for painting.

As an illustration, we may cite the Chapel of the Arena at Padua, painted by Giotto. It is a plain rectangular room having a painted waggon-vaulted ceiling with windows on one side, and not a moulding on the surface of walls or ceiling. As a work of the painter's art, the interior of the building is acknowledged as of the greatest beauty.

The Sistine Chapel at Rome was commenced 1473 and finished 1541, and Mr. Fergusson, in order to show the difference between the arts south and north of the Alps, makes a comparison between it and King's College Chapel at Cambridge, built at the same time, 1479-1530.

The Roman chapel externally was a barn, internally it was almost devoid of architectural mouldings or decoration. It was a barrel-vaulted ceiling, groined over the semicircular-headed windows at the sides. Its walls were covered with paintings by several artists. Its ceiling was painted by Michel Angelo, and later the wall over the altar was filled with his great work, *The Last Judgment.*

The Cambridge chapel, on the other hand, externally has a rhythmic division and a rich architectural treatment, while internally it is a web of architectural detail, all growing out of and expressing the construction. It has its pictures, but they are transparencies in glass.

The Sistine Chapel has been well and often described by able men, but if it has not already been noted I should venture to make a criticism in regard to its ceiling. This is a plain surface semicircular in section, divided into compartments by painted mouldings. As is well known, the central flat compartments from end to end are occupied with subjects ranging from the Creation to the Deluge, all illustrated with colossal figures. A spectator looking towards the altar sees the figures, it is true, in their proper or intended position, but seen from the altar end they are upside down and grotesque. Now had all these compartments instead of being flat been constructed as shallow domes, either circular or square on plan, no such defect could have been possible; all figures that could be seen from either end or from the sides would have appeared natural in a partially upright position on the concave surfaces, and would not have looked as if they would fall. None could have been seen upside down, and from the art side we should have had the idea that each of the subjects forming the decoration of the dome separately sent up its praise and adoration to the Most High.

In St. Paul's Cathedral Wren had evidently this aspiring idea in mind when he treated his ceilings with shallow domes throughout. In Sir W. Richmond's beautiful decorations of the choir we lose the painful impression of the Sistine Chapel, and do not feel that his figures will fall, while each compartment raises its pæan to heaven.

In St. Peter's, at Rome, there are domes in the aisles, but the nave is a long plain vault.

I do not propose to enter here into any comparison between St. Peter's and St. Paul's, except in so far as it relates to my subject, but in that relation I would remark that, if the Sistine Chapel ignores architecture, St. Peter's on the other hand misuses it. At least three designs were made for it, and the conception appears to have eventuated in the idea of obtaining a building with architectural features and details on a colossal scale, but instead of the resulting effect being a beautiful monument, the immense dimensions of which could at once be grasped, the mark has been overshot. All scale is lost. The Gothic cathedral architects kept their detail—their shafts and mouldings, and even their stones—small, and judged by the scale of these, their buildings looked very large, while it is stated as a fact that some of the largest are but of the dimensions of an aisle of St. Peter's.

Is it possible that this error arose from the fact that the glory of God was not the only or main object of the building, but rather the glory of the Pope, who wished to emphasise the majesty of his power among the nations?

In St. Paul's Wren avoided the error of colossal detail; his internal proportions became in consequence better, and there resulted a vista of imposing dimensions which the mind could grasp. The internal grouping, too, became more graceful; the double order, instead of the single one of St. Peter's, appears to lift up the roof; the domical compartments in the ceiling, to which I have already alluded, added to this effect, and led up to the great transeptal lantern and dome, the whole a conception of aspiring lines leading the eye and the soul ever upwards. Externally in almost every part it appears to be superior in grace of proportion.

Mr. Gilbert, R.A., recently at the R.I,B.A., spoke of Wren's cathedral as the work of a sculptor-architect, by which I think we understood him to mean one who in designing in architecture had the aptitude of the sculptor in proportioning his parts and modelling the whole building as it were out of a lump of clay, producing a result graceful and so to speak well poised from all points of view.

In speaking of this modelling of a building, it seems not inappropriate to say a word as to the picturesque in designing. Some few years ago we heard a great deal of this, and it was by some advocated as an end to be attained.

The picturesque in our Royal Courts of Justice is noticeable, but I doubt if it was sought for at all by its author. It was more likely to have arisen out of the natural expression of the constructive planning, and it certainly may be asserted that in most of our old domestic work it will be found to have had its origin in the planning, in additions from time to time to suit varying wants, in the opening up of prospects, or in other natural ways. Unless it has such a natural basis it is incongruous To distort an interior or exterior in order to get a picturesque is inadmissible.

Symmetry in a design, especially of a public building, is an element of great art value. Externally it contributes to the ideas of dignity and repose, and to that impressiveness due to simplicity. Internally a symmetrical plan is easy to follow, and the appreciation of the building is much enhanced if there is no irritation created in preoccupied minds by difficulty in finding one's way about. Mr. Aston Webb, at the Architectural Association, recently spoke ably on this subject. But symmetry does not mean cast-iron uniformity, or that everything is designed and set out with geometrical precision. The contrary is the case. The general effect is "ordered," so to speak; but Mr. Ruskin notes the variations in the width of piers and arches in the façades of numerous buildings which to the casual inartistic observer appear rigidly symmetrical. I will cite but the example of the Ca d'Oro Palace at Venice, where there is a battlement or cresting of varying height along the front. In the happiest way the architect has given the effect of symmetry, but on analysis it will be found that the effect is produced by an unsymmetrical outline. This is but one of the æsthetic refinements of architecture where the idea is expressed without demonstration.

In like manner, as I have endeavoured to show in the earlier part of this paper, proportion is not the result of following ingenious scales of modules framed on Classic examples, nor of triangles based on Gothic structures, but should be the æsthetic expression of the ability of the various parts of a structure to perform the duty imposed on them, the lower parts being necessarily more massive than the upper. It was probably a recognition of this which led Vitruvius to lay down a law that in superimposed orders the Tuscan or Roman Doric should be at the bottom, the Ionic next, and the Corinthian above that, because the first was the most massive, the last the lightest. But this arrangement gives us a cornice to the lowest storey larger and heavier than to the highest, whereas the function of a cornice to a roofed building is to throw the rain off the building, and to do this the cornice at the eaves should be larger, with more projection than any other horizontal feature of the façade, and æsthetically this arrangement is, as a rule, by far the best. Proportion must, in any living architecture, vary with the material used and with the size of the building.

The single order of the elevation of St. Peter's at Rome may be correct by scale, but it is unreasonable in its actual position. Again, we do not quarrel with the proportion of an iron column or stanchion at the Crystal Palace. It is seen to be appropriate to the material. The Eiffel Tower was formally protested against before its erection by a large number of eminent artists in France and elsewhere, but when erected these same artists recanted their former condemnation, admitting its grace and proportion, these being evolved from the perfect expression of the functions of the material employed.

The fact is, we should concern ourselves less with the proportion of any detailed feature in a composition than with that of the broader groupings of the whole structure. Detail is interesting and important, and should be sedulously studied when we come to it, but it is not the be all and end all. That which is seen of any monumental architectural work is the mass.

Mr. Walter Crane says that a people without art are, collectively speaking, inarticulate. In other words, if I may venture to interpret him, they may be scientific; they may, like Faust, sound the depths of knowledge, or, like Newton, soar to map the heavens; but unless they have minds to achieve and create, and the faculty to appreciate emotions and ideas, they are soulless—are of this earth and not a part of the immortal. Mr. Crane adds that the most vital art is the expression of character. If that be so, and if the noblest and most enduring quality of a race is character, then architecture, among the arts, is the noblest and most enduring—that which expresses the virility of a nation.

The formation of this quality of character is closely allied to religion. I cannot here enter into the philosophy of this alliance; but, accepting religion as a great agent, there can be no question that art is a potent influence in the teaching of religion. Science deals with demonstrable truth; art with imagination. Science tells us—very often on insufficient data, and, therefore, erroneously tells us—what is; and often will not admit anything to be which it cannot demonstrate. Art tells us that to live is the effort to be what life as defined by science is not; that if science makes anatomical sections of a man, maps his every nerve, and plans the channels of his life's stream, she has not found and cannot find the man, the living soul which art is ever disclosing in new forms. And as religion is the great exponent of the same message, she naturally draws to her this potent ally. From the earliest days it has been so, and hand in hand they have worked together. Architecture has raised the temple expressing the ideas which her co-workers expound.

Among the arts there need be no rivalry. Architecture can mould itself in sympathy with the sculptor, and can adapt itself to the exigencies of the painter. The more massive art can accommodate herself to the less robust arts and make provision for their display to the best advantage. So let it be.

What then are the practical conclusions to draw from our consideration of this most interesting subject? They are that the possibilities of our art are great, that the responsibilities of its exponents are greater. We have cause for much rejoicing that this wonderful century is closing with bright prospects for architecture. It is more zealously and lovingly studied and expounded. Its spirit is more appreciated, not only by its

ministers, but by a growing number of the public. This should rouse our enthusiasm, but although enthusiasm is good, let it not carry us away to false ideals. Avoid the cant which suggests that it is beneath an artist architect's dignity to pursue the humbler details of his studies, the scientific basis for his perfected work. Enthusiasm should spur us to labour and to study. In itself it will attain nothing. Enthusiasm for music, and a nervous horror of discord, will not enable us to compose or to perform music, nor will a similar emotion make us architects.

For us to carry the banner of our art still upward and onward needs a power to apprehend current needs, logical reasoning, much labour, courage, and technical study, as well as the environment of art works, of liberal thoughts, high ideals and aspirations, and sympathy. We must throw off the shackles of past civilisations, not ignoring but assimilating all that they can teach us, and steadily seek to create and express what is best and brightest for our own time.

In this way the position of architecture among the arts will be a high and noble one, and with its sisters, sculpture and painting, it will beautify and ennoble the people's life, and so reverse the oft-repeated but we would fain hope untrue dictum that art flourishes best in the decadence of a nation.

EDINBURGH ARCHITECTURAL ASSOCIATION.

A MEETING of the Edinburgh Architectural Association was held on the 14th inst. in the Royal Institution, Princes Street, Mr. Thomas Ross, the president, occupying the chair. The chairman referred feelingly to the death of Mr. Hamilton Beattie, and proposed that a letter of condolence should be sent to the family of the deceased member, and this was agreed to. Mr. Edwin Forbes then delivered a lecture on a year's work in Galloway in connection with the School of Applied Art Studentship which had been gained by him. After stating that it was scarcely possible to over-estimate the boon which the School of Applied Art was to those who had chosen architecture as their lifework, he proceeded to describe Dundrennan Abbey, Glenluce Abbey, Lincluden College, Sweetheart Abbey and Caerlaverock Castle, giving history, traditions and dates in connection with each of these buildings. The lecture was illustrated with limelight views.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.

A SERIES of most instructive visits have just been paid on Saturday afternoons by the students of the architecture and building construction department of this College. The structures visited in course of erection were Ruchill Hospital, Pollokshaws Town Hall and Glasgow Bridge. One afternoon was spent at the sewage purification works; another at the cathedral, when Professor Gourlay conducted a special architectural class visit for the study of the vaulting; while on a third the honours stage students joined the Craftsmen's Society on a visit to the weir, now being constructed on the Clyde. All these visits were very largely attended by the students.

The Scotch Education Department have awarded four Queen's prizes, value 2*l.* each, to students of the architectural department of the College, namely, one in architectural design to James M. Alexander, and one in architecture to John M. Arthur; and two in building construction, the one to James A. Ferguson and the other to Robert Park. These prizes are awarded to those students who do best in the May examinations, and they are competed for by students in all parts of the United Kingdom.

AN IMMERSION FONT.

ON Sunday morning a font grave for baptizing adults by immersion was dedicated as a memorial to Archbishop Benson in the parish church of Lambeth. The new font is in the baptistery immediately behind the one in ordinary use, and is designed after the general plan of one in the ruined church of St. Stephen in the Campagna at Rome. It consists of two concentric semicircles with steps down on each side. The material used is Pavonazzo marble, with a kerbing of Languedoc marble. On an iron rail between the old and new font is an inscription in open copper-work, taken from the font at Sta Sophia at Constantinople, which reads both ways—ΝΙΨΟΝ ΑΝΟΜΗΜΑ ΜΗ ΜΟΝΑΝ ΟΨΙΝ. The rector had talked over the idea which has thus taken place with the late archbishop before his death, and it received his general approval. There is no church in London in which baptism can conveniently be administered by immersion, and the rector will always be ready to lend the baptistery to any clergyman who desires to use this primitive method of administering this sacrament. The work has been executed by Messrs. Farmer & Brindley from designs prepared by Mr. J. Arthur Reeve, of Victoria Street, Westminster.

TESSERÆ.

Homeric Greece.

THE Greek cities of Homer's day, like the towns of the earlier part of the feudal period, could not have been very populous places; probably not one yet numbered more than 3,000 or 4,000 souls. The chieftain lived on his own domain, which he had acquired himself or received by inheritance, or which had been more or less voluntarily bestowed on him by the people, for this was the only way in which, besides that of occasional gifts, they could requite him for his public services. Neither rent nor tribute appears to have been established, or even understood. Money was unknown. A chief, in estimating his wealth, only considered how long what he had would maintain his establishment. The general community was composed of small freeholders, who lived upon their little estates. Their land was in as complete a sense theirs as the chieftain's was his. The chieftain's dignity had three supports: his superior wealth, his having the chief, and generally the sole command in war, and in effect the administration of justice; but, after all, it was his high personal qualifications which enabled him to maintain his position. War was almost the normal state of society; and predatory excursions, which were war under another name, might at any moment be entered on or have to be resisted. This obliged each little community to have at its head one who possessed the power of levying at any instant the freemen of the district and could command them in the field. They must have a man in this position, for the people were, as we may say, always under arms, and the one indispensable daily function of government was to provide against and repel warlike attacks. These petty chiefs were spread over the whole country—every district had its own. Slavery, but in a mild form, was customary, the men being chiefly employed in agricultural, the women in domestic occupations; in a chieftain's house we find even the cellar in charge of a female. A few of the most necessary of the useful arts were practised; for instance, we find occasional mention of persons who were acquainted with the healing art. This, however, had not yet given rise to a profession. The notices of the business of the merchant are as slight; because in times when wants were few, money unknown, little security at home and none upon the sea, such a class could not have maintained itself.

Gower's Monument in Southwark.

A quiet spot was the church of St. Mary Overy's, Southwark, long after Gower's suppliant effigy was set up in its side chapel; for although even then the currents of business and population ran over London Bridge, yet the silent highway of the river was the principal thoroughfare of the City; meadows sloped down to the Thames, cattle grazed in Lambeth Marsh, and where the terminus now stands, with its perpetual hubbub and haste of arrivals and departures, were fields and gardens, through which ran the broad road that Chaucer's pilgrims followed, and which knit into one stem the various branches of the great highways that led to Dover, to Hastings and the shrine of St. Thomas at Canterbury. Unconsciously, Gower had taken for his last earthly resting-place a spot destined to become as turbulent as the "still-vext Bermoothes." Yet to this corner of unquiet, no less than to Chaucer's more secluded monument in the Abbey of Westminster, will occasionally resort a pilgrim to whom the memory of one of the founders of our language is dear. For those who have not yet made this pilgrimage, or may not have Dr. Pauli's volumes at hand, it may be interesting to transcribe such earlier descriptions of this altar-tomb as it appeared before the pious churchwardens of 1764 "repaired and beautified," as none but churchwardens can, this venerable monument. Blore, who saw it after it had been twice "beautified," thus described the tomb:—"The monument of John Gower is in the chapel of St. John, in the north aisle of the nave of St. Mary Overy's, commonly called St. Saviour's Church, in Southwark. It is entirely of stone, and consists of a canopy of three arches with bouquet (crocketed) pediments parted by finials, and at the back of each pediment three niches, of which there are also seven in front of the altar-tomb." Berthelette, who saw the monument in or before 1532, ere a churchwarden had "improved" it, since he mentions it in the introduction to his edition of the "Confessio Amantis," published in that year, thus describes the figures—now nearly obliterated—of charity, mercy and pity, which were painted against the wall within the three upper arches:—"Beside on the wall where he lieth, there be peinted three virgins, with crownes on their heades, one of the which is written Charitie, and she holdeth this divise in hir hande:—'En toy qui est filz de dieu le pere sauve soit qui gist souz cest pierre.' The second is written Mercie, which holdeth in hir hande this divise:—O

bon Jesu fait ta mercie al alme, dont le corpe gist icy.' The third of them is written Pitee, which holdeth in hir hande this divise followynge :—'Pour ta Pite Jesu regarde et met cest alme en sauve garde.'" On the top of the altar-tomb is the effigy of the poet—a portrait statue dimly shadowing the original. The hair falls in large curls on his shoulders, and is crowned with a chaplet of four roses, originally, as Leland tells us, intermixed with ivy, "in token," says Berthelette, "that he in his life daies flourished freshely in literature and science." It is inscribed *ihi merci.* A long robe, closely buttoned down the front, extends from the neck to the feet, which are entirely covered. A collar of SS, from which is suspended a small swan chained, the badge of Henry IV., hangs from his neck; his feet rest upon a lion, and above, within a panel of the side of the canopy, a shield is suspended charged with his arms. On the ledge of the tomb was an inscription, now entirely gone :—"Hic jacet J. Gower, arm. ang. poeta celeberrimus ac huic sacro edificio benefac. insignis vixit temporibus Ed. III. et R. II."

Treatment of Gardens.

A garden when perfect should give the idea of a highly-favoured spot in the landscape whose soil is more prolific and better tended, whose flowers and fruits are of a superior kind. The enclosure should make the greatest possible contrast with the rude scene without. This contrast is heightened when the situation of the garden presents views of scenery much at variance with its own peculiarly rich, soft and orderly appearance. The gardens of the Villa Albani and of others to the east of Rome are, in this way, very advantageously placed; from their highly ornamented terraces one sees the desolate, wild Campagna with its dreary ruins, backed by the distant Apennines. The absence of mountains round London weakens much its scenery, but no part of it is more straitened by the effect of this deficiency than its gardens, for which the landscape is too soft. On this account, extraordinary care, cultivation and ornament are required to give them their necessary characteristic distinction. Besides the accelerated and orderly growth, and careful training and pruning of plants and trimming of borders, other adventitious means, such as work in marble or stone, should be freely resorted to, and that work always fine. Balustrades, with their continuous line, emerging here and there from among the shrubs, terraces and stairs, piers crowned with statues or vases, jets-d'eau, all heighten the artificial characteristic look of a garden. The statues in a garden should be white or fair; being important, costly objects, they should be by colour made remarkable; bronze is ineffective. Conservatories and greenhouses should be much ornamented, gilding should always appear; they should besides show on some part carving on stone or masonry, in order to connect their appearance with that of the balustrades and statues; the seats in a garden whch are seen should be of stone or marble. Summer-houses and alcoves should always be of stone or marble; the style which appears best suited to them is the pure Ionic; in the Corinthian the affectation of foliage is objectionable, a comparison might lightly occur between the beautiful original and this poor copy; for the same reason the Gothic styles are not good. Care should be taken that the appearance made by these retreats in no wise interferes with the importance of the villa to whose grounds they belong.

The Ear of Dionysius.

At a short distance from Syracuse in one of the quarries is the Ear of Dionysius. A beautiful garden has to be passed through in going to it from the first of the caverns. The Ear is probably the most wonderful acoustic contrivance in existence, and that it was the work of studious design is proved by a second one commenced in a neighbouring quarry—commenced, but not further prosecuted, evidently because it would not answer, from the soft, chalky material of the wall on one side. The external shape of the conch is that of the ass's ear. The aperture, through which the light now enters from its further end, and from a height of 120 feet, was till lately not known to exist, it not being supposed that the ear had any meatus internus corresponding with the external one. The accidental removal of a quantity of loose stones from above revealed a narrow passage of from 20 to 30 feet in length, and opening directly into the cave. This internal opening is situated almost immediately over the amphitheatre 120 feet above the floor of the cavern, and (measuring in a plane) is 180 feet from the external opening. Having rent paper, which made an incredible noise, and let off a Waterloo cracker, which reverberated along the walls like thunder, and done other deeds of the same kind below, we ascended, and walking over the back of the cavern presently came upon the passage which leads to its inner opening; and there, leaning over a parapet wall (in doing which we almost exclude the feeble light that penetrates into the cavern from behind), we are startled by a very audible but faint whisper, which comes from our friend below, asking us to declare our present sensations. We reply in the same faint whisper, and are immediately apprised of its safe arrival by another. One hundred and eighty feet separate the parties. In the stillness of that half-lit cavern not only were our faintest whisperings conveyed, but we could hear each other breathe.

The Hague.

The antiquities of The Hague lie about the Binnenhof and Buitenhof, or inner and outer courts. In the former, where the good old Barneveldt was beheaded, is the most remarkable building of the city, the Hoog Geregtshof, or High Criminal Court, an instance of that sparingly ornamented, solid, brown architecture, like Gothic reared on beer, which prevails more or less all over Holland. The Groote Kerk is another specimen with ecclesiastical differences, and a slight infusion of the pagoda. In fact, walking through a Dutch city after the old towns of Belgium is like drinking brown stout after burgundy. Both buildings and paintings are undeniably solid and honest and wholesome; you have nothing to complain of as far as they go, no crudeness or want of finish. But somehow they have a kind of drowsy effect after the bright rich fancies of the Ghent and Antwerp architects, and of the Hemling, Van Eyck and Matsys pictures. Strange that it should be so. There can be no great difference as to race between Holland and the part of Belgium which is richest in art; in the physical character of the country there is none whatever. Nor were they differently circumstanced when, for example, yonder opaque edifice and the spire of Antwerp were built. There must be something subtler than we wot of to account for this, and whatever it is it also probably accounts for Utrecht and the Seven United Provinces, and Admirals Van Tromp, De Ruyter and De Witt, and Dutch colonies and Protestantism, and Flemish Catholicity and manufactures. Can it be that the truth lies at the bottom of those silent canals? That which helped the country to expel the Spaniards may have also helped to make it self-reliant, self-confident, and at the same time less likely to be affected by foreign influences.

GENERAL.

In Consequence of the sudden death of Mr. J. Gibbons Sankey, M.A., F.R.I.B.A., of 104 King Street, Manchester, who has carried on an extensive practice as an architect in Manchester and London, and for whom Mr. John Cubbon has acted for some years as manager, an arrangement has been made by which the practice has been entirely assigned to Mr. Thomas W. Cubbon, of Birkenhead, and his brother Mr. John Cubbon, Associate-elect R.I.B.A., who will continue the practice under the name of Messrs. Sankey, Cubbon & Cubbon. Mr. Thomas W. Cubbon will continue to reside in Birkenhead, and practise in Birkenhead and district independently of the Manchester firm.

The Next Ordinary General Meeting of the Surveyors' Institution will be held on Monday, January 9, 1899, when the adjourned discussion on the paper read by Mr. Wm. Weaver (Fellow) at the last meeting, entitled, "The London Building Act and the Official Supervision of Buildings," will be resumed. The chair will be taken at eight o'clock.

M. Ferdinand Cormon has been elected a member of the French Academy of Fine Arts, in succession to the late M. Lenepveu. The style of the new Academician can be judged from the illustrations of his *Family of Cain* and *Return from the Chase* published in *The Architect.*

The London County Council have requested Mr. Thomas Blashill to remain in his office of superintending architect for a few months until an eligible successor can be discovered.

The Tapestry Panel which was purchased at the sale of the Eudel collection for 27,000 francs has been framed, and is exhibited in the Edinburgh Museum of Science and Art. The subject is the Triumph of Prudence, and the panel measures 17 feet by 13 feet.

The Reports of the summer excursions to places of interest by members of the Upper Norwood Athenæum have been published by Messrs. Truelove & Bray. The record is edited by Messrs. Stanley and Harradence, and will have much interest for lovers of suburban archæology.

Messrs. Hudson & Kearns have brought out their excellent series of diaries and blotting-pads for 1899. Every one who has used those equipments for office work during a year will be ready to testify to their convenience, comfort and endurance. They are most efficient aids to the expediting of business.

The David Salomons Scholarship for 1899 has been awarded by the Institution of Electrical Engineers to T. R. Renfree, student in the Siemens Engineering Laboratory of King's College.

The Parish Church of Bradford is to be restored partly as a memorial of the late Archdeacon Bardsley. The cost is estimated at 10,000*l.*, and the subscriptions received or promised already amount to 5,740*l.*

Professor Jebb has been appointed Professor of Ancient History to the Royal Academy.

THE

Architect and Contract Reporter.

IMPORTANT NOTICE.

WORKMEN'S COMPENSATION ACT.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

EDITORIAL NOTICES.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, 175 Strand, London, W.C., not later than* 2 P.M. *on Thursdays.*

NEW READING CASE.

To Librarians of the Public Libraries and Reading-rooms.—A new handsome Reading Case can be supplied at a nominal charge of 2s., by post 2s. 6d., on early application to the Publisher, 175 Strand, W.C.

For Advertisement Scale, see page xiii.

COMPETITIONS OPEN.

BRADFORD.—Jan. 2.—Designs are invited for erection of a central fire-brigade station. Three premiums are offered, viz. 100*l.*, 50*l.* and 30*l.* Mr. George McGuire, town clerk, Bradford.

BRADFORD.—April 14.—Designs will be invited for the erection of the Bradford Corporation Cartwright Memorial Hall, at a cost of 38,000*l.* Three prizes will be offered, value 150*l.*, 100*l.* and 50*l.* respectively. Particulars will be found in another column.

BURNLEY.—Jan. 14.—The Burnley School Board invite designs for a new higher-grade school and pupil-teachers' centre, to be erected in Ormerod Road, Burnley. Competition is limited to architects having offices within 60 miles of Burnley. Mr. E. Jones, clerk, Town Hall, Burnley.

HARROGATE.—Jan. 2.—Competitive designs are invited for erection of a pump-room, &c., the cost of which must not exceed 8,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* Mr. Samuel Stead, borough surveyor, Municipal Offices, Harrogate.

HULL.—Jan. 2.—Designs are invited in competition for a central public library in Albion Street. Premiums 50*l.*, 30*l.* and 20*l.* Mr. Sidney R. J. Smith, 14 York Buildings, Adelphi, W.C.

CONTRACTS OPEN.

BARMOUTH.—Dec. 31.—For erection of school buildings. Mr. John Ed. Evans, architect, Barmouth.

BARNES.—Jan. 10.—For erection of a fire-station in the High Street, Mortlake. Mr. G. Bruce Tomes, surveyor, Council Offices, High Street, Mortlake.

BARNSLEY.—Dec. 29.—For erection of twelve dwelling-houses and other works in Dillington Road. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnsley.

BIRKENHEAD.—Jan. 3.—For erection of pay gates and buildings at the entrance at Rock Ferry Pier. Mr. Charles Brownridge, borough engineer, Town Hall, Birkenhead.

BRADFORD.—Jan. 10.—For erection of new Inland Revenue offices at Bradford, for the Commissioners of H.M. Works and Public Buildings. Mr. Flew, 11 Popplewell Chambers, Bradford.

BRIDLINGTON QUAY.—Dec. 29.—For erection of business premises, Prince Street. Mr. Samuel Dyer, Bridlington Quay.

BRIDLINGTON QUAY.—Dec. 29.—For alterations and additions to 6 Garrison Street. Mr. J. Earnshaw, architect, Carlton House, Bridlington Quay.

CARLISLE.—For erection of eight houses. Mr. James Beaty, Old Post Office Court.

CRANFORD.—Dec. 30.—For alterations and repairs to the Dockwell isolation hospital, near Cranford, Middlesex. Mr. F. C. Greville-Smith, clerk to committee, 172 High Street, Hounslow.

DARTMOUTH.—Dec. 31.—For erection of stone boundary walls and public latrines on the reclaimed land, North Parade and Mayor's Avenue. Mr. T. O. Veale, surveyor, Castle View House, Dartmouth.

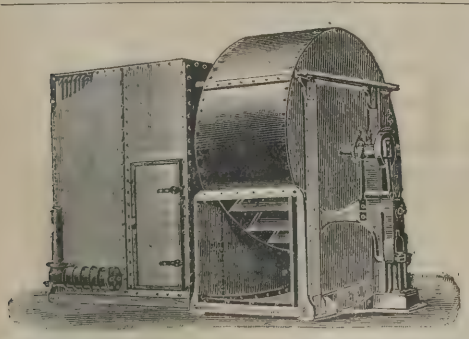
DERBY.—Dec. 29.—For enlargement of Primitive Methodist schools, Kedleston Street, and the erection of caretaker's lodge. Mr. John Wills, architect, Victoria Chambers, St. Peter's Churchyard, Derby.

DEVIZES.—Dec. 28.—For erection of a bacon factory and other buildings on the Bath Road. Messrs. Norris & Hancock, solicitors, 16 Market Place, Devizes.

DONEGAL.—Dec. 28.—For erection of presbytery. Mr. Edward J. Toye, architect, Strand, Derry.

DORCHESTER.—For erection of piggeries at the union house grounds, Fordington. Mr. D. Hinchcliffe, surveyor, Union House.

DURHAM.—Dec. 27.—For erection of a villa near Queen Street, Blackhill. Mr. Geo. Thos. Wilson, architect, 121 Durham Road, Blackhill.



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ELGIN.—Jan. 2.—For erection of a villa to be erected in Reidhaven Street. Messrs. A. & W. Reid & Wittet, architects, Elgin.

FAREHAM.—Jan. 16.—For construction of concrete foundations, erection of brick, steel and concrete superstructure of new infirmary wards, sanitary blocks, boiler-house, tall chimney shaft, &c., at County Lunatic Asylum, Knowle. Mr. W. J. Taylor, county surveyor, the Castle, Winchester.

FLIXTON.—Dec. 27.—For constructing two tanks, each 130 feet long, 18 feet wide and 10 feet deep, at the sewage farm, Irlam Road. Mr. Hooley, Council Offices, Urmston.

HALIFAX.—Jan. 11.—For erection of an infants' school and manual instruction centre at Mile Thorn, and alterations to Queen's Road Board school. Mr. Joseph F. Walsh, architect, Lancashire and Yorkshire Bank Chambers. Halifax.

HALIFAX.—Dec. 30.—For erection of an extension to boiler works, about 80 feet by 52 feet. Messrs. W. G. Gray & Son, architects, 28 George Street, Halifax.

HEREFORD.—Dec. 28.—For erection of two new blocks and other additions at the Hereford County and City Asylum, at Burghill. Messrs. Giles, Gough & Trollope, architects, 28 Craven Street, Charing Cross.

HORSHAM.—Jan. 9.—For erection of infirmary and administrative block to workhouse. Mr. C. H. Burstow, architect, 6 West Street, Horsham.

HULL.—Dec. 28.—For extension of physical laboratory and other alterations and additions at Boulevard Higher Grade Board school. Mr. W. Botterill, architect, 23 Parliament Street, Hull.

KIDDERMINSTER.—Jan. 11.—For erection of fire-engine station. Mr. Arthur Comber, borough surveyor.

LEAMINGTON.—Jan. 2.—For erection of entrance lodge to Victoria Park. Mr. Frederick G. Cundall, 41 Parade, Leamington.

LIMERICK.—For erection of a dwelling-house at Cahercorney, Herbertstown. Mr. John Ryan, solicitor, 100 George Street, Limerick.

LONDON.—Jan. 11.—For pulling-down and removal of buildings abutting on the site of the electric-lighting station. Mr. Wm. F. Dewey, vestry clerk, Vestry Hall, Upper Street, N.

LONDON.—Dec. 28.—For work in connection with the enlargement of the electric-lighting station, Eden Grove, Holloway, N. (near Holloway Station, Great Northern Railway). Mr. A. Hessell Tiltman, architect, 6 John Street, Bedford Row, W.C.

LONGTON.—Dec. 29.—For taking-down and removing the buildings belonging to the Corporation in Market Street, Chancery Lane and St. Martin's Lane. Mr. J. W. Wardle, borough surveyor, Court House, Longton.

MICKLEOVER.—Jan. 9.—For erection of two new wards and sundry other works at the Derby County Asylum at Mickleover, near Derby. Mr. J. Somes Story, county surveyor, County Offices, Derby.

MORECAMBE.—Jan. 7.—For erection of an arcade at Sandyland, Heysham. Mr. A. Lancelot Lang, architect, 12A Pedder Street, Morecambe.

MORLEY.—Jan. 2.—For alterations and extensions to the Cross Hall Board schools, Fountain Street. Messrs. T. A. Buttery & S. B. Birds, architects, Morley.

NEATH.—Dec. 30.—For erection of twenty huts at Seven Sisters. Mr. J. Cook Rees, architect, St. Thomas Chambers, Neath.

NELSON.—Dec. 30.—For erection of brewery offices, &c., Sugar Street. Mr. Thos. Bell, architect, 14 Grimshaw Street, Burnley.

NEW BARNET.—Jan. 12.—For erection of a school to accommodate about 860 children at Victoria Road. Mr. W. Pywell, architect, 40 Great James Street, Bedford Row, W.C.

NORTHFLEET.—Dec. 31.—For rebuilding three cottages in Lawn Road. Mr. W. W. Wabber, 55 Daws Road, Fulham, London, S.W.

NOTTINGHAM.—Jan. 3.—For erection of superstructure of the workhouse. Mr. Arthur Marshall, architect, King Street, Nottingham.

SALTBURN-ON-SEA.—Dec. 27.—For erection of an electric-light power house. Mr. Edward Whipham, architect, 59 High Street, Stockton-on-Tees.

SCOTLAND.—Dec. 27.—For additions and alterations at Morebattle parish church. Messrs. Hardy & White, 74 George Street, Edinburgh.

SCOTLAND.—Dec. 30.—For erection of a lifeboat house at Lossiemouth. Mr. R. B. Pratt, County Bank House, Elgin.

SCOTLAND.—Jan. 14.—For erection of two semi-detached villas in Sanquhar Road, Forres, and for supply of railing,

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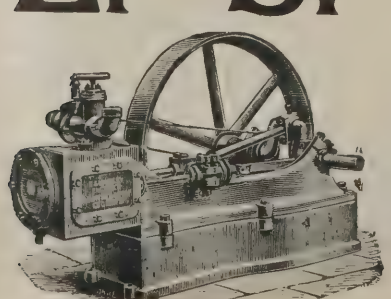
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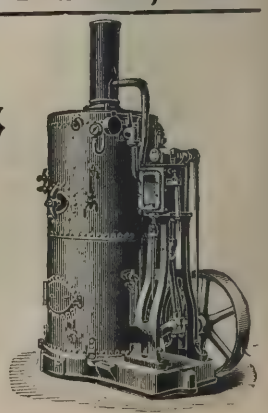
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[*Mention this Journal.*]

grates, &c., required in connection therewith. Mr. John Forrest, architect, High Street, Forres.

SELBY.—Jan. 11.—For erection of public baths. Messrs. W. Hanstock & Son, architects, Branch Road, Batley.

SHEFFIELD.—Dec. 28.—For alterations to the children's homes, 149 and 151 Upperthorpe. Mr. Edmund Winder, jun., architect, Wharf Street, Sheffield.

SUSSEX.—Dec. 30.—For erection of an engine-house, boiler-house, coal store, chimney shaft and dwelling-house at the site of their new works in the parish of Denton, for the Newhaven and Seaford Water Company. Mr. F. S. Courtney, architect, Broad Sanctuary Chambers, Westminster.

WADEBRIDGE.—Dec. 27.—For alterations, additions and repairs to the Commercial hotel. Apply to the Manager at the hotel.

WALES.—Dec. 27.—For erection of county police buildings, Blaenau Festiniog. Mr. T. Taliesin Rees, architect, Hamilton Chambers, Birkenhead.

WALES.—Jan. 5.—For altering and improving the Ynyswen Board schools. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WEST HAM.—Jan. 7.—For enlargement of hospital at Southern Road. Mr. Edwin T. Hall, architect, 57 Moorgate Street, London, E.C.

WILLENHALL.—Dec. 30.—For supply and erection at new cemetery, Bentley, of a span-roof greenhouse, 30 feet by 12 feet, with glass frame, and complete with heating apparatus. Mr. Chas. J. Jenken, engineer, Town Hall, Willenhall.

WINCHESTER.—For erection of a residence, &c., on the Abbott's Barton Building Estate. Mr. G. Barnard, architect, City Road, Winchester.

WINDERMERE.—Dec. 27.—For erection of Urban District Council offices. Mr. Robert Walker, architect, Windermere.

WINGATE.—Jan. 28.—For erection of a shop near Trimdon Station. Apply to the Secretary.

WREXHAM.—For additions to premises, Regent Street. Mr. M. J. Gummow, architect.

A CHURCH is to be erected at a cost of 2,000*l.* in Herbert Street, Nottingham, as a branch of the Baptist Tabernacle church.

TENDERS.

ALVERTHORPE.

For building retaining wall.

T. & G. WILSON (*accepted*)	£131 7 0

BELFAST.

For construction of a covered concrete reservoir, Ballysillan. Mr. ACHESON FERGUSON, surveyor, 35 Royal Avenue, Belfast.

W. J. Campbell & Son	£11,900 0 0
J. McKee & Sons	11,083 0 0
J. & W. Stewart	10,943 0 0
W. McLarnon	10,548 0 0
Courtney & Co.	10,590 0 0
H. & J. Martin, Limited	10,430 0 0
H. LAVERTY & SONS, Cambridge Street, Belfast (*accepted*)	10,400 0 0

BARKING.

For erection of eighty-three cottages for the working classes in Creeksmouth Lane. Mr. C. J. DAWSON, surveyor, East Street, Barking.

J. J. Reeve	£20,600 0 0
E. Hughes	20,543 0 0
J. C. Garbett	16,300 0 0
H. Lane, East Ham*	12,750 0 0

* Accepted subject to sanction of the Local Government Board.

BARNSLEY.

For erection of electricity works. Mr. J. H. TAYLOR, borough surveyor.

Tenders recommended for Acceptance.

J. K. Taylor & Son, bricksetter, mason, &c.	£1,242 0 0
G. Mellor, tall chimney	690 0 0
Newton, Chambers & Co, smith and founder	466 19 8
Robinson & Son, carpenter and joiner	385 0 0
Fleming, slater	113 0 0
S. Rushforth, plumber and glazier	87 0 0
Fleming, plasterer	57 0 0
T. L. Stephenson, painter	40 0 0

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BLACKPOOL.

For erection of a school in Alexandra Road, South Shore. Mr. E. Grube, architect, 13 Rawcliffe Street, South Shore, Blackpool.

W. Chadwick	£737 13 6
T. Lawson & Co.	660 0 0
F. Saville	650 0 0
G. H. Fisher	637 0 0
J. M. Fletcher, Limited	598 10 0
J. Porter, South Shore (*accepted*)	565 0 0
C. Crighton	564 0 0

BRIDLINGTON.

For erection of ten houses, Hilderthorpe, for Mr. J. W. Pitt, Liversedge. Mr. David Petch, architect, Scarborough. Quantities by architect.

T. Blackburn, Bridlington Quay, excavator, brick and masonry.
F. Flintoff, Scarborough, joiner.
J. H. Jemison, Heckmondwike, hot water, plumbing and glazing.
H. Cookson, Heckmondwike, plasterer.

BRADFORD.

For cleaning, colouring, &c., several schools, for the Bradford School Board.

J. Marsland, 257 Wakefield Road.
E. Harland & Sons, 26 Manor Row.
J. C. Calvert, 127 Legrams Lane.
C. V. Hartley, 61 Manningham Lane.
A. Skaife, 29 Mildred Street, Otley Road.
J. Arundel, 38 City Road.

CONWAY.

For carrying water mains along the Victoria Drive.

Owen & Son (*accepted*)	£145 3 6

For supplying and laying a water main.

Jones & Son (*accepted*)	£159 7 7

COVENTRY.

For construction of five sub-stations for electric-light committee. Mr. J. E. Swindlehurst, city engineer.

A. Cave	£868 0 0
C. G. Hill	849 0 0
T. G. Golby	839 0 0
R. Wootton	833 0 0
C. H. Barber, Bishop Street (*accepted*)	818 0 0

CAMBRIDGE.

For erection of house, stables, &c., in Tennison Road. Mr. Frank Waters, 7A Alexandra Street, Cambridge. Quantities by Mr. W. Culling Gaze, 2 Walbrook, E.C.

House.

Bell & Sons	£1,367 0 0
W. Saint	1,344 0 0
Kerridge & Shaw	1,213 0 0
Coulson & Lofts	1,152 0 0

Stables, &c.

Bell & Sons	837 0 0
W. Saint	768 0 0
Kerridge & Shaw	750 0 0
Coulson & Lofts	712 0 0

Roadway, &c.

Kerridge & Shaw	249 0 0
W. Saint	248 0 0
Bell & Sons	246 0 0
Coulson & Lofts	232 0 0

DONCASTER.

For erection of gas-stove store. Mr. R. Bridge, engineer.

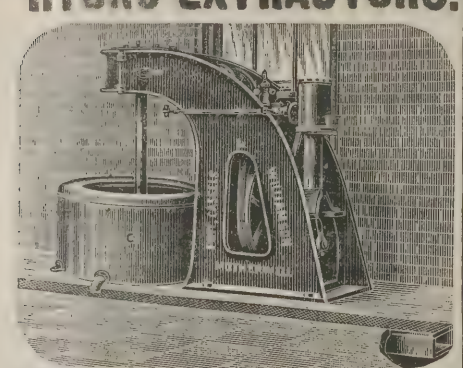
W. Anelay	£250 0 0
G. Mottram	248 0 0
D. Gill & Son	247 17 7
Mullins & Richardson, Shotton St. (*accepted*)	225 0 0

EAST RETFORD.

For erection of sewage-disposal works. Mr. J. C. Melliss, engineer, 264 Gresham House, Old Broad Street, London, E.C.

A. Brunton & Sons	£52,916 18 9
J. W. Pattinson & Co.	51,951 0 0
J. H. Vicars, Limited	49,895 5 2
J. D. Nowell & Co.	49,500 0 0
G. Osenton	44,765 0 0
B. Cooke & Co.	43,946 0 0
G. Bell	42,887 0 0
J. Jackson	40,100 0 0
J. Bentley	39,353 0 0
E. Tempest	35,171 10 8
H. Arnold & Son, Doncaster (*accepted*)	34,249 0 0

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ELGIN.

For erection of infectious diseases hospital. Messrs. A. & W. REID & WITTET, architects, Elgin.
Accepted tenders.
P. MacBean, mason.
W. Ritchie & Sons, Lossiemouth, carpenter.
G. Ogilvie, slater.
J. Gordon & Son, plumber.
A. MacIver, plasterer.
J. James, painter.
P. C. Middleton & Co., electric bells.

For erection of a block of buildings in Lossiewynd. Messrs. A. & W. REID & WITTET, architects, Elgin.
Accepted tenders.
G. Milton, builder.
Mackie & MacKenzie, carpenter.
G. Ogilvie, slater.
W. Lyon & Son, plumber.
J. Brodie, plasterer.
J. Kintres & Son, painter.

HAMMERSMITH.

For construction of underground sanitary convenience at the eastern end of Shepherd's Bush Green. Mr. H. MAIR, surveyor.

Finch & Co.	£1,241 9 0
Doulton & Co.	1,143 0 0
G. Wimpey & Co.	998 0 0
R. M. HEYWOOD, Bridge Road, Hammersmith (*accepted*)	991 0 0

HELSBY.

For construction of sewerage works.

T. Rowland	£273 8 3
Winnard & Weston	243 14 9
Sayce & Randle	212 8 0
F. J. Bennie	192 16 7
J. A. EWART (*accepted*)	170 13 0

HERTFORD.

For erection of additional vagrant wards at workhouse. Mr. RUSSELL AUSTIN, engineer, 13 Villiers Street, Hertford.

G. Pavey	£569 0 0
S. Hipwell	502 10 0
Merredew & Wort	488 0 0
Critcher	439 0 0
E. R. KEMP, Hertford (*accepted*)	405 11 6

KINSON.

For extending the hot-water apparatus at the Heatherlands Board schools. Mr. S. J. NEWMAN, architect, Branksome.

C. Wills & Son	£81 9 4
E. W. Gifford	55 13 0
J. Strudwicke	49 15 0
BAYLEY & SONS, Bournemouth (*accepted*)	38 4 0

LAUNCESTON.

For erection of a cattle, sheep and pig market. Mr. OTHO B. PETER, architect, Launceston.

J. Broad	£2,400 0 0
R. Burt	2,100 0 0
E. SHARLAND, Cornwall (*accepted*)	1,998 10 0

LICHFIELD.

For erection of an engine-house at the sewage farm. Mr. C. J. CORRIE, city surveyor.
H. SMITH & SON, Lichfield (*accepted*) £104 7 6

LONDON.

For alterations and additions to Messrs. Glover's van works, Half Moon Crescent, Caledonian Road, N. Mr. GEORGE WAYMOUTH, architect, 23 Moorgate Street, E.C.

Mattock Bros.	£1,320 0 0
Stevens Bros.	1,230 0 0
BRISTOW & SONS (*accepted*)	1,097 0 0

For erection of about 142 feet lineal of brick fence wall, 7 feet high above ground line, in Fulham Palace Road. Mr. CHARLES BOTTERILL, surveyor.
T. Francis £145 10 0

For alterations to the coroner's court, Munster Road, Fulham. Mr. CHARLES BOTTERILL, surveyor, Town Hall, Fulham.

R. Goodman & Sons	£529 15 0
E. Swan & Son	335 0 0

For erection of a refreshment pavilion, Pryor's Bank, Putney Bridge. Mr. CHARLES BOTEERILL, surveyor.

T. Short & Son	£5,620 0 0
E. Swan & Son	4,795 0 0
H. C. Clifton	4,788 0 0
General Builders, Limited	4,351 6 0
S. W. Aries & Co.	4,325 0 0
B. E. Nightingale	4,000 0 0
T. Bendon	3,810 0 0
Spencer, Santo & Co.	3,694 0 0

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LONDON—*continued.*

For remodelling 53 Dover Street, W., for the Empress Club. Messrs. WIMPERIS & ARBER, architects.

Waring & Gillow	£50,123 0 0
T. L. Green	41,142 0 0
Kilby & Gayford	39,692 0 0
Carmichael	39,592 0 0
Dearing & Son	39,318 0 0
Johnson & Co.	39,167 0 0
H. & E. Lea	38,052 0 0
Allen & Son	36,044 0 0
Patman & Fotheringham	35,389 0 0
Lovatt	34,172 0 0
Barker & Co.	33,766 0 0

For rebuilding the Lads of the Village public-house, Charles Street, Deptford, S.E., for Mr. B. R. Banks. Mr. JOHN JAS. DOWNES, architect, 199 Lewisham High Road, S.E.

E. Proctor	£6,845 0 0
Edwards & Medway	6,047 0 0
Lorden & Son	5,888 0 0
Joslyn & Young	5,720 0 0
Jerrard & Son	5,675 0 0
T. D. Leng*	5,618 0 0
H. L. Holloway	5,580 0 0

* Accepted subject to modification.

LUTON.

For paving and other works in Crawley Road. Mr. A. J. EVANS, borough engineer.

G. Powdrill	£2,932 8 10
Free & Son	2,800 0 0
Patent Victoria Stone Co.	2,775 0 0
S. KAVANAGH, Surbiton (*accepted*)	2,154 6 4
Surveyor's estimate	2,600 0 0

For construction, sewering, kerbing, channelling and metalling of about 2,300 feet of new roads on the Downs Estate.

J. A. Dunmore	£3,546 0 0
Siddons & Freeman	2,924 0 0
T. Adams	2,890 0 0
W. Sparrow	2,889 10 0
J. C. Trueman	2,690 0 0
G. R. Mann	2,567 12 0
S. Kavanagh	2,540 10 0
FREE & SON, Maidenhead (*accepted*)	2,450 0 0

MANCHESTER.

For erection of a mission hall, Didsbury.

BURGESS & GALT, Manchester (*accepted*)	£3,350 0 0

MIDDLESBROUGH.

For erection of buildings for the Commission and offices for the staff at Queen's Square. Messrs. J. MITCHELL BOTTOMLEY, 28 Albert Road, Middlesbrough, and E. A. WHIPPAM, 50 High Street, Stockton-on-Tees, architects.

J. Howe & Co.	£10,700 0 0
G. Marshall	9,274 18 11
Atkinson & Co.	8,967 2 4
Bastiman Bros.	8,789 15 8
Allison Bros.	8,134 0 0
T. D. Ridley & Son	8,129 0 0
T. Dickinson	7,922 0 0

NEWINGTON.

For reconstruction of the Metropolitan Tabernacle. Messrs. SEARLE & HAYES, architects, 66 Ludgate Circus, E.C.

Dove Bros.	£36,399 0 0
G. H. & A. Bywaters	36,190 0 0
Ashby & Horner	35,886 0 0
Hall, Beddall & Co. (*received too late*)	35,333 0 0
Foster & Dicksee	35,000 0 0
Colls & Sons	34,490 0 0
Higgs & Hill, Limited	33,240 0 0

The above estimates are for the reconstruction of the Tabernacle above the basement (that having been carried out). Quantities were supplied by the architects.

NORTH WALSHAM.

For extension of Board school.

W. LAYCOCK, North Walsham (*accepted*)	£620 0 0

PATRICROFT.

For erection of a bowl-house and pavilion and the construction of a bowling-green, Edison Road.

T. MOORE & SONS, Eccles, pavilion, &c. (*accepted*)	£186 10 6
J. MORLEY, Barton-upon-Irwell, bowling-green (*accepted*)	94 13 6

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PONTYPRIDD.

For erection of a chapel, vestry, boiler-house, &c., at Clydach Vale. Mr. FRANK B. SMITH, architect, Port Talbot.

Short & Co.	£3,890	0	0
Griffiths & Co.	3,325	0	0
Charles Bros.	2,980	0	0
Spratt Bros.	2,850	0	0
W. STEPHENS, Swansea (*accepted conditionally*)	2,647	6	10

SALFORD.

For painting, colouring, &c., two of the Board schools during the Christmas holidays.

Accepted tenders.

W. Hale, 25 Howard Street, Eccles New Road, Salford	£83	0	0
H. Banks, 52 Broad Street, Pendleton, Manchester	78	0	0

SCOTLAND.

For erection of workmen's cottages at Castle Row, Fochabers. Messrs. A. & W. REID & WITTET, architects, Elgin.

Accepted tenders.

T. Tully, carpenter.
G. Henderson, slater.
C. Duncan, plasterer.
C. Duncan, painter.
Proprietor does the builder-work.

SHERINGHAM AND BEESTON.

For sea-protection works. Mr. W. JAFFREY, engineer.

B. COOKE & Co., Westminster (*accepted*)	£10,582	0	0

SLIGO.

For sanitary and other works at the workhouse. Mr. W. F. GILCHRIST, engineer, Sligo.

J. Galloway	£235	0	0
G. KERR, William Street (*accepted*)	99	10	0

STALYBRIDGE.

For erection of the Church inn, Millbrook. Messrs. EATON, SONS & CANTRELL, architects, Stamford Street, Ashton-under-Lyne.

Garside, Barnes & Co., Stalybridge (all trades except plumbing)	£3,570	0	0
G. H. Coop, Ashton-under-Lyne, plumbing and glazing)	249	0	0

WAKEFIELD.

For main drainage works. Mr. F. MASSIE, engineer.

Contract No. 7.—Averthorpe drainage.

Flower Bros.	£114	5	0
W. Doleman	78	4	11
J. Armitage	68	15	6
T. & G. Wilson	65	18	4
M. Hall & Son	65	2	6
M. ARUNDEL, East Ardsley (*accepted*)	62	15	0

Contract No. 13.—Outwood and Stanley joint drainage.

J. Keightley	894	18	9
Flower Bros.	837	18	2
J. Armitage	761	11	6
M. Arundel	733	19	9
M. Hall & Son	710	1	0
T. & G. Wilson	687	15	0
W. DOLEMAN, Dewsbury (*accepted*)	687	5	1

Contract No. 14.—Outwood drainage.

Flower Bros.	431	16	0
J. Keightley	408	2	3
J. Armitage	375	17	0
M. Arundel	361	10	0
T. & G. WILSON, Wakefield (*accepted*)	348	2	1
W. Doleman	345	1	6
M. Hall & Son	308	6	3

WEST HAM.

For erection of a quarter sessions court.

Symes	£10,650	0	0
Porter	10,111	0	0
Chessum & Sons	9,699	0	0
Borough engineer's estimate	10,000	0	0

Tenders referred to works committee.

For erection of public baths.

J. H. Bywaters & Co.	£26,248	0	0
Balaam Bros.	23,875	0	0
C. Wall	23,587	0	0
Wall & Co.	22,906	0	0
G. Sharp	22,658	0	0
Spencer, Santo & Co.	22,308	0	0
J. Chessum & Sons	21,670	0	0

Tenders referred to works committee.

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WALES.

For sewering, levelling, paving, metalling, flagging and chanelling Church Street, Penrhiwceiber, Mountain Ash.

E. DAVIES, The Quarries, Penrhiwceiber (*accepted*) £210 2 2

WHITWORTH.

For erection of a Reform club.

J. LAW, Whitworth (*accepted*).

WINCHESTER.

For extension of Fairfield Road into the Stockbridge Road. Mr. THOS. STOPHER, surveyor, Winchester.

GROUNDS & NEWTON, Tottenham and Bournemouth (*accepted*) £764 7 0

Lowest of five tenders.

WOKING.

For erection of a pair of cottages near Woking Park farm Mr. G. J. WOOLRIDGE, surveyor.

A. A. Gale	£857 0 0
Gregory Bros.	745 0 0
Ingram & Son	738 0 0
F. J. Kemp	709 0 0
Drowley & Co.	702 0 0
A. Butt	678 0 0
F. W. Reavell	673 8 6
W. W. Gale	620 0 0
GAY BROS., Knaphill, Woking (*accepted*)	560 0 0

MESSRS. G. M. RESTELL & SON, of Soho Pool Wharf, Birmingham, are sending out a neat little pamphlet descriptive of their fireproof Adamantine shell plaster and their metallic Albino cement for walls, ceilings, &c. Among the advantages claimed for the fireproof Adamantine are the following:—It can be used in frosty weather; it will set hard in an hour, and has a smooth and marble-like face; it is fireproof and damp-resisting; can be papered or painted on in a few hours, and can be stained throughout almost any colour.

ENGLISH MOSAICS.

ONE of the largest workers in mosaics in the northern counties of England is Mr. George Swift, the Temple, Dale Street, Liverpool, who for the past sixteen years has been employing a number of mosaic workers in preparing mosaics of all kinds—glass, marble and ceramic. He has executed much important mosaic work in Liverpool, and has a large connection not only over England but as far as South Africa. For the last few weeks he has been engaged on a fine ceramic mosaic pavement for the banking-room of the Bank of Africa at Johannesburg. This important contract was secured after competition with the leading firms in this country.

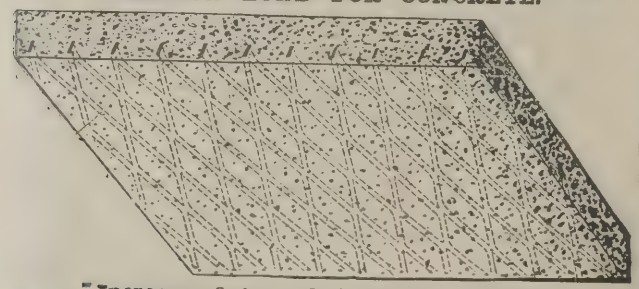
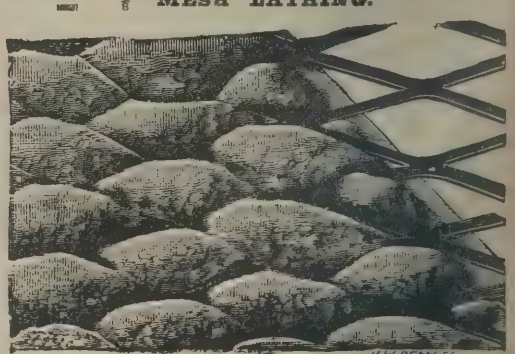
The work consists in covering the whole of the public space—about 250 square yards—and all the entrances and vestibules connected with the building. The designs, which are elaborate, are in the Italian Renaissance style, freely treated throughout, the entrance vestibule being the most ornate, having the name of bank worked in among some very florid scroll-work.

The mosaic has been shipped this week for Johannesburg, and Mr. Swift's own experienced men are going out to do the fixing, so that nothing will be wanting to make the work a success. The architect is Mr. W. H. Stuck, A.R.I.B.A. Although Mr. Swift makes a specialty of mosaic work he executes commissions for every kind of faïence decoration. We understand he is just now completing large contracts in Liverpool at the Town Hall, the Arcade, Cook Street, the Edinburgh Life Assurance Building, the Stock Exchange, the Bank of Liverpool, &c. Mr. Swift's practical knowledge and experience insure the success of all the work he undertakes, and as he employs a large band of experienced fixers he can execute his work with despatch. His patent dovetailed back tile has been one of his great successes. Tiles made with this security at the back when once fixed to the walls cannot again become loose, a very important matter in connection with decoration of a permanent character.

ASBESTIC PLASTER.

THIS valuable material, which is manufactured by the Asbestos and Asbestic Company, of 27 Billiter Buildings, E.C., is being used throughout the new Carlton Hotel, which is in course of erection at the corner of the Haymarket and Pall Mall. Some time ago we called attention to the merits of this plaster, and a visit to and inspection of the work at the Carlton has but

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served to confirm our belief in those merits. The plaster is not only in itself absolutely fireproof, but is a perfect non-conductor of heat; it is an equally effective non-conductor of sound, and should thus seem to be peculiarly adapted to hotel work; it will not stain, being impervious to the action of water as to that of heat, while it is at once solid and yet elastic.

Architects and artistic decorators will, however, be chiefly interested in the fact that asbestic plaster not only sets readily, but when set forms an excellent surface, and as neither hair nor any other fibre is used, immunity from insects is secured. Moreover, the plaster can be finished either smooth or in any degree of stippling as may be desired, and thus lends itself either to delicacy of outline or to the broader and less detailed treatment which now enjoys a good deal of favour.

It is perhaps hardly necessary to mention that asbestic plaster can be finished to receive paper or any other kind of applied mural decoration. But whatever may be the kind of decoration, either to walls or ceilings, asbestic plaster will receive and retain it. Our readers might usefully visit and inspect the plastering which is being executed at the Carlton Hotel.

READING MASTER BUILDERS' ASSOCIATION.

AN important meeting of the master builders of Reading and the neighbourhood was held at the Queen's Hall, Reading, on Thursday evening, the 8th inst. Mr. James Catley presided, and the attendance numbered over one hundred. The meeting was held as a sort of preventive to the recurrence of such strikes as that which has recently occurred among the builders' employés in Reading. It was organised by a committee consisting of Messrs. Catley, Bottrill, Lewis and E. B. Badcock. It was felt to be the interest of master builders that an association should be formed in Reading to federate with similar organisations in London and the provinces. This object was accomplished at the meeting, which was addressed by Mr. Thomas F. Rider, ex-president of the London Master Builders' Association. Mr. E. B. Badcock moved:—"That it is desirable to form a Master Builders' Association, with the object of promoting and protecting the interests of the building trades of the district, and that this meeting hereby pledges itself to protect such an Association." The motion was seconded by Mr. Musselwhite (Basingstoke) and carried unanimously. Subsequently a committee of twelve members was appointed to draft rules for the Association.

THE STRENGTH OF CRANE SCAFFOLDING.

AT the second ordinary meeting of the Royal Society of Edinburgh, Lord Kelvin presiding, Mr. R. G. Alford, M.Inst.C.E., delivered a paper entitled "Crane Scaffoldings; their Mathematical Calculation and Probable Theoretical Deficiencies." He based his calculations on two scaffoldings at the Royal Infirmary, Edinburgh, and the Waverley Station, Edinburgh, the latter of which was blown down on March 18 last. He described the construction of the two, and deduced certain rules which mathematical conditions seemed to imply as a necessity for safety. He dwelt on the supreme importance of effective combination of the towers. As to the Waverley Station structure, he suggested that theoretically it should have stood. He made three suggestions to contractors. When there were towers they should adopt the strict equilateral triangle form, and so be prepared for any direction of the wind. They should never omit deep bracing girders between the towers half-way up, and when they did not stand on the ground their feet should be connected in a similar manner. The towers ought also to be filled up with stones or bricks at each leg, to add stability to the feet. In reply to the discussion which followed his paper, Mr. Alford said that in the case of the Waverley Station accident it was a matter of weight against wind. Had the scaffolding been overturned by too much weight being put upon it his conclusions would have been different. In answer to Lord Kelvin, he said he thought the greater weight of the legs would have prevented an accident. Several other communications were made.

THE N.A.P. Window Company, Limited, 159 Victoria Street, announce that, notwithstanding the general rise of 5 per cent. in the brassfoundry and allied trades, all orders received before January 12, 1899, will be accepted for future delivery at the catalogue prices without increase. On and after January 12, 1899, however, the prices in the N.A.P. catalogue, with some exceptions, will be subject to an increase of 5 per cent.

MR. HENRY SELL'S new venture, *Commercial Intelligence*, which shows considerable development and improvement since the first number appeared a couple of months ago, contained in last week's issue valuable and interesting articles on railway rates, our sphere of influence in China, the "Commercial Equivalents" tables, special articles by Mr. Archibald Little and Mr. Henniker Heaton on the Imperial penny postage, &c.

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PORT SUNLIGHT, BIRKENHEAD.

THE COACH AND HORSES, CLERKENWELL.

TRADE NOTES.

THE Convalescent Home, Barnhill, near Dundee, is being warmed and ventilated by means of Shorland's patent Manchester stoves, with ornamental tiled sides and with descending smoke flues.

THE Great Central Hotel, Marylebone, which is now nearly completed, is being fitted up with Merryweather's "Hatfield" noiseless pumping engines for domestic water supplies throughout the building. These machines are altogether different from any class of pump hitherto erected in hotels, and have the advantage of being absolutely noiseless. Any hotel resident who has been annoyed by the throbbing of ordinary pumps will greatly appreciate this new installation. There are many hotels where the pump machinery can be heard on every floor, and more especially in those built on so-called fireproof principles, the walls acting as a sound conductor and carrying each throb of the pump throughout the rooms above. The "Hatfield" pumps are also fixed at St. James's Hall, Lord Rothschild's house in Piccadilly, Hatfield House and other well-known mansions.

ELECTRIC NOTES.

OWING to a temporary interruption of the electric current, through a flaw in the original cable, some churches in the centre of Manchester were greatly inconvenienced on Sunday evening. At St. Anne's the service could not be held. The cable which broke down is being replaced by a new one.

THE Whitechapel District Board have appointed Mr. Wright, electrical engineer to the Brighton Corporation, for five years, at a salary of 600*l.* per annum, to carry out the electric lighting of the Whitechapel district.

AT a special meeting the Runcorn Urban District Council resolved to memorialise the Board of Trade for a provisional order under the Electric Lighting Acts to supply Runcorn with electrical energy, and the secretary was instructed to forward the customary fee of 50*l.* Councillor Bisbrown said the Council had been compelled to take this step by the action of outside electrical companies.

THE purchase of the Yorkshire House-to-House Electricity Company's undertaking by the Leeds Corporation has been completed, and the company's works and premises have been formally handed over to Councillor J. Green Hirst, deputy-chairman of the lighting committee, on behalf of the Corporation. The total amount of purchase money paid by the Corporation to the company was 222,987*l.* 18*s.*

AN inquest was held on the 20th inst. at Southampton on the body of William Day, electric jointer, in the employ of Messrs. Grover & Co., Manchester, contractors for laying the electric mains for the Southampton Corporation. Deceased was called on to repair a joint in a high-tension cable. He had no gloves, and accidentally touching the exposed part of the main the current passed through his body. He screamed, but died almost instantly from shock. The jury returned a verdict of "Accidentally killed," and recommended that gloves should be used in future.

A SPECIAL meeting of the Glasgow Town Council was held on the 19th inst. to consider a draft agreement between the Glasgow Corporation and the Partick Burgh Commissioners for the transfer to the Corporation of the Partick Electric Lighting Order of 1893. The clauses of the agreement provided that the Corporation should pay the costs incurred in obtaining the order and in opposing an application being made by the Kelvinside Electricity Company; that the prices charged to private consumers should be similar to those within the city, and that the charge for street lighting be subject to agreement between the two authorities.

THE shareholders in the Sheffield Electric Light and Power Company, Limited, met on the 20th inst. to complete the arrangements for handing over the concern to the Corporation. Under the special Act of Parliament the Corporation undertook to buy up the company on the basis of 220*l.* of Two-and-a-Half per Cent. Redeemable stock for every 100*l.* of capital properly expended by the company, or as an alternative 213*l.* 8*s.* in cash for each 100*l.* The chairman of the company (Alderman Franklin) explained that as municipal securities had

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Corporation Electricity Works, Taunton.
1 Commercial Street, Forster Square, Bradford.

been deteriorating in the markets the directors had no difficulty in deciding to take the purchase price in cash, and it would be paid on the 31st inst. He estimated that for every 7*l.* share the holders will receive from 17*l.* 10*s.* to 18*l.*, with the addition of a 10 per cent. dividend on the past year's working.

BUILDING AND BUILDERS.

PLANS have been passed for the erection of a new parish church at Hetton-le-Hole, Durham.

THE Wesleyan chapel at Norton, Malton, has been re-opened, after being closed since May for enlargement. The cost of the alterations, including the removal and improvement of the organ, is about 400*l.*

THE restoration of the ancient and interesting church of Holy Trinity, Hull, will shortly be begun, and it is hoped that when the restoration of the interior is accomplished the Hull citizens will turn their attention to the exterior of the building.

JAMES MURRAY, a joiner, residing at Ravelston Cottages, Edinburgh, has been admitted to the Edinburgh Royal Infirmary suffering from severe injuries, caused by his having fallen from a height of two storeys at a new building in Murrayfield.

THE Nelson Wesleyan circuit has decided to erect a chapel, to cost about 4,000*l.*, in Cooper Street; a school chapel, to cost about 2,000*l.*, at Bradley Hall; and a school chapel, to cost about 2,000*l.*, in Temple Street—in each case the amount to be expended to include the cost of the site.

SKELMERSDALE old church has been closed for some time, colliery operations having made it dangerous, and at present church work is being carried on in the parish under considerable difficulties. Plans are, however, being prepared by Mr. Bradbury, the diocesan surveyor, for an edifice to accommodate about 500 persons. The proposed site is one of the vicarage fields, and the cost is estimated at 5,000*l.*

IN consequence of the increasing rents and the additional difficulty of the working classes to obtain houses in the East End, the Bow Vestry has passed a resolution calling on the London County Council to acquire the Grove Hall site, Bow, on which to erect workmen's dwellings. It is estimated that over 1,000 persons could be housed on the site and provision made for a small recreation-ground.

AT a special meeting of the Rugby Urban Council the Clerk read a letter from the Local Government Board sanctioning the borrowing of an additional 3,000*l.*, being 2,500*l.* to add to the 4,000*l.* left by Mr. Benn for building purposes and 500*l.* for furnishing the proposed municipal offices. The Council formally decided to proceed with the work, and the plans committee were asked to take the necessary steps towards the pulling-down and clearing away of the existing building. A hope was expressed that the municipal buildings would be commenced early in March.

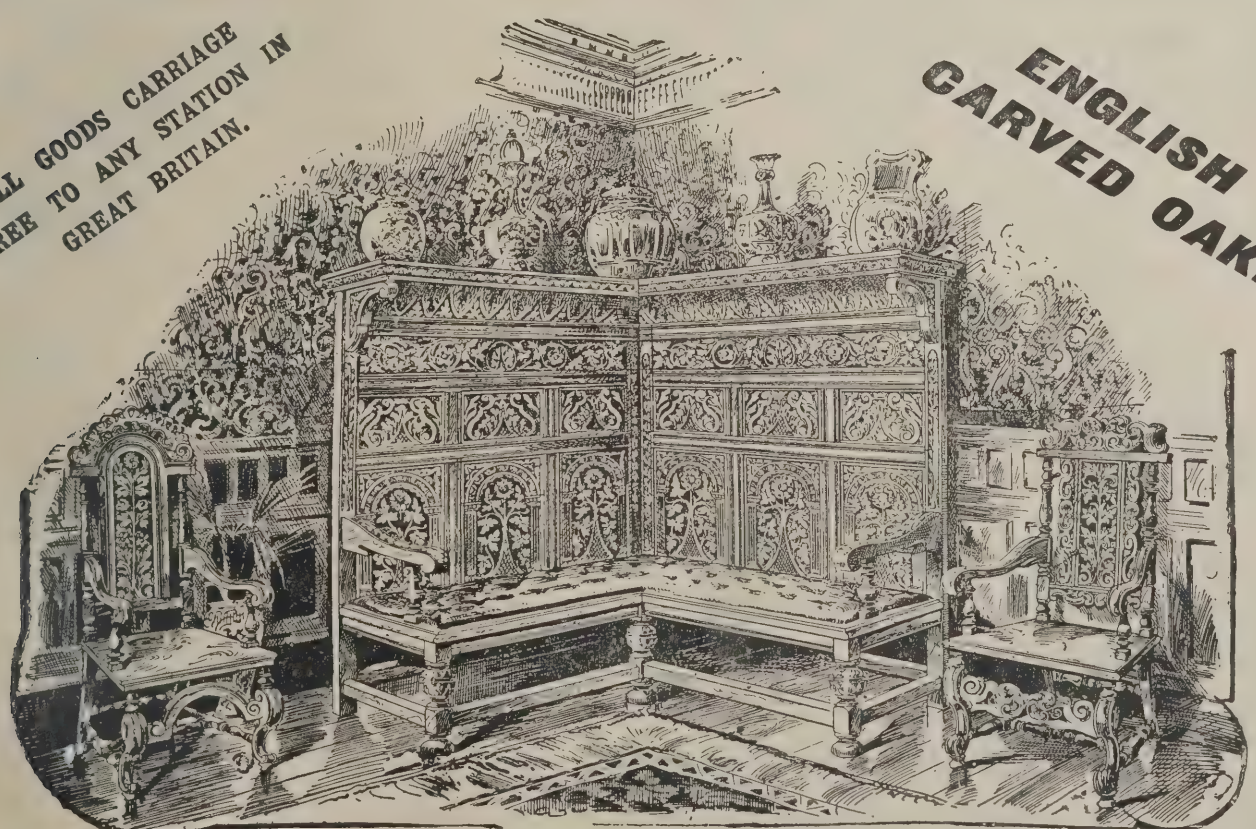
AT a meeting of the statute labour committee of the Glasgow Corporation held on the 16th inst, it was agreed by thirteen votes to two to recommend that two bridges be erected across the Clyde east of the Albert Bridge, one for cart traffic at Govan Street, and another for pedestrians only at Polmadie Road. The two bridges are estimated to cost about 8,000*l.*, and are to be constructed out of the materials of the temporary wooden bridge at Jamaica Street.

A SPECIAL meeting of the Edinburgh School Board was held last week for the purpose of considering a motion by Mr. Ferrier remitting to the building committee to instruct the architect to prepare plans for the erection of school buildings on the sites which have been purchased at Comely Bank and Parson's Green, and also on the site belonging to the Board at New Street with the additional ground which has been acquired there and to report. Mr. Ferrier, in submitting his motion, said the Education Department insisted that they had no right at any time to overcrowd any one roll. In thirteen schools the average roll was in excess of the accommodation to the extent of 909 places. He proceeded to show that the number of places in the various schools was 33,451, while the number on the average roll was 32,825, giving a surplus of places of 625, or an average of twenty places in each of the thirty schools in the city. Dr. Mackay seconded. It was agreed to consider the three schools separately. After discussion, it was resolved to erect schools at Comely Bank and Parson's Green. There was an equal division on the question of the proposed addition to North Canongate school, and, as the chairman did not exercise his casting vote, the matter was allowed to drop.

A MEETING of the Bradford Corporation Cartwright Memorial Hall committee was held on the 15th inst. at which Mr. A. Waterhouse, R.A., attended to advise in the drawing up of conditions in regard to the competitive plans, &c., for the new hall. After a lengthened sitting the committee adopted conditions,

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ordered them to be printed, directed that a sketch plan of the site be prepared, and that advertisements be issued inviting architects to send in competitive plans. The new building is to cost 38,000*l.*, and this sum, with the 2,000*l.* architect's commission, will make up the total amount given by Lord Masham. Three prizes of 150*l.*, 100*l.* and 50*l.* are to be given for the three best plans. The new hall is to be erected of the finest stone in the Classical or Renaissance style, with a main frontage to the principal entrance to the park. It is to include a basement for storage purposes, a work-room, a refreshment-room, a public lavatory and shelter accommodation. The ground floor, which is to have a front and side entrance, will comprise a large central hall, lighted from the roof, and rooms for caretakers, officers, &c., and a museum. The first floor is to comprise a suite of rooms, extending along the entire front, which, on the occasion of important civic functions, may be used as entertaining-rooms. They will include a mayor's parlour or drawing-room, a reception, ball and banqueting hall. The whole will be so arranged that they can be used as art galleries, or so that the whole can be converted into one large room. April 14 has been fixed by the committee as the latest date on which designs may be sent in.

VARIETIES.

The benediction of the crosses on the new church at Bishopthorpe, near York, took place on the 15th inst. in the presence of a fairly large attendance of parishioners and neighbouring clergy.

It appears after all that the rumoured postponement of the Paris Exhibition was unfounded, and that it will be at least as nearly complete as usual by the date originally named for the opening in 1900.

A new and commodious theatre has been erected at Luton, from the designs and under the superintendence of Mr. John P. Briggs, of Arundel Street, Strand.

No doubt seems to be entertained by the directors of the Great Central Railway Company that they will be able to open their new extension to London for passenger traffic next Easter, although the terminus and the great hotel may not be quite finished by that time.

A new Congregational church to seat 450 worshippers, with a lecture-hall to seat 350 persons, has been opened at Raleigh Road, Richmond. The church has been entirely built and furnished by Alderman Burt, S.C.C., and his wife.

A large house in process of construction in the Batignolles district of Paris fell in on the 18th inst., with a terrible crash, all the five storeys being completely demolished. After the first shock every effort was made to save the injured. Five men were found dead, and several marvellous instances of escape are recorded. From an examination of the ruins it seems that the accident was due to faulty construction.

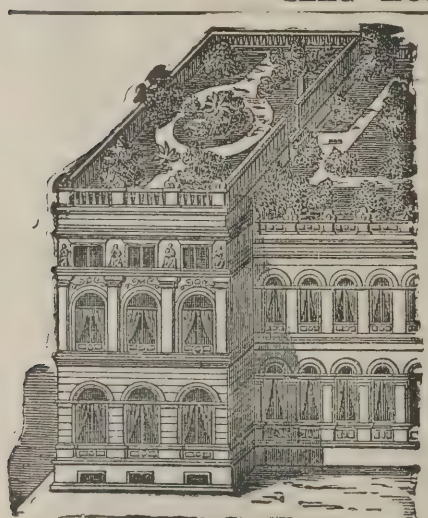
At the foundation-stone laying of the new children's hospital at Norwich there was placed in a prepared cavity in the stone, besides the usual copy of the newspaper of the day, a brass plate with the date and this inscription engraved upon it:—Norwich population 113,000. Fastest train to London, 2 hours 37 minutes. Electric tramways commenced. Price of large sheep, 63*s.* Bricklayers' wages, 7½*d.* per hour."

A six days' carnival will be commenced at the Alexandra Palace on Boxing Day. Free entertainments will be continuous in the Central Hall, while twice daily special performances will be given in the theatre. On Wednesday, Thursday, Friday and Saturday there will be special entertainments for children, including dances, Christmas games, Punch and Judy show, and a huge Christmas tree from which every child will receive a present.

At the fourth meeting of the session of the Historic Society of Lancashire and Cheshire, Mr. J. G. Prentice in the chair, splendid facsimiles of the Battle Abbey Roll, Magna Charta and warrants for the execution of Mary Queen of Scots and King Charles I., bequeathed to the Society by the late Mr. Ashby Pritt, were exhibited. The paper of the evening on "The Finding of a Neolithic Floor at Meols," was read by Mr. Charles Roeder, who, in connection with his paper, exhibited a large number of interesting flints and other relics of later times found in Wirral, with plans and sectional drawings. At the close a discussion took place.

A stone vault containing human remains, has been discovered in a field at Freshwater, Isle of Wight. Two men were digging sand, about 2 feet beneath the surface, when they came across the cavity. On examination it proved to be a carefully-made stone vault, the inside measurement of which is 6 feet long, 17 inches wide and 27 inches deep, at the head being a stone pillow. The remains comprised a skull, the lower part of which had decayed away, no teeth being found,

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and a few bones of the extremities. A small urn rested near the skull. The vault is thought to be of the Norman period.

TRUE to the principle which he has in his long career always found the correct one, *i.e.* that of giving his patrons the best fare procurable, Mr. Charles Morton's programme at the Palace affords Christmas holiday-makers abundant cheer. Among the popular turns which are on the bill, besides the perennially attractive Biograph, to which new pictures are constantly being added, are to be found the old favourite Harry Paulton, Lockhart's amusing performing elephants, Alice Peirce, the Eight English Roses, Wood and Shepard, Harrison Brockbank, the Clan Johnstone Troupe, the Euterpean Quartette ; Burke, Andrus and Frisco ; Cyrus Dare, the Levardos, Joseph Archer, La Tostia, W. F. Dempsey, Harry Pleon, Chas. Capper, &c.

AFTER a successful career of over thirty years, *Science Gossip*, the favourite journal for amateurs devoted to natural, physical and applied science, has just entered upon independent offices at 110 Strand. This magazine has latterly been greatly improved, and the articles deal with subjects of most recent discovery or theory. The editorial management is still under the control of Mr. John T. Carrington, assisted by Miss F. Winstone. There are also several specialists as departmental editors for such sections as physics, microscopy, astronomy, botany, geology, zoology, meteorology, &c.

DR. ARCHIBALD BARR, M.Inst.C.E., Professor of Civil Engineering and Mechanics in the University of Glasgow, will deliver an address on "The Application of the Science of Mechanics to Engineering Practice" to the students of the Institution of Civil Engineers on January 13, at 8 P.M.

THE new church of St. Peter, at Woodmansey, near Beverley, which was erected some months ago, and which on account of an ecclesiastical difficulty has remained unopened since, has been consecrated by the Archbishop of York. It is a handsome structure of red brick with stone dressings, and is situate on the high road to Hull and Beverley. The cost, including the price of the land, was about 2,500*l.* Mr. S. Beaumont, of Beverley, was the architect, and Mr. G. Pope, of Beverley, the builder.

THE EMPLOYERS' LIABILITY ACT.

AT the Clerkenwell County Court, on Saturday, in dealing with an employer's liability action, Judge Edge made some strong comments respecting such cases. In his opinion, he said, the majority of these actions ought never to be brought into court at all, the so-called injuries being of such a trivial kind that there was no ground for the claim. To a judge, however, they were the most difficult of all actions to decide. To try and bolster up his case the plaintiff would swear to anything, while a defendant would swear almost that the man had never been in his service. In dealing with the evidence of witnesses he looked on it with very great care, and at times with suspicion, owing to their probably being still in the defendant's employ. Perjury was introduced broadcast throughout the actions—in fact, it had become the most difficult thing a judge has to deal with now. A person would give evidence, apparently, in the most straightforward manner, and yet be committing the grossest perjury. Perjury had become such a common practice now in the courts that it was far more difficult for a judge to decide on which side the truth lay than to decide on the most technical point.

E. H. JONES'S KNIFE AND RAZOR SHARPENER.

THE small worries of life undoubtedly cause, in the aggregate, more discomfort and mental disturbance than those more serious troubles that we meet and conquer by a firm determination, and it is because they are small and of short duration considered singly. Amongst these not the least irritating is a blunt pocket-knife, and no means at hand to sharpen it, or perhaps only a sharpening stone which must be oiled, unless, indeed, it is already so oily that we soil our hands in picking it up. From this worry Mr. Jones has given us a means of escape by using his very simple though ingenious and durable sharpener. This instrument is used like a strop, which in form it resembles, but it is thicker for a reason that will appear immediately. It is formed from a block of soft wood, in which are made longitudinal grooves nearly to the bottom of the block, and which terminate within a short distance of each end. These grooves are filled with a composition of emery and some diluting earth with grease or oil for sharpening knives, and the razor strops are similarly charged with a finer composition necessary to produce the finest and keenest edges. The absorbent nature of the wood used is such that the composition does not become hard or "glazed," and it is pressed by the action of sharpening into the pores of the wood, so that a uniform sharpening surface is formed.

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Some trials with the knife sharpener have shown its efficacy for pocket-knives which had been in disuse, and also good results followed its use upon pieces of steel ribbon. As a razor sharpener its advantages are even more marked; when used for "setting" a razor dulled by stropping the edge produced is much superior to that obtained from the use of a similarly charged leather covered strop, or even that which results from setting it on a German razor hone. The durability of this instrument—that durability meaning the time it will keep in working order—is no doubt due to the exudation of the oil from the wood under the pressure of the instrument being sharpened, and its reabsorption, which prevents evaporation, on the removal of that pressure. Mr. Jones proposes to use a double-faced sharpener for scythes and similar implements, but we have had no opportunity of testing the larger sizes, although we have no doubt they will be equally effective.

ARCHBISHOP'S HOUSE, CANTERBURY.

A CONTRACT has just been approved by the Ecclesiastical Commissioners for England for the erection of an archiepiscopal residence in the Cathedral precincts at Canterbury in place of Addington Park, which was sold in the early part of the year. The remnant of the archiepiscopal palace known as "Old Palace," which is situated close to the west front of the Cathedral, will form the nucleus of the new residence. The ancient palace was founded by Archbishop Lanfranc (1070-89), and first abandoned by Archbishop Wareham (1503-33) in consequence of a dispute with the citizens. In Cranmer's time (1533-56) it had fallen into decay, and was further gutted by a disastrous fire. It was restored by Matthew Parker (1559-76), who gave a magnificent entertainment to Queen Elizabeth within its walls, but he appears to have been its last occupant, and the building was after his time again allowed gradually to fall into decay. Some portion of the ruins has been alienated to the use of the King's scholars, and an ungainly red brick house in Palace Street, which incorporates some of the ancient structure and is occupied by the junior school, is still known as "The Palace." The remnant, which will now be incorporated in the new residence, remained the property of the Archbishops of Canterbury until about thirty years ago, when it passed to the Dean and Chapter and was transformed into workshops, but it has now been reacquired.

HUNSLET NEW BATHS.

THE new public baths in Joseph Street, Hunslet, erected by the Leeds Corporation at a cost of about 12,000/, were formally opened on the 17th inst. This makes the fifth institution of the kind now possessed by the Corporation. The others are at Union Street, Kirkstall Road, Holbeck, and Cookridge Street, whilst in a few weeks a sixth set of baths will be opened in Meanwood Road. The new brick structure at Hunslet very much resembles the one recently erected at Holbeck. Standing on slightly raised ground, the building fronts into Joseph Street. In the centre is the office, with the entrances to the first and second-class baths on each side. The slipper baths—twenty in all—are on the right of each entrance, consisting of ten second-class for men, five first-class for men, and five for ladies, with all their appurtenances and sanitary arrangements distinct and separate. Store-room accommodation is provided in connection with this section. The second-class swimming-bath is 85 feet by 46 feet inside walls, and the water measure in the tank is 75 feet by 30 feet. A gallery is provided all round for spectators, with three staircases, one from the entrance and two in bath-room. Dressing-boxes are provided along each side of the bath. The divisions between them are of polished slate. The first-class swimming-bath has a water measure of 63 feet by 25 feet. There are dressing-boxes along each side, with polished marble divisions. The bottom of the baths is in Venetian marble mosaic, and the side walls in white glazed brickwork, with stone coping on top, and the ground floor, consisting of aisle and dressing-boxes, in concrete. The walls throughout are in glazed and pressed brickwork. The laundry is between the two swimming-baths, and is fitted up with the usual appliances required for that purpose. The baths buildings are on the ground level, and are only one storey high. They are well lighted by louvre ventilating lights and side lights. Excellent provision is made for supplying fresh air to the buildings, and the extracting power is obtained not only from the louvre lights, but from a large Blackman's fan fixed in the gable of the swimming-bath. The buildings are properly warmed throughout by steam pipes from the boiler. The only part of the structure more than one storey high is the block over the office and entrances, which provides house accommodation for the manager. The external walls are in pressed brickwork with stone dressings, and the roof is covered with Westmorland slates, and wood and plasterwork has been avoided in every part of the buildings wherever possible.

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ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

THE annual general meeting of the Royal Institution of the Architects of Ireland was held on the 15th inst. in the new rooms of the Institute, 20 Lincoln Place. Mr. Thomas Drew presided, and there was a large attendance of members.

Among those present were Messrs. A. E. Murray, hon. sec., W. M. Mitchell, R.H.A., J. R. Carroll, Charles H. Ashworth, Fred Bachelor, F. L. W. Blount, W. J. Gilliland, Chas. Geoghegan, W. D. Doolin, M.A., C. J. M'Carthy, city architect, R. S. Swan, R. M. Butler, A. W. Moore, J. Holloway, R. Caulfield Orpen, M.A., G. P. Sheridan, G. L. O'Connor, E. H. Morris, J. H. Webb, Harry Allberry, W. Kaye Parry, M.A., Robert Cochrane, Robert Stirling, R. O'B. Smyth, Cecil Orr, J. H. Pentland, R.H.A., Fred Franklin, Richard C. Millar, C. A. Owen, M.A., Frederick Hayes, J. F. Delaney, F. Hicks, Louis Deane.

Mr. Albert E. Murray, Fellow, hon. sec., then read the report of the Council for 1898, of which the following is a summary :—

There has not been much increase in our numbers since our last meeting. Yet we have not been standing still, and we have lost none of our members. Our roll now consists of twenty-seven fellows, fifty-seven members and six probationers, making ninety all told. We are glad to say that our experience during the past year as one of the allied societies of the British Institute has been very satisfactory, and that our relations have been perfectly harmonious throughout. We feel the advantage of being in touch with the great central body of our profession. Every movement of importance which takes place there is at once communicated to us, while we have complete control of our own local affairs. Such an alliance cannot fail to be of great value to us in many ways. It secures uniformity of practice between ourselves and our brethren across the water, and strengthens our hands. We trust these friendly relations may continue to unite us in the future. A concession has recently been made to provincial architects by the British Institute, and mainly at the suggestion of this Institute, to the effect that any member of the profession unanimously recommended by the council of an allied society will be practically approved a Fellow of the British Institute. We wish to draw attention to the fact that while both in England and Scotland a large number of allied societies, each having its centre and well-defined boundaries, have been established, Ireland shows on the map of the British Institute as a single province with its centre in Dublin. The Council feel that this state of things is not creditable to the professional spirit of Irish architects, and trust that a movement may soon be initiated to establish local allied societies in Ireland with spheres of influence and with other centres than Dublin, while fully maintaining their connection with this Institute. We expect that much benefit will result from the operations of the Local Government Act, and particularly that the Acts relating to public health will be more efficiently enforced in many districts than they are at present. During the past year we have had under our consideration the conduct of two architectural competitions of some importance, one in Belfast and one in Dublin. In each case we have endeavoured to induce the promoters to adopt the rules for competitions laid down by the British Institute. While it is very important that the public should be educated into taking more equitable views of the rights of architects in these matters, it is equally necessary that our members should perform their part also, and refuse to compete in cases where the terms proposed are unsatisfactory. If this principle was consistently carried out the public would soon learn to set a higher value on our services and would cease to expect to obtain them for nothing, as too many appear to do at present. Although no further progress has been made recently towards a settlement of the architects' registration question, we desire to impress on our members that, if they will only act together, they can secure for their profession most of the benefits which are the aim of the promoters of this Bill. We are glad to say we are now in a better position in this respect than we have ever been, and fresh evidence is afforded us every year of the growing esteem enjoyed by our Institute. We ought not to rest satisfied until every architect in Ireland worthy of the name belongs to us. In order that the benefits of membership should become more widely diffused, we propose in future to hold periodical meetings here, at which papers on professional subjects will be read and discussion thereon invited, and we hope shortly to announce our opening meeting. They will be open to all our members.

Mr. Kaye Parry moved the adoption of the report. He suggested that societies might with advantage be started in Belfast and Cork, where a good many architects were in practice. With reference to the Local Government Bill, they had reason to know that the representatives of the architects

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of Ireland had their due weight in the framing of the measure. The most important part in the report was the question of registration, but really if membership of the Institute was sufficiently recognised in courts of law as entitling a man to be a practising architect they had all they wanted. They had been very careful as to whom they admitted to the Institute.

Mr. Chas. Geoghegan seconded the motion, which was passed.

Mr. Drew then delivered his address. He said:—Allied societies will be the chief topic of my retiring address to you, as it has been one of the foremost movements which have occupied your Council during the now long term I have been president. It seems but the other day that the great body organised and chartered as the Royal Institute of British Architects was through conservatism falling out of touch with the vast body of architects that had grown up in the cities of the empire at home and abroad since its early foundation. An executive localised in London, though composed of foremost and earnest men in the profession, had to realise that the membership and influence of the Institute was not extending as it ought, and appeal was made to architects in the provinces as to their apathy. From independent architectural societies came back the response generally, "How, under its present constitution, can the Institute look for any other state of things? The Institute as it stands represents a vast body of architects in London equal in number to all the architects of provincial centres, but is in itself practically a great provincialised and local society." In this controversy our Institute, as one of the remotest from the London centre, illustrated the weakness of non-adhesion most pointedly, and, as in more or less degree, the position of an architect in any provincial centre. It is now a tribute to fair-mindedness of the London executive that it has by its acts in a marked degree adopted the views of the non-conforming provincial architects. Notable among its acts has been to widen the representation on its Council by admission of representatives from provincial centres. Here let us acknowledge the generous compliment conceded to our small Institute of the sister country—that, while the representative seats at the Council from the provinces generally are elective, limited in number, and sought as a distinction, it has been conferred on the Irish Institute that its president, being a Fellow of the R.I.B.A., shall ex-officio hold a seat on the Council without election. May I inform you also that the Council of the R.I.B.A., by recent by-laws, take powers, during their pleasure, to dispense with the entrance fees of non-metropolitan members? Further, it takes privilege to elect without ballot to the Fellowship of the Institute the president of any allied society for the time being. May I, on retiring, urge on my successors to qualify for holding this position if not already members of the R.I.B.A.? In my case, during the years I have been your representative, I can assure you of what practical value I have found it to our Society to be in communication and correspondence with the central body, to have recognition of the right to appeal to it, and the personal friendship and cordial goodwill of the leading architects of the day to the small knot of Irish architects. Let me further announce what advantages have been conceded to the provincial architect, brought about by the happy policy—I know not by whom first suggested—of allied societies to the Institute, which has in principle solved the problem of decentralisation of the R.I.B.A. England, Scotland and Ireland have been systematically mapped out as architectural provinces and spheres of allied societies. As to there being a sole province of the Royal Institute of Architects of Ireland, with its centre at Dublin, that unit is not pleasing to me or creditable to the professional spirit of the architects of Ireland. Can we, the executive of the sole architectural body for Ireland centred in Dublin, for an hour pretend that our sphere of influence extends over the great and growing city of Belfast, soon to surpass our city in numbers of its population, and, in the amount of architectural practice, probably at this moment in the number of reputable architects practising in it? It is with great pleasure I announce to you, in ready response to a suggestion of mine, the presence of some brother architects from Belfast, and it is the desire of our visitors to have a talk with some of their Dublin brethren on this subject. That is the topic in connection with the advantages of architectural alliance most interesting to us at present. After enumerating the advantages to provincial architects under recent reforms of the R.I.B.A., the President continued:—I desire to suggest to this meeting the appointment of a standing art committee of the Institute, whose concern should be with public and civic improvements or disfigurements, architecture threatened with demolition or degradation or neglected, and to direct public attention to them with an authoritative opinion. Outrages on the dignity and beauty of our streets, which are the common inheritance of all citizens, are too often perpetrated by the ignorance or selfishness of individuals or the density of official bad taste. Improvements which are possible and patent to the expert eye of the architect are dormant and unnoticed. "What is

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everybody's business is nobody's business." As architects will not move in such matters what other body is likely to do it? Such an institution does good service in London in the form of a standing art committee of the R.I.B.A., often aggressive to public bodies in general and the London County Council in particular. It has even, I believe, extended its purview to Irish affairs, and has memorialised the Provost and Board of Trinity College that the fine work of Sir William Chambers should not be degraded by incongruous association in juxtaposition with brick building of the utilitarian artisans' dwellings type. To the cathedrals of Dublin it has given some intelligent interest. Surely there is a work to be done by ourselves gratuitously for our citizenship and our local affairs in a like way with the right attaching to educated opinion to make itself heard, and, I believe, to be received well by our own municipal rulers who, in Dublin at least, are on kindly terms with its architects. For instance a case—at the moment occurring to me—I have noted a casual reference at a late meeting of the Corporation to a scheme for providing office accommodation by in some manner dividing or utilising the grand circle under the dome of the City Hall, the work of Cooley, of which we are so proud. Surely Irish architects should be vigilant as to what this innovation may portend, and, if a degradation or disfigurement, remonstrate. Again, we look down the Liffey to the western sunset from O'Connell Bridge to point out one of the most exquisite pictures of Dublin landscape, and to see it marred, disgraced and outraged by giant invitations to try somebody's bread, and as a corrective, perhaps, following with some one's aperient pills, or, until lately, an infallible epileptic remedy. As if these were not enough, another firm all over the place suggests mineral waters, another to play its pianos. I believe it may not be in the immediate power of the Corporation to abate this eyesore, but I believe public opinion directed to it would bring home to individuals who perpetrate such things, in ignorance perhaps, they give grave offence and disgust to a community far more widely than they estimate—that such advertising is far more injurious than serviceable to their business. Skeleton sky-signs begin to appear in the best architectural streets of our city. Advertisement hoardings are always with us. Is the municipal authority always assured that these may not be "got at" as "dangerous structures?" I have known one instance at least when the attention of our thoroughgoing city engineer was drawn to the invasion of the beauty of Dame Street by 12-feet letters being skyed upon a parapet, and how promptly he showed a stranger invading firm that municipal Dublin had some powers in such cases. Tramways and trolleys, posts and cantilevers and overhead wires, these are past praying against. The Juggernaut of Progress passes by and sorrowing architects must bow, but much of the beauties of cities—in Dublin, and very noticeably in newer Belfast—might have been saved to them if such a public body as societies of architects had watched over them. There just exists now, in a last stage of degradation and neglect, the last surviving hall of the 24 guilds of which the Corporation of Dublin was constituted fifty-six years ago—the Weavers' Hall in the Coombe. It is an interesting and fine old Queen Anne or early Georgian hall, which it is a disgrace to the city to allow to disappear. It is not past praying for at least. If architects will not find it out, and direct public notice to it, and say that its dilapidations are not past repair, who will do it? Belfast, one day, in selfish greed for value of street frontage, wipes out from its map two little open spaces, with pretty trees which flanked and gave a simple charm to the entrance on its municipal thoroughfare of Donegall Place. More lately, it has no sooner acquired its first central area than it proceeds to spoil it for ever by planting its town hall in its centre and blocking it, interrupting a grand line of central thoroughfare which might have made Belfast noticeable among cities. By blind bad taste and obstinacy an opportunity is irrevocably lost which no architect could regard but with sorrow, or good citizens without regret. Yet in such a case exists no organisation to protest against the tyranny that forces on such schemes. When I have touched on the up-river disfigurement some visitors may have wondered that a down-river disfigurement which freshly shocks their sense, the notorious Loop Line outrage, was not alluded to. It is because it is for us Dublin architects ancient and painful history—fifteen years old. It is a memory of that needless outrage of the beauty of a beautiful city, of the obstinate engineering doggedness which forced its way through our public thoroughfare to the west instead of the east of the Custom House, of the irresponsible tyranny of wire-pulling in such projects. The architects of Dublin, appealed to by the Press, took their part at the time in leading protest against what seemed a proceeding almost incredible in its extent and ill-design. It points the moral of the necessity of some volunteered censorship to defend the rights of citizens in their own city. To no architect can that ill-starred blot upon the city of Dublin be ever anything

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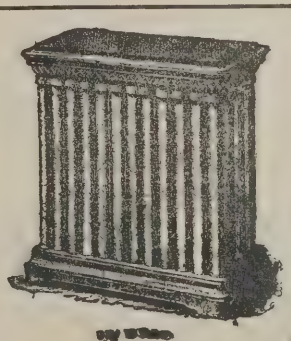
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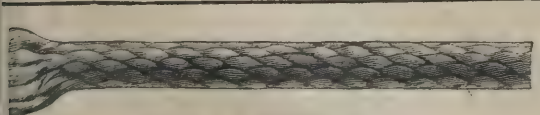


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but a distress, with its ragged-ended rusty girders above and its manifestly sham and inadequate pieces of foolish architectural pretension below; its five specimens of absolutely differing and incongruous pieces of bridge-building going to make up one-quarter of a mile of a continuous viaduct, and, we may add, each specimen more uncouth than the other as you get northward; and behind all this Gandon's Custom House, once the pride of Dublin as you viewed it from old Carlisle Bridge, blotted from pictorial Dublin for ever. But, gentlemen, it can only be said in press language, not unfamiliar in the annals of crime, "no one was brought to the bar of justice in connection with this shocking event. The perpetrators may be still alive and walking in our midst, but in all human probability will never be discovered." With such suggestions for the extended work of our Institute, I vacate the chair with a sense of the friendship and loyalty and unselfish co-operation of colleagues through a long term of years, such as I believe has never been acceded to any president of a like Society to ours.

Mr. Walter Doolin, having expressed his hearty appreciation of the President's address, said he thought that a helping hand and support should be extended to the Architectural Association of Ireland and the younger members of the profession.

Mr. Rawson Carroll thought that while registration would be of great use to them as well as to the public, still at present, if properly regarded, membership of their Institute was a sufficient guarantee of a man's efficiency. He offered the chairman hearty thanks for his able address and his services to the Institute.

Mr. Cecil Orr thought they should do more for the Architectural Association and help them on. He thought there should be some qualification more than mere membership of the Institute. His recollection was that the attitude of the Institute originally was in favour of registration.

Mr. Butler supported Mr. Orr's views.

Mr. W. J. Gilliland, Belfast, spoke in favour of registration. They would never be protected until they had it. He was, therefore, entirely opposed to that portion of the report which rather jumped on registration.

Mr. Kaye Parry said he was far from believing that the end-all of an architect's ambition should be merely membership of their Institute, but he thought it was a useful step and assistance.

On the motion of Mr. Rawson Carroll, seconded by Mr. Wm. M. Mitchell, the following resolution was passed:—

"That a standing art committee, on the lines and exercising functions similar to those of the standing art committee of the Royal Institute of British Architects, be appointed in connection with the Royal Institute of the Architects of Ireland."

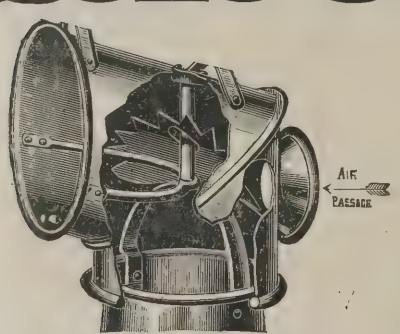
The result of the ballot was then announced as follows:—*President:* Mr. Thomas Drew. *Hon. Sec. and Treasurer:* Mr. Albert E. Murray. *Council:* W. M. Mitchell, Rawson Carroll, J. H. Pentland, George C. Ashlin, George O'Callaghan, Charles Geoghegan, Kaye Parry, Walter Doolin, Cecil Orr and F. Bachelor.

TENEMENT HOUSES IN DUBLIN.

At the last meeting of the Statistical and Social Inquiry Society of Ireland, Mr. Charles Eason, jun., read a paper on "The Tenement Houses of Dublin: their condition and regulation." In the course of his address he said:—Several efforts, worthy of all praise, are being made at the present time to provide additional or better accommodation for the poorer classes. Some ladies connected with the Alexandra College have formed a company for the purpose of buying some houses, putting them in order, and letting them at rents as low as possible. Any sum over after paying 4 per cent. interest to the shareholders is to be devoted to carrying on the work. The ladies will take a practical interest in the work by collecting the rents and looking after the houses, and much good will result from the knowledge which will be thereby gained of the conditions of life among the poor. A company is also being formed with a capital of 20,000*l.* for the same purpose. This scheme is the outcome of meetings held at the Mansion House during the past twelvemonth. The object aimed at is specially to provide accommodation for the "very poor," that is to say, for persons who cannot afford to pay a rent of more than 1*s.* 6*d.* or 2*s.* per week. The Corporation have had in hand for over five years a scheme for providing dwellings in the district of Bride's Alley. A sum of 32,000*l.* has been spent, but no plans for erecting new dwellings have yet been adopted. At the present moment a proposal in regard to the site has been submitted to Lord Iveagh. That so large a sum should have been spent merely on the acquisition of a site is very discouraging, and it is difficult not to think that full use was not made of the powers of the Corporation for the acquisition of unsanitary dwellings. At the Public Health Congress Sir Charles Cameron and the Right Hon. Alderman

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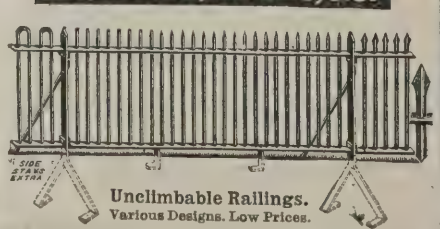
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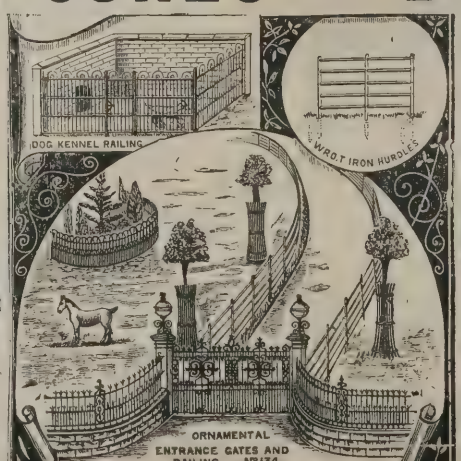
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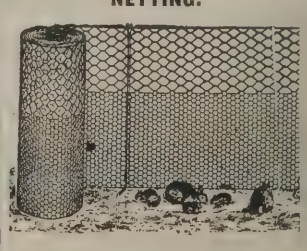
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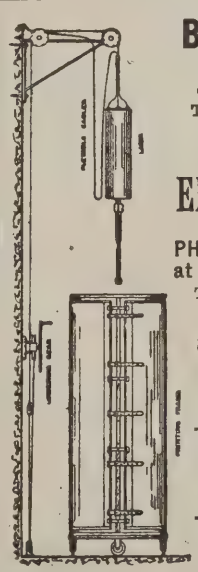
Meade urged that the Corporation should be allowed to erect dwellings for the "very poor" on special terms, such as a grant of the site free of cost and freedom from city rates. That is, in fact, to a certain extent at the expense of the ratepayer. In regard to a free site, it is urged that the clearance of an unsanitary area is a sanitary improvement for the benefit of the whole city, and may therefore be rightly treated as an outlay for sanitary purposes. At the present moment the London County Council has adopted the principle of providing dwellings, at a loss to the ratepayers, in a special case. Time prevents me from discussing this question; but the principle is of the utmost importance and should not be adopted without very thorough consideration. The idea of confining the dwellings to the "very poor" is not one that seems wise or practicable. Rooms must vary in size and position, and consequently in value. More satisfactory results are likely to result from persons of different incomes living side by side, and renting rooms in proportion to their incomes. More information should be obtained as to what has been done in other cities. A large scheme has just been made public by Lord Iveagh. He proposes to take an area near St. Patrick's Cathedral, clear it, and build upon the site shops, dwellings, baths, gymnasium, public hall, &c. Such a scheme is deserving of our warmest approval, and all parties who have any influence should use it to facilitate its execution. The extension of the city boundary to include the adjacent townships would give increased power and additional facilities for the improvement of the condition of the city. The well-to-do people who live in these townships escape at present their due share of responsibility. The question is not one to be settled simply by a reference to the effect upon the rates. The present boundary is purely artificial. The people on both sides of it are, in fact, one community, and all should be willing to co-operate in the task of grappling with the social problems of the city. There is nothing new in this paper; the evils pointed out, their causes and the possible remedies have been brought before the public time after time. There is no royal road to their removal. An improvement can only come from personal effort and self-denial on the part of the citizens of Greater Dublin.

Mr. Pim, the president, said Dublin suffered more from overcrowding than any other city. Some time ago the proportion was ten persons to one house in Dublin, as compared with five in Belfast. Of course, that was largely due to the fact that Belfast was a new city, but as he understood, the state of affairs so far as Dublin was concerned was not so bad.

The Registrar-General (Dr. Grimshaw) said the population of Dublin was under 250,000, but if they took in the surroundings they got a population of 350,000. Since the date of the Royal Commission on Sewerage and Drainage in 1879 there had been a considerable improvement in the state of the tenement houses, and this was, he thought, partly due to the increased number of well-to-do people going to live in the suburbs and leaving the city houses for tenement occupation. Very much, he thought, could be done by visiting the tenements and offering encouragements to cleanliness. The system which had been started in London by Miss Octavia Hill, and which had grown to such great proportions might, he thought, be tried with advantage in Dublin. That lady took houses, let them in tenements and collected the rent herself or by the aid of some lady assistants. In regard to space he held that 300 cubic feet for a sleeping room was not sufficient. That figure had been generally selected because it was thought to be all that could be obtained. He believed that the tenants should be fixed with a certain amount of responsibility for the cleanliness of the tenement and the protection of its fittings from injury, and he held that every apartment should be marked with the number of people it was to contain. As to the clearances of areas, these should be made irrespective of any consideration of profits; the real return to the ratepayers for this expenditure would be better health and a decrease of crime. In Glasgow the largest measures for the housing of the working classes in the United Kingdom had been carried out at the cheapest rate and in the most satisfactory manner, and he commended what had been done in Glasgow to the people of Dublin.

Mr. Carton, Q.C., said three parties, as it appeared to him, were responsible for the wholesome housing of the poor. The first of these was the Corporation. Hard things had been said of the Corporation, but in his experience the Corporation officials had been most efficient, zealous and painstaking in the discharge of their duties. In fact, if any fault could be found with them it was that they had been rather severe on the owners of tenement houses. But the sanitary by-laws of the Corporation were singularly inadequate. He had recently had to dismiss a case of overcrowding, because although the by-law fixed the number of occupants for a house it did not give power to prevent the number from being exceeded. The second party responsible for the housing of the poor was the owner of the tenement house. It was his experience that on the whole the owners of tenement houses were loyally willing to carry out all





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that was required of them. No doubt they had, in some cases, shown a disposition to scamp the work and get off with doing less than was required. The greatest fault that he had found with them was their delay in executing the improvements that were ordered, but in order to meet this state of affairs he had adopted the practice of allowing shorter time in the first instance for the doing of the work and of extending it afterwards, if he found that the landlord *bonâ fide* intended to obey. The present state of the tenement houses in Dublin was not, he thought, to be attributed to them. The real fault lay with the occupiers, and it was his opinion that the efforts of the Corporation and their officials and of reformers should be directed towards obtaining legislation to impose on occupiers the responsibility of keeping their places clean. Cases had arisen over and over again in which the owners of the tenements had provided the best sanitary arrangements, and these had been a fortnight afterwards rendered useless by misuse.

Sir Charles Cameron said that some hostile critics of the Corporation considered they were now worse as regarded the tenements than they were twenty years ago. If that were true large sums of money had been wasted. The terrible system of storing foul matter in the city had been got rid of within the last year or fourteen months. That surely would be a great deal, if no other improvement had been effected. But a great deal more had been done. The worst purlieus had been completely got rid of. The magistrates had made orders for the closing of more than 3,000 insanitary houses, and of these almost 2,000 had for ever disappeared. He could mention the names of forty courts and alleys every single house in which had been removed during the last twelve or fourteen months. It must, however, be admitted that the condition of the tenement houses of Dublin was still highly unsatisfactory. The Corporation had always shown the greatest willingness to adopt reasonable suggestions; but the problem they had to solve as regarded the dwellings of 32,000 out of the 54,000 families in Dublin was an almost insolvable problem under the existing circumstances. A census which was made some years ago of the number of tenement houses requiring inspection in the city showed that there were 32,000 families occupying 48,000 rooms. The number of inspectors in the service of the Corporation was limited, and each had about 1,200 tenements to inspect in the year. It was a long time since that he had come to the conclusion that they could no longer go on closing insanitary houses, except in extreme cases, until provision was made for the accommodation of the people who had to be turned out of them. Why did not the State give assistance in this matter, as they did in the case of agricultural labourers? He was of opinion that the old mansions and residences that had fallen into disuse were quite unsuitable for tenement dwellings.

Mr. Ormsby said that articles had been signed for the formation of a company, the object of which was the housing of the poor of Dublin. The project was not solely philanthropic, but was to a certain extent commercial, for it was intended that 4 per cent. should be paid. Anything, however, made beyond that would be returned to the tenants.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

25602. Michael Wilbertz, for "Improvements in roof plates."

25785. Hilder Daw, for "Retaining apparatus for casting walls made of concrete or other suitable material."

25839. Frederick du Bois, for "The patent hot-air brick."

25943. Joseph Webb, for "An improved method of protecting or packing glazed and other brick, tiles and other goods."

Specifications Published.

14654. Heinrichs, for "Brick-kilns."

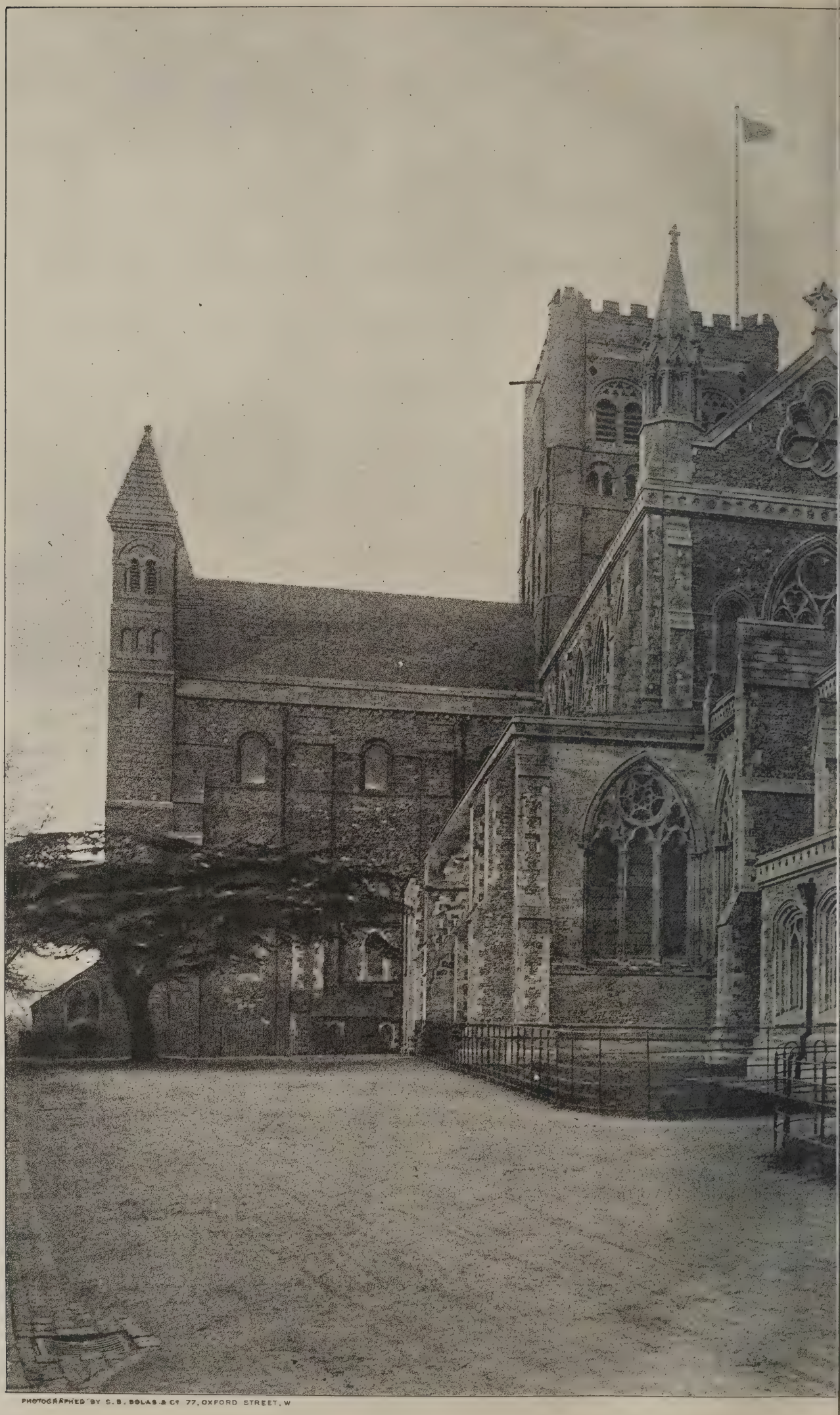
22678. Godwin & Pickerill, for "Wall, ceiling and other tiles."

22997. Schroeter, for "Cement for attaching surface material, tiles, glass plates or the like to building surfaces and so forth."

23159. Van der Vijgh, Van der Vijgh & Van der Vijgh, for "Manufacture of artificial stone."

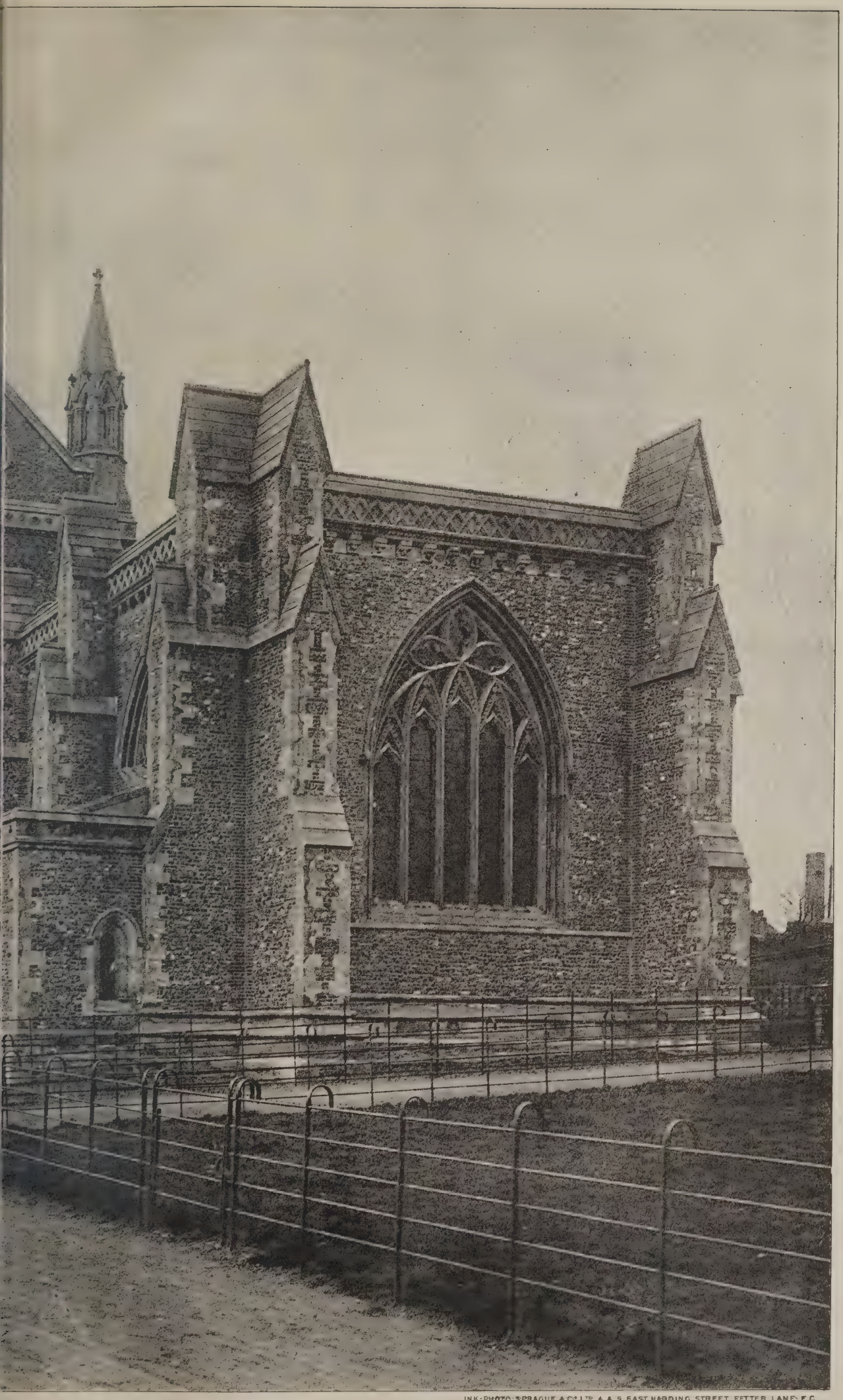
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THE "COACH AND HORSES," CLERKENWELL.

J. W. BROOKER, Architect.

The Architect.

THE WEEK.

The Council House, Birmingham, of which Mr. Yeoville Thomason was architect, is not large enough for the municipal business, which is now carried out on a more extensive scale than formerly. Several departments have to suffer inconvenience through insufficiency of the offices. The accommodation in the art gallery is altogether inadequate for the proper housing and display of the art treasures which by the munificence of private individuals have become the property of the Corporation. There fortunately happens to be almost available a plot of land forming part of the Colmore Estate, which is bounded by Congreve Street, Great Charles Street, Margaret Street and Edmund Street. This land has an area of about 10,000 square yards. It is now covered with old buildings on short tenancies, which produce a gross rental of 1,071*l.* 14*s.* The trustees of the Colmore Estate calculate an ultimate ground rent of 5,160*l.*, or 10*s.* 6*d.* per square yard, as likely to be derived. Their advisers, however, propose that a lease for 999 years should be granted on the following terms:—For the first three years a ground-rent of 2,000*l.*; fourth year, 2,500*l.*; fifth year, 3,500*l.*; sixth year, 3,500*l.*; seventh year, 4,000*l.*; eighth year, 4,500*l.*; ninth year, 5,000*l.*; tenth and following years, 5,400*l.* The general purposes committee say it is most desirable that the new buildings, both for offices and for the art gallery, should be in proximity to, and if possible in connection with, the existing Council House. The plot of land now offered is the only piece which would enable this object to be carried out. The ground-rent asked is considered by them to be a reasonable one, and the committee therefore recommend that the offer should be accepted. The question of the utilisation of the land to the best advantage when acquired is one which will require the most careful consideration. The immediate requirements of the Council will be satisfied by building on a portion of the land only, and obviously the selection of this portion with a view to maintaining existing rents will be a matter of importance. The first question that will arise will be the possibility of connection of the new buildings with the present Council House and art gallery, either by bridge or subway, or both, and it will be necessary in the very earliest stages to obtain the best professional advice. The committee therefore recommend that they should be authorised to select an architect, and after consultation with him to submit to the Council their proposals for laying out the land to the best advantage. The subject will be brought before the City Council on Tuesday next.

It is satisfactory to know that the Kapellbrücke of Lucerne is not to be demolished, notwithstanding the reports to the contrary. Indeed, it would be strange if the inhabitants allowed a structure to disappear which was so closely connected with the lives of themselves and their forefathers. As Mr. Ruskin says, the bridges were to the population of the town what the Mall was to London or the gardens of the Tuileries are to Paris. For the continual contemplation of those who sauntered from pier to pier pictures were painted on the woodwork of the roof, historical scenes like the series of Swiss battles, and emblematic scenes like the "Dance of Death." The gable paintings of the Kapellbrücke were executed about 1611. Of the historic Swiss series many have disappeared in the course of time and through alterations in the quay; there are some sixty-nine remaining. The second series consists of quaint pictures from the lives of St. Leodegar and St. Maurice, the patron saints of Lucerne. Of the latter series there are now thirty-six on the bridge, certain scenes from the life of St. Maurice which were almost effaced having been moved in the course of this year.

The Botanic Garden in Brussels is from its position one of the best-known features of the city. As the greater part is enclosed by open iron railings, it can be seen by all who pass, including the numerous English tourists who have arrived at the neighbouring railway terminus. Many strangers are satisfied with the views from the road, and the grounds are so arranged as to look well from any point of vantage. The gardens are now acquiring a new interest. Brussels possesses many excellent sculptors whose works will bear comparison with works from Paris. In decorative sculpture Belgium on that account is able to uphold its ancient reputation. The skill with which figures to be placed out of doors can be modelled is suggested by the statues of typical guildsmen which surmount the railings of the little square known as the Petit Sablon in Brussels. The Botanic Garden is also to be adorned by bronze figures, but, instead of recalling the days of Horn and Egmont, as was fitting in a place of the old town, the statuary will symbolise vegetable life. Already the rose, the ivy, the chrysanthemum, the vine are embodied, while other figures and groups are commissioned.

A fallacy which prevails among owners of insanitary property is that more leniency is to be found in law courts than with corporate bodies, unless in cases like some of the London vestries when owners of the same class have contrived to gain authority. A curious case which should enlighten those people has been decided in Glasgow. The Corporation had ordered a house to be closed, whereupon the owner appealed to the Sheriff's Court. The appeal was dismissed, all that the owner gained for the extra expense being the postponement of the closure for some days. His plea was that the Police Commissioners were interested parties, and that he avoided bringing evidence before them because no man is called upon to tender evidence before judges who are also prosecutors. The Sheriff, on the contrary, held that the Commissioners "have no personal interest whatever in the matter, and are only concerned with it in their corporate official capacity, as the statutory executive whose duty it is to give operative effect to the public health protective provisions of their Act, and there seems no ground whatever for the unreasoning fear which the appellant seems to have that any evidence he laid before the Commissioners would not be impartially and carefully considered." In conclusion, the Sheriff said:—"If the appellant's case were that he had evidence now to submit which was not available when he was before the Commissioners, I might perhaps remit the case back to them; and if appellant has any genuine defence I hardly think the Commissioners will, even yet, stand upon the technicality of his having missed his statutory opportunity of presenting it. But appellant's case as presented to me is that he is entitled to ignore the Commissioners and to conduct his defence before the Sheriff alone, and lead his evidence in the appeal, and as this is in my view quite contrary to both the spirit and the letter of the Act I must dismiss this appeal."

In the *Antiquary* for January is the first part of a journal of a tour through France and Italy in 1769-70 by Colonel Windham, the father of Secretary Windham. While he is liberal in his praise of foreign things, he says of the Paris of that day:—"London as a city is infinitely superior to Paris, which however has the advantage in its public buildings, churches and noblemen's houses—the entrance into it from Bois de Boulogne affords the most magnificent view that can possibly be seen. The Thuilleries is a beautifull garden; the walks well preserved, but I could not help being surprized, after so many years' absence, to find the same filth at the bottom of the walls. The inside of their houses, nasty as ever, no water coming into them but what is brought in pails from the river, and that only for the necessary use of the family. Water-closets are not to be meet with in any houses." One was fitted up in the king's apartment at the Trianon, but the colonel was told they were not approved. The château of Madrid he describes as "an old, ugly roial château at the extremity of the Bois de Boulogne, inhabited by those who have interest to get lodgings there." "Versailles," he says, "was much to be admired for the majesty of its buildings and the profusion of expence dispers'd all over the gardens in marble statues, bronzes, temples, waterworks, &c., and the trees remarkably fine." The colonel, as a soldier, admired the Invalides, which, he says, is "a building that doth honor to the nation."

LORD IVEAGH'S GIFTS.

WHENEVER strangers went a-slumming in Dublin under the guidance of a resident, they were sure to be kept in ignorance of the "Bull Alley area." They will consequently be unable to understand the courage that is required to change its character. By a curious coincidence it is to be the object of Lord Iveagh's generosity equally with the Jenner Institute (formerly the Institute of Preventative Medicine), or, in other words, it is to be improved at an expense of 250,000*l.* In one case enough microbes must have been produced to poison all Europe, and the survivors are doomed; in the other the microbes will be fostered. In Pimlico they are to be guarded as strictly as if they were jewels enclosed by Hobbs-Hart treasury doors, and they will be turned to beneficial purposes, while the microbes of the Bull Alley area have for years caused more havoc than can be readily calculated.

The area in question is almost the centre of Dublin, and if the conclusions of modern physiologists, chemists and other authorities on public health are of any value, from it must have emanated a vast proportion of the seeds of disease which have made the death rate of the Irish capital phenomenal among those of European cities. That such a state of things should arise becomes more remarkable from the position of the place. If the reader will glance at a map of Dublin, he will observe there are two cathedrals on the south side of the city. They are about a quarter of a mile apart. Their east and west sides are connected by two streets, and the intervening space constitutes what we may call an ecclesiastical island. As the streets are called after Saints Patrick, Nicholas, Bride and Werburgh, the land must at one time have formed part of the cathedral property. Two narrow lanes running east and west cross the island and bound the area which Lord Iveagh has undertaken to transform. The area may be considered as under the shadow of the cathedral buildings, but if it were in a remote part of Africa, or in the Arctic regions, it would have far more interest for the dignitaries. It has been allowed to remain one of those pestilential spots recalling the Middle Ages, where "rank corruption mining all within, infects unseen."

No wonder visitors are kept aloof from the area. They are allowed to see the fringe of it, for Patrick Street, with its booths for old clothes and other articles which have survived their age, and its rows of noisy costermongers, is accepted as a peculiarly characteristic Dublin scene. Pictures and sketches have been made of it with the cathedral for a background. But the region beyond is for the multitude an unknown land. There it was supposed the shambles for diseased animals were congregated, and part of the flesh was openly sold on the spot. In the wretched houses which seemed to have sprung up by chance, only the most miserable would seek a shelter. While the death rate was always appalling, the place was treated with indifference by the police. It was never a haunt of the criminal classes, for it was not worth risking life or liberty for the sake of a habitation in that area. Only the honest poor crept there, and amidst the surroundings death soon lost its terrors.

Although a danger to Dublin, and therefore, strictly speaking, having only a negative value, to purchase the area requires a millionaire. When the Dublin Corporation resolved to make the plague spot less noxious the large sum of 32,000*l.* had to be paid for the right to demolish a few of the structures that were hardly entitled to be called houses. Lord Iveagh proposes to spend 250,000*l.* on the purchase of sites and the erection of four blocks of model dwellings and other buildings, but any one who knows the conditions of sale in such cases will agree that his lordship will be fortunate if he can do so much for the money. It is only with the aid of compulsory regulations for the sale, based on the actual value of the premises, that the project as arranged can be realised. Sharp people will recognise they are dealing with somebody who has a hobby, and is therefore willing to make many sacrifices rather than appear to have failed. Lord Iveagh should be protected against attempts to trade on his good-nature.

Only a general notion can be given of the project, but what is proposed appears to be well adapted to the peculiarities of the case. As we have said, the place lies between two streets, Bride Street and Patrick Street, which run north and south. It is considered that two rows of buildings should have their fronts towards each of the streets. By that plan two of the four parallel blocks will face the east and two will face the west. The lower part of the block which has a frontage to the street will be arranged as shops. The risks of the unhealthy booths will consequently be avoided, and probably the trade of the streets will be changed in its character. There will also be a large lodging-house on the plan of Lord Rowton's in London, which will accommodate 500 people. As the blocks will provide room for 1,250 people, there will be no difference of numbers between the population of the Bull Alley area in the past and in the future. The majority of the habitations were low in height, and by the addition of a few storeys space can be gained without the least abstraction of the desirable superficial area from any of the tenants.

A corporation could convert an insanitary area into sites for comfortable dwellings for people who can only afford to pay a moderate rent, and in some places companies or individuals would be able to do as much. But Lord Iveagh undertakes a duty for which rates are inapplicable, and which would make ordinary investors hesitate. He intends to erect and furnish a concert hall to accommodate a thousand people, a swimming bath which can be used as a gymnasium in winter, a lecture hall which will serve for exhibitions, besides reading and classrooms. It is difficult to decide whether the provision for recreative buildings is not more desirable than model dwellings. The latter, it is true, will accommodate some 1,700 people, but the inhabitants of the district who may be supposed to take advantage of the concert hall and the swimming bath number more than 17,000. There is a river known as the Poddle beside the area, but it is prudently kept covered, for it is a filthy sewer. Bathing is no less impossible in the Liffey. The sea is at least three miles away. A place of healthy amusement is as difficult to discover as a bath. Probably one-fourth of the inhabitants of Dublin may therefore be supposed to have an interest in the contemplated recreative buildings.

The site of the mouldy buildings between the area and the cathedral has been converted into St. Patrick's Park. It was one of the members of Lord Iveagh's family who restored the cathedral. Consequently that building, the park, the recreative buildings and lodging-houses, without mentioning philanthropic works elsewhere in the city, will form a series of contiguous memorials, which will testify that the Guinnesses were the most munificent of the benefactors of Dublin.

The two cases which Lord Iveagh has made his own suggest the use which the millionaire can serve in connection with modern civilisation. In Dublin sanitation will be promoted by the new buildings, but the investigations which his lordship's money will originate through the Jenner Institute may have the effect of leading to discoveries that will revolutionise the art of healing. The consciousness of being able to exercise power to overcome evils which have baffled so many is no doubt a reward for expending half a million of money, and we hope the success of the projects will convince Lord Iveagh that his support of them is justified.

At the present time there could not be discovered a more useful application of money. Lord Iveagh might have purchased a gallery of pictures by Old Masters for the sum he is about to expend; but there are physical evils for which a sight of paintings, however excellent, is no remedy. There is, it seems to us, at the present time an excess of hope about the remedial effects which works of art can produce on the humbler classes. Apparently it is believed that paintings have superseded the old philosophies, and that a poor man has merely to look at one in order to acquire a virtuous mind. But neither philosophic systems nor great masters will lessen the ravages of bacteria. To cope with them, as with much else which causes misery in this world, defences of other kinds are needed. There is room for all aids, for the æsthetic as for the hygienic system; the mind no less than the body must be ministered to, and the scheme which is proposed for the Bull Alley improvement takes cognisance of that fact. But to make all complete in that corner of Dublin

would leave no balance for the support of the Pimlico institution. The truth is, modern civilisation is attainable only by an enormous outlay, and without the aid of men like Lord IVEAGH it is almost an impossibility. The State is burdened with imperial cares, and the charge of streets and drains is enough to exhaust the resources derived from taxes in towns.

LIMOURS.

By JOHN A. RANDOLPH.

THE quaint townlet of Limours is now reached by train starting, underground at first, from Paris from the Gare du Luxembourg, at the corner of the Rue du Panthéon and the Boulevard St. Michel, at a few paces above the Place de la Sorbonne. The country through which the train passes is full of beauty and variety when once fairly outside the suburbs, and the journey reminds us very much, both as to the vileness of the railway carriages, the innumerable curves of the line, and the grand sweeps of scenery to be met with, of that between Namur and Dinant-sur-Meuse, while the landscape is not unlike parts between Meaux and Château-Thierry, on the Epernay line. On alighting at Limours station—at present a terminus—a very few modern houses stand facing that building, backed by rising ground. On the left side as the train runs in there are some fairly-wooded hills, and the trees, which seem to block the way for the further progress of the train, afford a good screen for the surprises in store. Indeed, on alighting, the only houses in the place seem to be those in the immediate proximity of the station. So much so is this the case that on our arrival there we had to ask the way into the town. It turned out that our path lay along the lane-like tree-lined road down the hill to the left. These grand trees sheltered some huts and cottages of much picturesqueness, and the whole scene was as unlike France as any that has met our gaze.

At about a quarter of a mile away a cross road—at that juncture even more wooded overhead, but with a few ultra-French villas below the trees—turned downhill to the left, and the houses and shops began to reveal their existence.

At the bottom of the hill the road branched out and became a market-place, not over large, and quite unpretentious with regard to the architecture of its houses; but at a few yards from the church, which bounds the east side of the square, there stands the quaintest of quaint structures. At first we thought it was the local "Octroi," but on examination it proved to be the Hôtel de Ville. These curious municipal buildings are (about) 25 feet long by 12 feet wide by 15 feet high, and of course, architecturally, totally devoid of beauty and appropriateness and dignity, or harmony with the surroundings. Alongside part of the town hall is a covered market, of larger superficial area than the hall itself, and being on the same picturesque principle as that of Richelieu town, is of course vastly more pleasing to the eye.

The west front of the church is rather plain, but its gable is very acute and of noble proportions. When we saw it, some years ago, it was much in need of repai r, especially at the north corner staircase-turret. High up in the gable is a small, plain, circular window, and the west door has a very graceful shallow canopy with elongated pinnacles of the period of FRANÇOIS I. (HENRY VIII.'s time). The interior is short and wide, with no aisles to speak of, and is fitted with benches in lieu of chairs. Somehow they manage processions in the church, but obviously with much difficulty. The choir is lofty, with exquisite glass, and the fittings are bad Gothic or poor Renaissance. The church is, however, well worth a visit. The tracery is mostly uncusped, like that of St. Eustache, Paris, but Gothic in shape. There is no tower, but only a small bell-turret placed diamond-wise at the meeting of nave, choir and transept roofs.

Right against the choir walls are stables and small, hideous, modern houses, so that one cannot get quite round the church outside. This state of things is dangerous for the sacred edifice and unhealthy for the inhabitants of the houses, and it is earnestly to be hoped that those who sit in office at the Hôtel de Ville will, in the interests of all concerned and of architecture, see their way to making a clearance as imperative as it is advisable. A small avenu of diminutive trees in front of the church adds greatly tc the picturesqueness of the spot.

It was on a Sunday afternoon that we visited Limours, and the church was full to the doors. The service was the Renewal of Baptismal Vows by the First Communicants. Singing was hearty, but sadly marred by a dreadful organ—worse even than that of St. Pierre-sur-Dives.

Limours has historical associations. The château, we learn (through the courtesy of M. LE CHEVALIER LELIÈVRE), was built by the Duchess of ETAMPES in 1445. HENRI II. bought it of her, and gave it to DIANE DE POITIERS the ubiquitous, at whose orders a vast apartment, 84 feet by 31 feet, was erected by PHILIBERT DELORME. FRANÇOIS I. passed Shrovetide there to drive away the "ennui" caused him by the death of HENRY VIII. His initial "F" was carved over many of the windows.

The château was sold on April 6, 1623, to RICHELIEU, by LOUIS PONCHER (*not* by Chancellor DE CHIVERNY), soon after the statesman had secured the hat. He immediately spent a large sum of money embellishing it, erecting fountains, statues, &c., and making it a rival to the finest unfortified châteaux in the land. In 1626, however, wishing to be nearer the court when it was at St. Germain, which was only reached with difficulty from Limours, he sold it, on Christmas Eve, to GASTON D'ORLÉANS, brother of LOUIS XIII., with its dependencies (Gometz, Les Molières, Roussigny, Le Jardin), for 375,000 livres. GASTON spent a further sum of 300,000 livres on the furniture and embellishments. At his death on February 2, 1660, his widow, MARGUÉRITE DE LORRAINE, chose it for her residence. Twelve years later it passed to LOUIS XIV., and then to the Princesse DE BRIONNE. It was destroyed in 1800. It stood to the south of the church, only a few paces away, and the grounds, now enclosed by a 7 feet wall, contain a large number of magnificent trees, and a small modern lodge. There was formerly a monastery outside the town to the north-west, but at the Revolution it was suppressed and destroyed—in the name of "Liberty, Equality, Fraternity."

THE OLD UNITY CLUB.

IT is well to choose a good name for anything, and in selecting the word "unity" as descriptive of a club a felicity was secured which helped to light the road to success. The Unity Club flourished in London years back, and its history lends a distinction to the house, 281 Strand, to which Mr. J. W. Palmer has since added in many clever and interesting ways connected with literature and stamp business. Clubs are as individuals. There are your grand folks and your humble ones. In one case it is all glitter and gilding, and in the other it is all cosiness and comfort. The Unity Club aimed at the latter characteristics, as is frequently the case where men of real "grit" are concerned, who look after mental value in preference to outside display. The common-room of the Unity Club must have been a remarkably comfortable chamber, and of course was the scene of endless convivial meetings, in which joined Bohemians who have since risen to eminence, while many of course have gone to that rest in which all of us know the true unity. As the establishment 281 Strand will soon pass away, like the famous literary, artistic, musical and dramatic club so long associated with it, it is well to recall the old days, and especially while some of those whose wit and good-fellowship increased the glory of departed time are left with us. Mr. Palmer himself paid an important visit to the Unity Club about 1872, and as he entered the premises he little thought that some day he would be master of the place, and create a business which was to win a far wider renown than that achieved by the Club to which he then made his first entrance. Yet, in the chamber where he had to interview a famous member, he was to establish a museum of stamps unequalled in the wide world. When the members of the Unity Club cracked their jokes, told their tales and dreamt their dreams, the most vivid imagination among them could scarcely picture that the historic walls would in after years tell such stories of stamp forgeries and show such specimens of man's wicked ways in pictorial art, that a mere look round is enough to make us wonder why clever people are frequently so desperately iniquitous. Yet in the chamber now known as the Forgery Museum met such men as Henry Irving and J. L. Toole, before either had begun to make much impression on the stupendous world of London. No fairy then, perhaps, whispered in the ear of the master of the Lyceum that the Queen of England would make a knight

of him, while Mr. Toole could scarcely think that the hour would come when multitudes of people would inquire so anxiously about his health and eyesight, that daily papers issued bulletins. Verily there were men of genius in the Unity Club who were to stir the world. Among the members was Mr. John Hollingshead, who as manager, author and speculator has won an uncommon reputation. Though in a few years the Gaiety Theatre will disappear, the great days of John Hollingshead's management will not be forgotten, while the fact that he paid 36,000*l.* in rent to the owners of the property is well known to all who read the productions of the prolific pen of the veteran journalist. At 281 Strand also occurred a literary introduction which was to have long and lasting results. Henry Sampson here met Mr. George R. Sims. Sampson was editor of *Fun*, in succession to Hood, the beloved son of the poet who sang "The Song of the Shirt." Mr. Sims was writing verses and little stories, and finding it difficult to get editorial attention. At the Unity Club he was introduced to Sampson, and showed him some of his verses. The editor of *Fun* determined to help the young writer. Thus commenced a friendship which lasted to the death of Sampson, and to-day is a holy memory to the mind of Mr. G. R. Sims. Sampson shortly after the introduction started the *Referee*, and from the first issue till now Mr. Sims has regularly appeared in its columns. Mr. John Jolly Nash, too, the music-hall artist, was a member of the Unity, and no doubt many a night the walls re-echoed to the lively strains of "Sister Mary walked like this." The preceding are but a few of the memories of the Unity Club, now recalled, as the scene of its smiles, successes and disappointments will soon change under the wand of improvement, which has little regard for sentimental memories. Still another point to remember is that under the Museum is the well to which pilgrims came in the dim past. Its character is best suggested by the term "holy well," which name long attached to the street running from Newcastle Street to Danes Inn. But the holy well is nearly forgotten; the Unity Club has disbanded till but very few remember it, and Mr. Palmer, who has held the attention of the world so many years at 281 Strand is now leaving, as the house must go and be but an echo of the past.

SOUTH KENSINGTON MUSEUM.

THE collections of the South Kensington Museum have lately been enriched by the liberality of several gentlemen who have either lent or given their works of art for exhibition.

Sir T. D. Gibson Carmichael, M.P., has sent a varied and valuable collection. Four ivory plaques, dating from the fourteenth century, are of French workmanship, and are most delicately carved in openwork with scenes from the life of Our Lord. Two other plaques from the same set are in the permanent collection of the Museum.

Another very interesting ivory carving is the circular plaque of the Deposition from the Cross. It is probably Flemish work of the latter half of the fifteenth century; some of the figures bear great resemblance to those on the fine Brussels tapestries of that period. The tiny triangular shrine of silver, holding carved ivory figures of the Virgin and Child, with St. John the Baptist and St. Catherine of Alexandria, is decorated at the back with the subject of the Crucifixion on a dark blue enamelled ground. This little treasure is also French work of the fourteenth century. In a frame are two very beautiful portraits of Dante and Beatrice in niello; these medallions date probably from the first half of the sixteenth century and are mentioned by Cicognara in his "Memorie spettanti alla Steria della Calcografia." A flat circular reliquary of silver is also decorated in niello work, with representations of the Resurrection. There are several crystal objects in this collection, but probably the most interesting of them all is the little cylindrical reliquary of rock crystal, carved with a Kufic inscription and mounted in silver gilt of a considerably later date. An Italian rock crystal cross of the fifteenth century is mounted on gilt metal foot with two silver plaques decorated with angels in translucent enamel. At the other end of the case is a beautiful lapis lazuli cup carved in Italy in the sixteenth century; the handle is of pure gold and is in the form of a Triton with a conch. Sir Thomas Carmichael's specimens of metal work are arranged in another case, and first among them should be especially noticed the boat-shaped incense vessel of gilt copper which was formerly in the Magniac collection. It is engraved with compartments enclosing figures of St. Catherine of Alexandria and a sainted bishop. The latter was formerly connected by a copper plate attached by solder and engraved with a similar figure (probably of a successor); this has been removed, and is now fixed on the under side of the lid.

Immediately above this incense vessel is a fifteenth-century bronze of a baby from Florence. By the side of the navette is a very interesting inkstand with plaquettes by Giovanni delle Corniole, illustrating scenes in the history of Coriolanus. At the bottom of the case is an elaborate inkstand, with figures forming a group representing the martyrdom of St. Lawrence. A bronze figure of Chastity trampling on Vice is similar to one on an inkstand by Benvenuto Cellini, formerly in the Borghese collection. Some of the other bronzes are adapted from antiques which were held in high repute by the connoisseurs of the sixteenth century; notably amongst these may be mentioned a bronze head which very closely resembles the famous Medusa Ludovisi and the small figure of the boy extracting a thorn, the original of which is in the Palazzo dei Conservatori, Rome. In this collection there is a manuscript of the rules for the conduct of a school at Florence. The first page is beautifully illuminated with the Holy Trinity surrounded by angels and cherubs; within the initial letter is a figure of St. John the Evangelist. The greater portion of the scrollwork round the border forms little compartments enclosing youthful figures clad in white robes and wearing leafy crowns, probably the students of the school. The third case is filled with Sir Thomas Carmichael's terra-cotta figures from Tanagra, in Bœotia, and from Asia Minor.

Major V. A. Farquharson has lent a most interesting series of gun-locks, a complete history of this portion of a gun through all its developments from the primitive match-lock down to the most finished flint-lock used in the early part of the nineteenth century. Some of these specimens are beautifully decorated and are excellent works of art, notably three flint-locks (Nos. 63, 64 and 65) of Spanish manufacture of about 1680; they are delicately chiselled with floral ornament, monsters and demi-figures. Others are finely engraved, as, for instance, Nos. 39 and 40, made by the Zellners of Salzburg.

Another case is devoted to this gentleman's collection of firearms. Amongst them are weapons by some of the most famous armourers of the time, such as Lazarino Cominazzo, Lazro Lazarino and Caspar Zellner. There are also some specimens of the well-known Highland pistol, many of which are elaborately carved.

Mr. T. Foster Shattock has lent two large pieces of old French furniture of the sixteenth century. The first is a cabinet of walnut carved with terminal figures and with panels of architectural and other ornaments. The second is a buffet with an arcade in front and cupboard and recesses behind. The arcade is covered with an elaborate carving of terminal figures, and the drawers and panels are also carved with strap-work and masks and floral ornament. These two pieces of furniture are exhibited in the tapestry court.

A case in the south court contains Mr. Shattock's collection of small wood-carvings.

First amongst these specimens should be mentioned the seated figure of Vulcan carved in boxwood. On the shelf below are four groups of the Evangelists, apparently carved for some shrine or altar-piece. One of the treasures in this collection is the conventional lion-mask with wings on either side and horns above. In the centre of the case is a walnut panel from a French cabinet of the sixteenth century; it is carved with a figure of Minerva beneath a pedimental canopy which is surrounded by leafy stemwork and cherubs.

There are many other carvings in this case which are of great interest and show to what skill the craftsman in wood-carving could attain.

Mr. J. Fletcher Moulton, Q.C., M.P., has lent a small but valuable collection of so-called Rhodian and Damascus wares. The large mug is of peculiar interest because of its rare salmon-coloured ground, which is covered with floral decoration. The little mug with sloping side and square-shaped handle has a diaper pattern on the magnificent red ground. In the same case is a fine tall bottle painted in blue, green and red, with hyacinths and other flowers. Two fine tiles, with olive-green leaves and blue flowers, probably come from Damascus and form part of a large slab, of which the Museum already possesses three tiles.

Mr. Fletcher Moulton has also lent a small collection of metal work, including a silver-gilt bénitier in repoussé work, bearing the Paris hall mark for 1725-26, and a silver jug emblematic of Abundance, designed by J. C. Delafosse and figured in his "Nouvelle Iconologie Historique." This piece is stamped with the marks of H. Clavel, Farmer of the Duties, 1783-89. A bronze figure of Hercules of the same owner is attributed to Gian da Bologna.

Mr. Henry Wallis has lent a small collection of old Italian pottery, probably made in Tuscany before the sixteenth century. The specimens are for the most part drug vases which were used in the pharmacies attached to monasteries and houses of noble families. This collection is very valuable to the student of Italian majolica, as it illustrates very well the beginnings of this art, which was to culminate a little later on in the magnificent wares in which the Museum is so rich.

During this month the section of textile fabrics in the Museum has received a most important and interesting gift from Miss Smithies and Mr. W. T. Smithies, of Manchester. This lady and gentleman have greatly interested themselves in the manners and customs of the inhabitants of Peru before the

Spanish conquest in the sixteenth century. Mr. Smithies has recently arrived from Lima, and has brought with him a very large collection of objects taken from the graveyards in the neighbourhood of that city. In this collection were many fragments of robes and shrouds; these he has given to the Museum, and they are now temporarily on view in the tapestry court.

The work closely resembles in execution the garments which have been found at Akhmin, in Egypt, inasmuch as some are decorated with tapestry work and others in embroidery. The garments, however, from Peru are made of cotton, whilst those from Akhmin were for the most part of linen; the decoration in both cases is of worsted. The patterns of both series bear a certain resemblance to one another. The Museum did not possess before any of these fragments, and the thanks of all are due to Miss Smithies and Mr. Smithies for this very interesting collection, which forms a most valuable link in the history of the textile craft.

The Museum has just acquired a small but very interesting collection of newel posts; they have been obtained at Brussels and come from houses of the last century which had recently been demolished.

The posts are for the most part of oak and are carved with the ornament usually seen on woodwork of that period, such as festoons, rosettes and acanthus leaves. These newels must have been the ordinary form in use on staircases in houses in Brussels, as the museum in that city possesses quite a large collection of them. These specimens of house decoration are exhibited in the furniture corridor.

AN ARCHAIC CHARIOTEER.

THE situation of Delphi, says a correspondent of the *Manchester Guardian*, is one of the most striking and sublime in all Greece; it lies in the narrow vale of the river Pleistos, being bounded on one side by Mount Parnassus and on the other by Mount Kirphis. Shut in on all sides from the rest of the world, it could not have been seen by any of the numerous pilgrims who visited it until they had crossed one of its rocky barriers, when all its glories would burst suddenly upon their view. For centuries past these glories had been hidden by decay and ruin and the superimposition of the soil and débris incidental to rough human occupation. Thanks, however, to French excavations of its site, carried on for many years at vast expense, the rejoicing traveller who remembered it in its time of disfigurement and desolation may now find enough of recovery and restoration to suggest to him the natural and acquired splendours of the place at the period when the treasures of its temple attracted the cupidity of the divinely discomfited Xerxes. After negotiations extending over four years, the French School at Athens obtained in 1891 a ten years' concession from the Greek Government of the right to excavate the site of the famous sanctuary of Apollo, then covered with the modern Greek village of Castri, whose inhabitants had to be bought out as a necessary preliminary to the excavations. Another village, nearly a mile distant from their former homes, had also to be built for the accommodation of the people so dispossessed. The excavations have resulted in discoveries of extraordinary interest, mostly of objects which throw light upon the art and life generally of the remote period before the Persian wars. The appearance of the broad Sacred Way, which winds circuitously to relieve the steepness of the acclivity from the gateway up the hill is now, as restored by the taste and industry of the French, and as compared with memories of the same site before the operations, at once a delight and a marvel. Its pavement of large rectangular slabs and its other treasures, including at its lower extremity the semicircular bases which bore the statues of early Argive kings, are now again suggested, if not completely revealed, along with the marble seats with which it was flanked for the accommodation of aged or other infirm persons who desired to witness the processions on their way to the Temple. The reward of the French explorers, by a compact akin in its conditions to those which characterised an analogous concession to the Prussian Government with regard to Olympia, consists chiefly of casts and photographs, the originals of which are preserved *in situ*, unless a chance discovery of duplicates should entitle them to the appropriation of one of the originals. How large these may still be for the recompense of fortunate discovery, and in spite of the ravages of time and other despoilers, may be understood from the circumstance that in its heyday a visitor entering the sacred enclosure from the eastern side would find his attention first attracted by the all but countless statues of athletes and other dedicatory offerings. Even in Pliny's time they numbered not less than 3,000, and Nero alone is said to have carried off 500 bronze statues. One of those which he did not take away remained to be unearthed in the course of the French excavations, and a cast of it from the bronze original has just been presented by the French Minister of Public Instruction to the Trustees of the British Museum, in the Archaic Room of which it is now appropriately exhibited. It is a full-length statue, being over 5 feet 10 inches in height, of a charioteer, whose youthfulness is indicated by the slightness of the budding whiskers, which are scarcely more than a suggestion; and whose features, notwithstanding that they are the counterfeit presentment of what was flesh and blood nearly 2,400 years ago—the era of production ranging between 482 and 472 B.C.—including the somewhat full lips, sub-sensuous but not unrefined, might be seen exemplified amongst the young manhood of the Hellenic cities of the present generation. The hair is close, crisp and curly, lying flat on the head as if under a skull-cap, and is confined by a fillet loosely tied behind, from which short straggling curls emerge between the temples and the forehead. The figure is perfectly erect and reposeful, as if not yet affected by the stress and excitement of the race, which would seem to be not so much begun as on the eve of beginning. The feet, which are close and parallel to each other, "toe," so to speak, the same line, neither being in advance of the other. The right arm, which alone of the upper limbs continues perfect, is held out horizontally and at right angles to the body of the figure, and the right hand and the fingers of the same are vividly calculated to suggest the holding of the rein which had once been under manipulation; whilst the direction of the stump of the left arm, which is truncated halfway between the shoulder and the elbow, indicates the holding of another rein by the hand which is no longer extant. In conformity with the art conventions of the place and period, the dress of the charioteer is that of a girl or woman, whose long chiton or tunic from the girdle downwards falls at once limp and corrugated to within 6 inches of the ground, so exposing the ankles as well as the feet. It is the combination of the minute gracefulness of the archaic times before the period of Pheidias with the extraordinary vitality of the feet and the right arm and hand that actually imparts to these extremities a life-like character which it would be difficult to rival by anything in the Parthenon. Fragments of the horses were found with the statue, as well as an accompanying inscription of two lines in verse. These lines are incomplete, but the name occurs of Heiron of Syracuse, and this identifies the charioteer as having been concerned victoriously in a race in which the munificent Sicilian king was interested, and which may have formed the subject of an ode by Pindar or Bacchylides, of both of whom Heiron was the patron.

DEMOLITIONS IN VENICE AND FLORENCE.

THE late Italian correspondent of the *Times* writes:—The interest shown by the English public in the question of the Florentine demolitions induces me to offer you a brief history of the precedents of the ways and works amongst antiquities in Italy which may perhaps contribute to a more intelligent use of the moral influence Englishmen always have in Italy if they do not cross too much the grain of public feeling of the Italians. The demonstrations of interest in the old buildings in the peninsula by us have not always been such as to conciliate that feeling, and it is beyond question that the denunciations of Italian operations have sometimes had precisely the opposite effect from that intended, because they were uttered in ignorance of the circumstances. At present we have two important objects of interest—the operations at Florence and the Ducal Palace at Venice—with regard to which we are in danger of confusing judgment and wasting our sympathy. Nearly twenty years ago we had a similar crisis on the same grounds, and as I was, as some of your readers will remember, *magna pars* in the very bitter controversies which arose, perhaps I may be of use in putting things clearly and saving words and ill-feeling.

At that time the subjects of controversy were the Ducal Palace and St. Mark's, and the restorations of the Duomo in Florence, the latter followed a little later by the expurgation of the centre in the same city. I will consider them separately and in that order. The restorations on the Ducal Palace and St. Mark's were a continuation of those begun by the Austrians in 1840, and were indispensable to the stability of the buildings in question. Both had been disfigured by balks of timber which concealed in great measure the architecture, and the inevitable fate of both was to fall into the Piazza in masses of ruin if something were not done to strengthen the substructures. I then defended, and not unsuccessfully, in the *Times*, the work being done in Venice, against the denunciations of William Morris and his friends, who, it seemed to me, preferred to see St. Mark's a picturesque heap of ruins and the Ducal Palace tumbling into the Piazzetta, to seeing them restored to their original design. My defence of the work on the Ducal Palace conciliated the public feeling in Venice, and the work was carried on with even general foreign approbation until the south and west façades were restored to their original.

appearance and given a solidity they had never possessed when new. The eastern wall, that toward the Bridge of Sighs, was then settling and cracking in the most menacing manner, and was shored up and the arches filled with timbers to prevent its total collapse, until the architect of the other restorations should be free and provided with funds for its restoration. At this moment the crisis came on, the local jealousies of the architects came in, and old Vendrasco, the master workman of the Ducal Palace, was dismissed to make way for the architect of the municipality, the restorer of the Fondaco dei Turchi, the ghastly monument of his own incompetence and the barbarous taste of the Venetian municipality, and the Ducal Palace remains in statu quo, the whole eastern façade sinking into the narrow canal. The good work done was to the credit of the Ministry of Public Instruction, the stoppage and incompetence to that of the municipality, as has generally been the case throughout Italy, where incompetence and corruption find their warmest nest in the municipalities. Meanwhile, St. Mark's, restored, as far as is humanly possible, to its integrity, is sinking en masse into the mud, and until it disappears will delight the world.

The case in Florence was entirely different. The centre, a conglomeration of old and historical houses with accretion of slight and more or less substantial structures of succeeding centuries, a picturesque but insanitary huddle, full of corners for a painter and provocations of disease, demanded sanitation and demolition. Such houses as had a genuine historical value were ultimately isolated and preserved, but the filth and dilapidation cleared out. The artists howled, but common sense approved. But, on the other hand, the completion of the façade of the Duomo was near, and offered a temptation to the municipality to offer a spick and span new cathedral to the public gaze, and scaffolds were erected to hide the work, while the workmen washed the sculptures of the Pisani and their contemporaries with strong acids until the old weather-toned surfaces were eaten away, when the marble-cutters rechiselled them, and would, had they not been interrupted, have given us a cathedral as bright and new as a bridecake against the day of the unveiling of the new façade. To this end the municipality and population urged with all their enthusiasm, and with a taste and ambition which reappear in the intention to demolish the Ponte Vecchio, and cut some fine new streets through the most historic quarter of the city. At that moment a friend, the editor of the *Cornhill*, asked me for an article on the Italian restorations, and I recounted what they were doing to the Duomo, with the result that the article fell under the notice of the Ministry of Public Instruction, and a telegram suspended all work on the Duomo. A provision of Italian law, which might well be imitated by other countries, puts all buildings declared to be public monuments under the custody of the Ministry of Public Instruction, and makes them inviolable until a Ministerial order is issued for any work necessary to preserve them.

The proposed operations in Florence fall in both categories of work—the Ponte Vecchio and all the buildings on it were, notwithstanding all the denials of to-day, proposed for demolition as long ago as when I was in Florence, on the ground that the piers of the bridge obstructed too much the flow of the river, but really because the municipal taste of Florence preferred a graceful suspension bridge, and somebody saw a job, probably. The Ponte Vecchio was easily declared a public monument and intangible, as I have reason to believe it has been. I have personally been instrumental in preserving several important structures from destruction by pointing them out to the Ministry as intended for demolition or restoration, as notably the exterior pulpit of Donatello at Prato, which was scaffolded for renewal on the lines of the renovation of the Duomo of Florence and the garden of the British Embassy, and any intelligent traveller who finds an ancient structure menaced with destruction would render a similar service to the Ministry by calling its attention to the danger. But the new streets which it is proposed to cut between the centre and the Ponte Vecchio cannot be prohibited by the Ministry, except so far as historical houses may be menaced with demolition. The proposed works are absolutely senseless and are only required by the crude desire for modern improvements, and the taste which ordered the renovation of the sculptures of the Duomo, for the prevention of which I was at the time cursed by nearly the entire population of Florence. I fear that no pressure on the tasteless municipality will prevail, unless it be so loud and so long as to startle it into some sense entirely novel of the existence of an outer world which is important to the prosperity of the city. When we can make the Florentine shopkeepers understand that they are going to drive foreigners away from Florence with their renovations we shall put a weight on their consciences. An appeal to the royal Government made by the Italian signers of the remonstrance against the needless expenditure by a lately and still practically bankrupt city might weigh, but I fear there is no hope to be based on the good taste of the majority of the population or the municipality it has elected.

DUNFERMLINE ARCHÆOLOGICAL SOCIETY.

THE session of the Dunfermline Museum and Archæological Society was opened on the 19th inst. by Mr. Macgregor Chalmers, who delivered a lecture in the museum, Carnegie Library Buildings, on the "Abbeys and Cathedrals of Scotland." Mr. Beveridge, the president, occupied the chair.

Mr. Chalmers carefully traced not only the evolution of the general plan of our ancient ecclesiastical foundations, and the development is very clearly to be noted in Scotland before the inflow of the Norman art at the end of the eleventh century, but he also traced the gradual changes which took place in the decorative details of the structures from the earliest times until the Reformation. Towards the close of the lecture an earnest appeal was made for more careful examination of the charge of demolition of the sacred edifices laid against the Reformers. Many illustrations were given where the buildings themselves proved that the charge was false. In the case of Dunfermline Abbey it was shown that whilst, from some cause not clearly known, the abbey buildings had been in part ruined about the time of the Reformation, not many years later very large works of repair were carried out, the evidence of which still remained. A better understanding of the Reformers' true attitude towards the ancient and beautiful fabrics would doubtless lead to a more widespread attitude of sympathy towards those who called for a larger and more generous spirit of sacrifice in the desire to have the House of God made more worthy of its sacred purpose.

At the close of the lecture Mr. Chalmers was awarded a cordial vote of thanks.

EDINBURGH ARCHITECTURAL ASSOCIATION.

THE following prizes have been awarded by this Society:—The Hon. President's prize for three designs—P. E. Nobbs; the summer's work prize, presented by J. A. Morris—J. Hervey Rutherford; the President's prize, façade design—Ramsay Traquair; the Vice-President's prize, entrance gates design—P. E. Nobbs. The following office-bearers have been elected for the year:—President, Mr. A. Lorne Campbell; vice-president, Mr. Alfred Greig; treasurer, Mr. John Matthew; librarian, Mr. T. A. Patterson; joint hon. secretaries, Messrs. P. E. Nobbs and Andrew Muir.

TESSERÆ.

Eastern Monasteries.

NO one will pretend to compare on the whole the monasteries of the East with those of the West—the influence of the former, whether we look to religion, to literature, to science, to art, or to the political arrangements of society, has been very inferior to that which all historians recognise in the other case. But still the Eastern monasteries deserve more attention than has fallen to their share. Their troubled history too well explains why, from a very early date, they all assumed the character of fortresses. Everywhere, from the morasses of Moldavia to the cataracts of the Nile, from the vale of the Peneus to the mountains of Kurdistan, they have been and are castles. Sometimes they are found hanging like birds'-nests or bee-hives on some shelf in the face of an enormous precipice, accessible only by pulleys or ladders. Not uncommonly they occupy the summit of an isolated pillar of rock rising hundreds of feet sheer from the pass. In flat regions, where violence has been rife, as in Egypt and Mesopotamia, the whole is enclosed within a high dead wall—with no windows outwards, except perhaps in some wooden gallery or wicker cradles that top the massive battlement, and may be removed with ease, or destroyed without serious inconvenience. If by such means they can baffle external assault, their own hereditary feelings insure a most sacred watch over whatever is enclosed within, and can be in any degree appreciated by the community. If a chapel, a refectory, even a kitchen or a cellar requires repair, it is restored with the most anxious precision, and all trace of the modern hand is very soon indistinguishable. It is the same with every painting—a careful pencil is always ready to freshen the least spot of decay or dimness—and such as they were a thousand years ago or more, such are they at this hour. The artists are servilely mechanical—they have sets of rules many centuries old, with pattern tints for every object of detail, and by these they guide themselves from generation to generation, as scrupulously as if the most serious duty of religion were concerned. Their shrines, reliquaries, chalices, every article in metal, the carved and embossed frames of pictures and boards of holy books, have in many instances come quite unharmed through all the chances of twelve centuries. The MS. charters and books themselves are often of equal antiquity, and but for the unhappy device of the

palimpsest and the utter ignorance of the more modern monks, we might not unfairly hope for the recovery among their tranquil shelves of all those treasures which were accessible, it seems as but yesterday, to the grammarians and epitomisers of the Byzantine school.

Gold and Silver.

Various alloys will bear various degrees of bending, hammering and drawing through successively diminishing wire plate holes; after which, if you drive them to extremities, the wire snaps, the lump bursts and the strip cracks. But if, before these recalcitrant phenomena supervene, the metal is annealed, it will undergo afresh just as much hammering, bending and drawing as before. The snaps of clasps are hammered thus to what is called "a spring temper." Hamlet's "unannealed," as applied by the ghost to the unprepared state of his spirit, is a metaphor taken from the potteries. Annealing in that trade means preparing by gradual heat to be put into the furnace without danger of cracking. Workmen call it "nealing." Persons whose only acquaintance with metal-work is derived from the blacksmith's shop, naturally imagine that the precious metals are forged like iron during red heat. On the contrary, gold and silver are brittle during heat. The ductility, pliancy and malleability of these metals depend on the squeezableness of their particles when cold. Though matter be impenetrable, pressure can not only wedge the granules together as closely as their shape will allow, but by modifying the shape of the granules may render them more packable. Just as in a hive, the naturally cylindrical cells are by mere collateral pressure (without any mathematical design on the part of the little architects) squeezed into hexagonal tubes. Heat probably expands the separate granules into their normal shape—to admit of which process their cohesion must be somewhat relaxed—hence, perhaps, the brittleness. The peculiar malleability of iron and platinum under heat is due, probably, to a capacity for a sort of sluggish semifusion, as is seen in welding, when the metal surfaces unite without the intermediation of solder.

Reynolds and Bonomi.

In 1790 Sir Joshua Reynolds was anxiously desirous to procure the vacant professorship of perspective in the Royal Academy for Bonomi, an Italian architect; but that artist not having been yet elected an associate was of course no academician, and it became necessary to raise him to these situations in order to qualify him for being a professor. Gilpin being his competitor for the associateship, the numbers on the ballot proved equal, when the President by his casting vote decided the election in favour of his friend, who was thereby advanced so far towards the professorship. Soon after this an academic seat being vacant Sir Joshua exerted all his influence to obtain it for Bonomi, but finding himself out-voted by a majority of two to one, he quitted the chair with great dissatisfaction, and next day sent to the secretary of the academy a formal resignation of the office which for twenty-one years he had filled with honour to himself and his country. His indignation, however, subsiding, he suffered himself to be prevailed upon to return to the chair, which within a year and a half he was again desirous to quit for a better reason.

Da Vinci and Modern Art.

Vasari designates Leonardo da Vinci as the founder of a manner which he agrees to call the "modern manner." The terms sound strangely misplaced as applied to a painter who came into the world above four centuries ago. Yet, if we consider, we shall find the real line of demarcation between a period in art which went before him, and another which is not gone yet, to consist in his works. We must not look at his "Vierge aux Rochers," beautiful as it is, for that still belongs, with its fantastic background, to a foregone mode of conception. We must rather point to the great "Last Supper," familiar to every cultivated eye by the fine engraving, and of which we possess the best version in the world in a contemporary copy by Marco d'Oggione, one of his pupils, which belongs to the Royal Academy. What is there in that "Last Supper" which we do not aspire to still, or which we have in any way outgrown? What is there that is crude, peculiar, or old-fashioned? What beauty that it does not develop, or what promise that it does not fulfil? It remains still the type of just conception, glorious drapery, faultless expression, and, we have no doubt, originally exquisite execution. It is the "moderna maniera" still, and there is nothing new to us in it to this day except its excellence. This great work, which, in its original elements, has long perished from off the face of the convent wall, but the arrangement of which every English child of average observation knows by heart, was completed about the year 1495, in the prime of his manhood, when Michel Angelo was twenty-one, Titian eighteen, Raphael twelve, and Correggio one year old. Who shall limit what it has done for the world? The time is past when pictures by Leonardo da Vinci are talked about at every corner, as if he were to be had, like any other master, for money. Nevertheless, there is one period of his unceasing activity which has never been satisfactorily accounted for in his works—when he ceased to be the scholar and had not begun to be the master. All writers repeat the tradition of his scholarship having terminated with the painting of the angel in Verocchio's picture of the "Baptism of Christ." It would be hard to assign the precise date of that event, but there can be no doubt that a genius so advanced, and, like all such, far less fastidious in youth than in riper years, must have thrown off many a picture between the days of his pupilage and the age of thirty, when he removed to Milan. Although, therefore, as Nagler observes, "it would be difficult and daring to point out works belonging to that time," yet there is much probability in Waagen's conjecture that certain pictures miscellaneously ascribed to his scholars, or, in cases more wide of the mark, to other masters, were executed by Leonardo da Vinci himself in this intermediate period.

The Temple of Jupiter Serapis.

The remaining columns of this temple exhibit a very remarkable appearance. Three pillars 42 feet in height, up to about 12 feet above their pedestals, have the surface of the marble as smooth as any in the Forum, then comes a portion of 9 or 10 feet of which the marble has been bored, drilled in all directions, by that persevering bivalve the *Lithodomus*; the perforations are so considerable and go so deep as to prove "the long-continued abode" of these animals within the stone, and by consequence, as Lyell observes, "a long-continued immersion of the columns in the sea at some period recent, comparatively, with that of its erection." Indeed, there is abundant evidence adduced in his "Geology" to show that all this ground was at a no very distant period under the sea, like Monte Nuovo in its neighbourhood, and was thrust out of the water to its present level. When the ground on which this temple stood collapsed, the bottom part of its columns was protected by "the rubbish of decayed buildings and strata of turf," the middle or perforated part was left exposed to the action of the sea bivalves above alluded to, and the upper part, which was never under the water, remained smooth and free from perforation. But these columns not only prove by internal evidence the general fact of the ground on which they stand having been submerged—they also furnish an exact measure of the degree to which it sunk, viz. 20 feet—*i.e.* the height where these perforations terminate at present. One can only cross the floor of this building on stepping-stones, and shoals of small sea fish are seen darting about in the shallow water which occupies its area, into which the sea has been admitted on purpose to prevent the accumulation of the stagnant water that had infected this particular spot with intense malaria.

Mind's-Eye Views of Greece.

Superb scenery is exhibited by a view from the mountains Olympus and Ossa. The great Olympian chain forms a line which is exactly opposite to Salonica, and even the chasm between Olympus and Ossa, constituting the defile of Tempe, is here visible. Directing the eye towards that chain there is comprehended in one view the whole of Pieria and Bottiæa, and with the vivid impressions which remain after leaving the country, memory easily recalls into one mental picture the whole of Greece. Every reader may not duly comprehend what is meant by this, but every traveller who has beheld the scenes to which allusion is made will readily admit its truth; he will be aware that whenever his thoughts were directed to that country the whole of it recurred to his imagination as if he were actually indulged with a view of it In such an imaginary flight he enters, for example, the defile of Tempe, and as the gorge opens to the south he beholds all the Larissian plain. This conducts him to the fields of Pharsalia, whence he ascends the mountains south of Pharsalus; then, crossing the bleak and still more elevated region extending from these mountains towards Lamia, he views Mount Pindus far before him, and descending into the plain of the Sperchius, passes the straits of Thermopylæ. Afterwards, ascending Mount Œta he beholds opposite to him the snowy point of Lycorea, with the rest of Parnassus and the villages and towns lying at its base; the whole plain of Elataia lying at his feet, with the course of the Cephissus to the sea. Passing to the summit of Parnassus he looks down upon all the other mountains, plains, islands and gulfs of Greece, but especially surveys the broad bosom of Cithæron, Helicon and Hymettus. Thence, roaming into the depths and over all the heights of Eubœa and Peloponnesus, he has their inmost recesses again submitted to his contemplation. Next, resting upon Hymettus, he examines, even in the minutest detail, the whole of Attica to the Sunian promontory; for he sees it all—and all the shores of Argos, Sicyon, Corinth, Megara, Eleusis and Athens. Thus, although not in all the freshness of its living colours, yet in all its grandeur, doth Greece actually present itself to the mind's eye—and may the impression never be obliterated.

NOTES AND COMMENTS.

The venerable saying, "There is nothing new under the sun," is again verified in the case of acetylene gas. It is commonly supposed to be a discovery of our time. But Professor Vivian Lewes has shown that more than sixty years ago (March 1836) it was described and its properties demonstrated by Sir Humphry Davy's brother, Edmond, who was professor of chemistry to the Royal Dublin Society. He brought the subject before a larger audience in the same year, for at the Bristol meeting of the British Association he read a paper upon it and the method of production, showing that when the metal potassium was made by heating a mixture of calcined tartar and charcoal in a large iron bottle, a black substance was frequently formed which was readily decomposed by water and yielded a gas which we now know as acetylene, but which he at that time christened bicarburet of hydrogen. It was in this paper that the author pointed out that from the brilliancy with which the new gas burnt in contact with the atmosphere it was admirably adapted for the purpose of artificial light if it could be produced at a sufficiently cheap rate. The name of the gas afterwards was "klumene" and then "acetylene." It had, however, no commercial interest until calcic carbide could be produced at a cheap rate, but as the gas is now easily obtained it has a great future in connection with lighting.

The Baroness Hirsch having presented 2,000,000 francs to the Institut Pasteur, the Council resolved to erect an annexe for biological studies. It is practically equivalent to an additional institut. The work was entrusted to M. Brebant, who has proved his competence by the beautiful memorial chapel as well as by the thoroughly efficient ranges of laboratories, consulting-rooms, &c. Efforts are being made to have the new buildings completed by the end of 1889. During the exhibition year many foreign physicians and surgeons are expected to visit Paris. Arrangements will be made to enable them to understand all the operations and experiments which take place at the Institut. The new buildings, of which M. Duclaux will have charge, will be used for several interesting congresses.

It was supposed that the memorial of Charles Garnier would consist of a reproduction of the bust of the architect surmounting an ornamental pedestal or other support. In fact, M. Pascal has made no less than eight designs for a memorial of that kind. Owing, however, to the liberality of the subscriptions, it is considered that a larger sum of money will be at the disposal of the committee than was anticipated. There is consequently a desire that a statue should be commissioned. There is a portrait of the architect by his friend, Paul Baudry, which would serve a sculptor's purposes, especially as Charles Garnier was well known to many sculptors. But a statue revives the difficulty of obtaining a suitable site, for Charles Garnier would not approve of one being placed in front of the Opera House, and a position at the side of the building is better adapted for such a memorial as was originally contemplated than for an isolated figure in marble or bronze.

Several portraits have recently been presented to the National Portrait Gallery. One is a small bronze bust of Prince Charles Edward Stuart, on a porphyry pedestal, brought from Italy in the latter half of the eighteenth century by Edward King, the antiquary. It was presented by Mr. William Aldis Wright, vice-master of Trinity College, Cambridge. The second is a small portrait painted in oils by Samuel Laurence of Jane Welsh Carlyle, the wife of Thomas Carlyle, presented by Major-General J. B. Sterling. A pen and ink sketch by W. Behnes, the sculptor, of Sydney, Lady Morgan, was presented by Mr. F. Draper. A portrait of Alexander Pope, the poet, painted by Sir Godfrey Kneller, was given by Mr. Alfred A. de Pass. A cast from a posthumous bust by Francis J. Williamson, of Alfred, Lord Tennyson, is a gift of the artist. The Rev. Francis Warre has given a small portrait in oils by E. Beresford of William Carr, Lord Beresford. The trustees have purchased a portrait of Admiral Sir George Rooke, K.B., the captor of Gibraltar, painted by M. Dahl, and a portrait of Joseph Mallord William Turner, R.A., drawn in coloured chalks by Charles Turner, the engraver.

At the beginning of the century the church of Malmesbury Abbey was one of the most neglected of the English Mediæval buildings. Carter was told when he visited it in 18c2 that it was not cleaned during ten years, and he was able to testify that "the accumulation of rubbish in the aisles and pews was not only great but offensive." The south aisle was used as an engine shed. In an architectural sense the abbey is interesting, for if we may draw an inference from what William of Malmesbury wrote, it was one of the earliest examples in this country of fine pointed masonry. He tells us that the courses of stone were so correctly laid as to cause the spectator to imagine the whole wall was a single block. From time to time efforts have been made to restore the building, but time is not to be kept inactive and the need of further works is urgent. At a recent meeting the vicar, the Rev. G. W. Tucker, proposed that the necessary works should be divided into three sections. In the first section will be comprised whatever is necessary to put the part of the present building used as a church into a thorough state of repair, the cost being roughly estimated at from 5,000*l.* to 6,000*l.*; the works of the second section are intended to prevent the ruined parts from falling into further decay, the approximate cost being 5,000*l.*; while in the third, if funds permit, will be the rebuilding of the three ruined bays of the nave at a further probable cost of 10,000*l.*

The present Minister of Fine Arts in Italy, Signor Baccelli, is an enthusiastic lover of archæology, with a predilection for the Forum Romanum in Rome. Apparently, he is desirous to have his name associated with that memorable spot. If funds were to be obtained he would not only continue excavations in the most systematic manner, but bring together all the remains which are now scattered through the city although originally derived from that centre of Roman greatness. A special commission has been appointed by him to investigate and report, with Signor Boni, the architect, as the guiding spirit. Explorations have been commenced at the Ædicola in the Via Sacra. In the Temple of Vesta a subterranean passage was discovered of which the purpose is not clear. Alongside the Basilica Giulia was at one time a row of statues on pedestals, and the Minister has had a view prepared to suggest the appearance of that part of the Forum. At the site of the temple dedicated to the "divus Cæsar" the remains of a pedestal were discovered, which is supposed to have formed a part of the memorial erected where the body of the dictator was cremated. The evidence of a medal would prove there was a great statue of Cæsar in the portico of his temple.

In a letter to one of his daughters, dated June 1859, Charles Dickens, who was then engaged in improvements on his little estate at Gadshill, wrote:—"One of the balustrades of the old Rochester Bridge has been (very nicely) presented to me by the contractors for the works, and has been duly stone-masoned and set up on the lawn behind the house. I have ordered a sundial for the top of it, and it will be a very good object indeed." At the sale of the property the sundial became the property of a Mr. Creighton, of Rochester, who set it up in his garden, and had the following inscription engraved on the column:—"These relics from Gadshill Place and old Rochester Bridge are placed here in sincere regard for Charles Dickens." Although in a legal sense the column and dial should be considered a fixture, they appear to be destined to a wandering existence. They were sold by auction in London a few days ago for 50*l.* 10*s.*

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: GENERAL VIEW.

ROXBURGH MANSIONS, KENSINGTON COURT, W.

CHURCH AND SCHOOLS, PORT SUNLIGHT, BIRKENHEAD.

CHURCH, UPPER RICHMOND ROAD, PUTNEY.

SUMMER HOLIDAYS AMONG FRENCH CATHEDRALS.

By the Author of "Ecclesiologia Germanica," &c.

(*Continued from page* 411.)

VII.

Le Mans and Tours.

DEJEUNER concluded, we bethink ourselves of going to the cathedral to hear the afternoon offices, and shortly before two start off; but after sitting in the nave for more than half an hour, and not a singing man or canon putting in an appearance, we quit the church for a country ramble among the English-looking lanes bordering the river. Evidently the matutinal and postprandial offices are not sung at Le Mans.

Just as we leave the outskirts of the city we are overtaken by a funeral procession on its way to the cemetery. So intense is the afternoon heat that the tapers carried by the little acolytes on either side the silver crucifix are describing elongated semicircles, while the long train of followers, mostly women under umbrellas, are "lagging, tired with the length of the way," like the 200 ladies at Anne of Denmark's funeral, "a drawling dolorous sight."

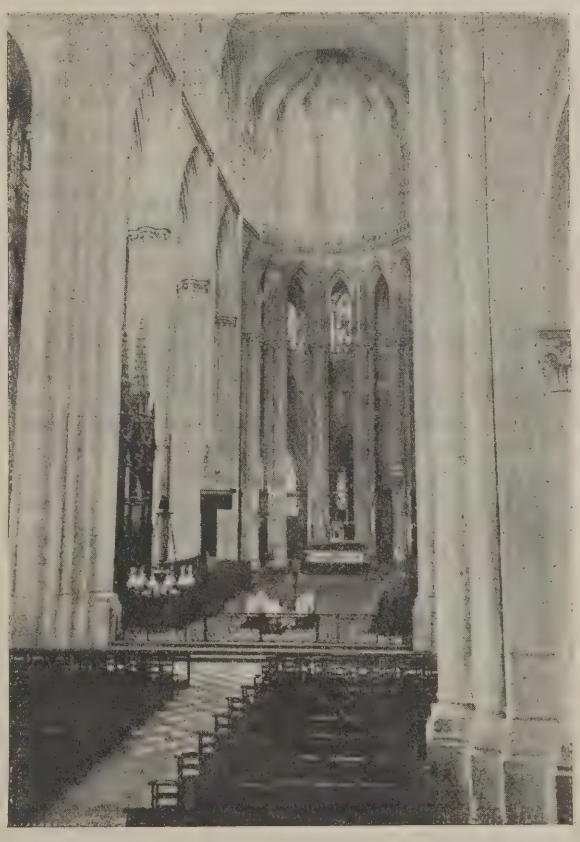


Le Mans: Interior of Notre-Dame de la Couture.

Rambling on without any definite object in view, we arrive shortly at some picturesque mills—the Bishop's Mills—situated on the Sarthe, and approached from the road where we now are by a wooden bridge, on which stands a prepossessing café. Keeping this house of entertainment in our mind's eye, we cross this bridge and continue our ramble along the road bordering the opposite bank of the Sarthe, whose verdant meadows fringed with polled willows invite repose. Another short walk and we reach the small village church of St. Pavage—a mere barn, like some of the little old Welsh chapels, but striking from the contrast it offers to the soaring choir of the cathedral, plainly seen athwart the trees from the peaceful little "God's acre" where we sat to rest awhile. The return walk to Le Mans is agreeably broken by a bath and a brisk walk back to the rustic balconied café, whence the view looking up the river terminates in the long, low Romanesque nave and lofty choir of St. Julien. The situation is really so enchanting that we bespeak a *déjeuner à la fourchette* for the next morning, intending to bring our books and writing materials, albeit we had intended quitting Le Mans at an early hour for Tours, but as we have no one but ourselves to consult, we are able somewhat to adopt Montaigne's method of proceeding:—"S'il fait laid à droite, je prends à gauche; si je me trouve mal propre à monter à cheval, je m'arreste. . . . Ay-je laissé quelque chose derrière moi, j'y retourne: c'est toujours mon chemin, je ne trace aucune ligne certaine, n'y droicte n'y courbe."

Another delightful walk through lanes with blackberry-laden hedges brings us back to Le Mans just in time to see the sun dye with gorgeous hues the delicate shafts of the choir arcade, leaving the matchless double aisles in a profoundly awful gloom.

The first item in the programme of our second day at Le Mans is a visit to the singular church of Notre-Dame de la Couture, *i.e.* de cultura Dei. In the stillness of early morning several Low Masses are being celebrated here. A very largely attended one is going on in the chapel opening out of the south transept. In the one opposite there is no congregation whatever beyond an old woman. The chasubles worn are black and of board-like appearance, the same colour we find being used at St. Julien des Près, so we presume that these are *Messes des Morts*. At the subsequent Canons' Mass at the cathedral the celebrant and his assistants are vested in violet for the Vigil of St. Laurence.



Le Mans Cathedral: the Choir.

Although it has suffered grievously from injudicious restoration, Notre-Dame de la Couture presents many features of more than ordinary interest. We will take the interior and the oldest part of the interior first. This is the choir, which, like that of St. Julien des Près, loses much of its real height from the presence of a crypt which runs under it in its central portion, and at the top of whose steps stands the high altar, just under the arch leading into the choir. The encircling arcades are very simple and severe, strongly recalling our St. Bartholomew's

Smithfield, and St. John's Chapel in the White Tower. The true height of the plain round columns can only be seen from the choir aisles, whence, right and left, steps descend into this crypt, which receives partial light from some windows "giving" on to the choir aisles, it not being thoroughly subterranean. The Romanesque windows of the choir clerestory have been replaced by Decorated ones, filled with questionable stained-glass—a great blemish on this otherwise perfect interior. The high altar at La Couture, standing, as we said above, at the summit of the crypt steps, and therefore attaining an air of unusual dignity and importance, is of modern Byzantine workmanship, and has in lieu of antependium a row of small figures within arcades. Behind the tall crucifix and candles, all carrying out the same design, is a low reredos with arcaded figures. In the space behind are the choir-stalls and organ.

The circumambient aisle chapels are, many of them, very beautiful. Singularly, the eastern chapel is square-ended. It is Early Decorated, and has an east window of four lights filled with good, bright, modern stained-glass. The side windows are of two lights.

Perhaps the gem of this church is the chapel of the Sacred Heart in the north ambulatory, from which the most fascinating views are to be had across the choir and transepts. Here is a large Renaissance baldacchino of modern design. From the pendant bosses of its three arches hang lamps, three from the central and two from each side arch—seven in all. Another interesting feature is the presence of some red brickwork in the arches of this circumambient aisle, not profuse, but just sufficient to give a touch of colour here and there. The Romanesque transepts seem to have been much cut into during the Decorated periods, the face of the northern one being lighted by a very tall six-light window with wiry tracery, German or Flemish rather than French in its character, and a large Decorated chapel has been thrown out on its east side, containing a reredos—a perfect mountain of modern Italian Renaissance. The west side of the altar is worked in black and white marble, looking at a distance something like a frontal. The opposite transept and its chapel is poor Late work.

To this apsidal choir and transepts a broad nave of the Angevine type succeeds. It is divided into three wide bays by clusters of attached shafts, from which the main ribs of the waggon-shaped and vaulted roof spring. There are no aisles, but the walls are relieved in their lower part by broad blank arches, above which is a clerestory of coupled lancets nobly shafted, and having in the containing arch a circle, in the western bay, cusped. A finer type of nave for congregational purposes can hardly be imagined, and it is interesting to find such an example so far north as Le Mans. In the neighbouring province of Anjou this type of church is common enough. Eastward the nave opens to the transepts by one tall narrow arch, with a very low one to right and left of it. Westward we have a low broad arch giving access to a species of upper narthex, through which the great Decorated window lighting the front between the towers is seen. These are of good solid Middle Pointed character, but, like so many other French steeples, unfinished. Square-topped, slate mansards, like those at Gournay, in the Pays du Bray, and other districts of Normandy, terminate these towers. Externally the most valuable feature of Notre-Dame de Couture is its western portal, extending the whole width of the nave, as at Seez. A finely moulded arch on delicate shafts admits to it. In the tympanum is the Last Judgment, the mouldings of its encircling arch being formed of three rows of figures representing the blessed. Six colossal figures of the four Evangelists, with SS. Peter and Paul—three on either side—form the pillars supporting this arch, whose doors exhibit in small panels good Flamboyant wood carving. Altogether, Notre-Dame de la Couture, to the architect, the ecclesiologist and the ritualist is a most fascinating church, and one requiring repeated visits to be thoroughly understood and appreciated. After assisting at the chapter Mass in the choir of the cathedral, seating ourselves in such a place in the aisle that thirty compartments of glorious old stained-glass are visible at a glance, we take a boat down the Sarthe to the Bishop's Mills, where we linger until our watch and the gradually westering sun warn us that it is more than fully time to go back to Le Mans, if we are to catch the 4.50 train for Tours. So we pay our modest reckoning, express our regrets to Madame that we are not able to spend longer time in a place with which we are so *ravissés*, return to our boat, and find ourselves after a most delightful pull of about twenty minutes at the foot of the steps leading up from the river to St. Julien. Here we just have time to take one long lingering glance round the *élancé* choir from the little door in the eastern ambulatory. Returning to the hotel we get our effects snugly under hatches, and about a quarter-past four have cleared out with cargo for Tours, where after a very tedious railway journey we arrive as the gas-lights are beginning to dot its boulevards, and on whose quais a great fair is just about to make day noisy and night radiant and merry for the next fortnight.

Few cities in France could formerly boast so many and such interesting churches as the capital of the Touraine. It was in truth a city of churches and monasteries, which had gradually grown up around the sacred grotto dug by St. Gatien in the rocks of Marmoutier. Some of these had been unaccountably suffered to fall into decay at a period considerably anterior to the Revolution, but it was not until some years after that event that the destruction of the glorious abbey of St. Martin, the resort of countless pilgrims from every corner of Christendom, took place. Then it was that the church and other parts of the convent of Marmoutier which had escaped revolutionary fury were bought and razed to the ground by a private individual, who openly avowed his act as springing from a hatred of Christianity. Thus a shrine which by a hair's-breadth had escaped the lawless mob fell a victim to the hate and malice of one man, two noble steeples alone remaining as witnesses of its former magnificence. These towers, the dome of the great modern basilica reared on the site of the monastery, and the twin steeples of St. Gatien's Cathedral, while serving to break the dead, flat monotony of the city when viewed from the opposite bank of the Loire, by no means represent the ecclesiastical remains of Tours, which we are agreeably surprised to find so extensive; but none of the lesser parish churches have steeples of sufficient magnitude to impart to the city that air of grandeur presented by Rouen and Caen.

It is a common complaint with our travelled compatriots that they hear no music in the French cathedrals. Perhaps they are not in the building at the proper times. Certainly they would hear no church music in our acceptance of the term, for it is a truism nowadays to speak of the superiority of our English cathedral service—a thing *per se*. And here we must say that in no country in the world is this class of music cultivated with so much assiduity, and brought to such a state of excellence, as in England. A test of the English cathedral, collegiate and parish church service is its popularity, patent to anyone who has seen the well-filled choirs of York, Canterbury, Lincoln, Worcester, King's College, Cambridge, and St. George's Chapel, Windsor, Leeds parish church, and the dome of St. Paul's at their daily evensongs. In France all is different; no grand bursts of praise from psalm, service and anthem break the awful stillness which on ferias broods over her cathedrals. In some there is a gentle simmering of plainsong—we are speaking of the weekday offices only. Of course the manner of performing the chapter offices in the French cathedrals depends upon the pecuniary resources of each establishment. At Coutances and Sens the chapter offices are monotoned in the lady chapel, and by the canons alone. They are said *in choro* by canons alone at Bourges and Seez. At Beauvais the daily recitation of the offices by canons and chanters, unaccompanied, was very impressive, but it has of late years been discontinued. To organ accompaniment are sung the daily offices at Paris, Chartres, Mans, Bayeux, Rheims and Soissons. Few boys are present, their services being required for the ritual rather than the musical portion of the service. The finest unaccompanied daily plain chant by men's voices alone is to be heard at Amiens; being occasionally harmonised, it has a remarkably good effect, and much of the monotony is thereby avoided. The French are an early people, and the hour of performing the morning service of Terce, Mass and Sext is nine o'clock. None, Vespers and Compline will usually be found going on about half-past two. All these offices are performed to a collection of empty chairs, the "faithful" not being invited, nor are they expected to assist at them. Perhaps, Gallio-like, they care for none of these

things. To be sure there is not much inducement, and one has only to compare the locked choir and empty space before it of the Parisian cathedral with the throng invariably to be found under the dome of St. Paul's any afternoon in the week. In a word, the Anglican and Gallican systems are as different as the poles asunder, and it is idle for one moment to attempt a comparison of them.

Readers, whether musical or ritualistic—we use the latter adjective in its true sense—will be interested to learn that the daily capitular offices at Tours are performed with much solemnity. After a leisurely stroll in the quiet part of the city where the cathedral of St. Gatien stands, we enter by the south transept door, to find several little choristers in scarlet cassocks, and with the colours from the stained-glass in the clerestory just glinting upon their surplices, flitting about the solemn old choir as they find the places in the music books, while the great bell booms along the vaulted roof of the nave. Two of these small individuals form a pretty picture as, in their zuchetto-covered flaxen curls, they confabulate together, music books under arm, at the tall iron gate of the choir, with its surmounting archiepiscopal cross. Those about to take part in the morning offices begin to drop in to their appointed seats. A canon—the one, we presume, who is to sing the Mass—brings in the chalice with the paten and Host upon it, covered by the palla and the chalice veil, and on the veil the bursa containing the corporal. Placing these reverently upon the table of prothesis on the south of the sanctuary, he takes his place with the other canons *in choro* for Terce, which is then monotoned. Towards its conclusion, and while the six great candles upon the altar are being lighted, he retires to vest for the Mass. Upon his entrance in plum-coloured chasuble the choir sing the introit for St. Lawrence's Day, "*Confessio et pulchritudo in conspectu ejus; sanctitas et magnificentia in santificatione ejus.*" Then follows the psalm, *Cantate Domino canticum novum*, to a very beautiful prolongation of the Fifth Tone. A curé plays the organ, which behaves itself very well until the Offertorium, when upon the performer's essaying a very elaborate piece in honour of the occasion it becomes untractable, causing the poor curé to get apoplectic of visage and to cast sundry agonised glances across the choir at the biretta'd canons. But these dignitaries seem quite unmoved, sitting in their stalls with closed eyes and folded hands, affecting to take no notice whatever of the matter. Not so sundry of the choir-boys, whose faces give tokens of risibility. One young urchin, whose head ought to have been well punched, literally shook with suppressed laughter. The plain song to the Kyrie, Gloria, Credo, &c., is accompanied smoothly and well, but our ambitious friend breaks out again at the Elevation with another jaunty piece enough to make a stern Gregorianist shiver in his shoes, and with little better result. However, the *Domine salvum fac*, the Tonus Regius and several very beautiful "Amens" bring the Mass to a solemn and restful close.

(To be continued.)

DEVELOPMENT OF MANCHESTER.

AT the Manchester City Art Gallery on the 21st inst. a meeting was held under the auspices of the Manchester Society of Architects, at which Mr. E. Salomons, architect, delivered an address upon "The Development of Manchester and Suggested Improvements." Mr. R. I. Bennett, president of the Society, occupied the chair.

The Chairman explained that Mr. Salomons was unable to read his paper in consequence of suffering from a relaxed throat, and he had therefore asked him in his capacity as president of the Manchester Society of Architects to read it for him. Mr. Salomons commenced practice as an architect in Manchester in 1852, and was an associate of the Royal Institute of Architects in 1851. He was, he might say, the architect of the great Art Treasures Exhibition which was held at Old Trafford, and one of the founders of the Manchester Society of Architects in 1865. His views, therefore, upon the subject he had undertaken to discuss were well worthy of consideration.

Mr. Salomons at the outset of his paper pointed out that the need for a new art gallery and reference library in Manchester involved questions peculiarly inviting the attention of the Manchester architects, who would be assuredly neglecting an obvious duty if they did not give them their earnest consideration. After some interesting reminiscences of the condition of Manchester as he remembered it many years ago, Mr. Salomons said his attention was first drawn to the want of foresight and general method in our local improvements by the contrast they presented to what he saw in progress in Paris when he first visited that city in 1853. At that time Louis Napoleon, under the advice and guidance of Haussmann and the architect Viollet le Duc, was just beginning the reconstruction of Paris by forming the two great boulevards at first called Sebastopol and Haussmann, and which were cut through some of the lower districts of Paris. Soon after this the Grand Opéra was contemplated and the Avenue de l'Opéra begun, together with many other improvements. What struck him then was that the old historical boulevards and streets were never altered or touched, but left as they always had been and were in the main to-day. The same principle—the opening out of entirely new streets and squares—had been followed in all the great improvements made in the chief cities of Europe. But if we reverted to the changes that had been made and were being made in our own city, what did we find to be the rule? That the only idea, with rare exceptions, which presented itself to the authorities was to widen or extend existing streets, and now that a new art gallery and reference library were required, we found the same instinct at work, it being strongly urged that the infirmary should be removed elsewhere. What a fine site that would set free for the new gallery and library. But in the first place, a large open space did not alone constitute a fine site. To be that an open space must be surrounded by fine buildings—which was certainly not the case with the infirmary. Then, again, the sum which would have to be paid for the site was far greater than the sum for which an entirely new open space could be created in a quite as convenient part of the city. The only recommendation for the infirmary site was that it was obvious, and therefore easily apprehended by authorities whose traditional method consisted in improving what already existed, and had resulted in making our city a signal example of the waste of good buildings by placing them in positions where they were seen to the least advantage. He suggested, then, that the creation of a new square be at least considered as a possibility. The erection of a city library and art gallery presented the opportunity for a really notable improvement, one of the most important in the history of the city. And no chance of making the most of such an opportunity should be lost through failing to consider the question from every reasonable point of view. Was there, then, a reasonable opportunity of opening out a new square sufficiently near to the centre of the city? He thought there was, and his suggestion was that the Corporation should purchase the whole of the land in Oxford Street bounded by the South Junction and Altrincham Railway, Great Marlborough Street, Saville Street and Pritchard Street. That would give, including streets, an available open space of 58,000 yards or thereabouts, or about twelve acres. Of that 27,700 yards would have to be purchased—the streets accounting for the rest—and he put the extreme value of that land at from 6*l.* to 7*l.* a yard—say 7*l.*, at which figure the cost would be about 194,000*l.*, as against a minimum of say 500,000*l.* for the infirmary site. There would be ample space for an art gallery and library—say 4,000 yards each—and some thousands of yards of land would be left for sale at a considerably enhanced price. Thus a new open place would be formed, only about half a mile from the town hall, and there was no doubt it would in a few years become the fashionable centre of Manchester, as had been the case in the various cities abroad already alluded to. In suggesting this scheme he went beyond the mere need for a new art gallery and library. His primary idea was to form a new centre for Manchester, which might be developed hereafter by private enterprise in the usual way. Although he thought the situation an excellent one both for art gallery and library, others might not agree with him, especially as regarded the latter, which, it might be thought, should be in a more central position. That might be so. On the other hand, it was possible to divide the students' library from the business library, leaving the latter department in the business centre. But even if the library were not built on the newly provided site, there were many other uses to which it could, and most probably would, be put, such as a new theatre, with all its necessary appurtenances, which we did not now possess; and a new concert hall, with better entrances, staircases and ante-rooms than the Free-trade Hall provided, was also urgently needed. Why should not the Corporation build a new theatre convenient, commodious and even luxurious for the benefit of its citizens? The Corporation gave libraries, art galleries, art museums, &c., for the instruction or edification of the ratepayers; why not provide a theatre for the same object? In the former case the cost, both initial and annual, was large, but no one doubted that the money was well spent. In the case of the theatre the cost would be nil; 2,000 yards would be required; the value of the land might be safely put at 5*l.*, for wherever a large public building was placed it at once enhanced the value of the land adjacent. The building complete would cost, say, 50,000*l.* or 60,000*l.* in all. If only the same rent was

obtained as was now paid by the Theatre Royal the return would be 5 per cent. on the outlay, and as the Corporation could borrow at 3 per cent. the transaction would be a profitable one for the ratepayers. He further suggested that if such an open space be made Oxford Street should be widened to, say, 120 feet right up to Whitworth Park, and that would at once decide what would be for the future the fashionable and literary, educational and art centre of Manchester. We should have then in its nearly two miles of length the Midland Hotel, the theatres, concert-rooms, Art Gallery and Reference Library, School of Art, Owens College and Whitworth Park and art galleries. We must, Mr. Salomons urged, dismiss from our minds the antiquated idea of Manchester as a little provincial town, with its High Street and Market Street, and everything of importance necessarily close to these. Like all metropolitan towns—headquarters for many surrounding towns—it must have its different centres, and these inevitably some distance apart. The half-mile from its centre must be reserved mainly for business premises, the demand for which had increased so rapidly of late, and must inevitably continue to do so, in view of the increasing thousands of business men from neighbouring towns, for whose convenience business must be concentrated as near as possible to one centre. A business centre and a neighbouring literary, art and educational centre was the ideal we ought to have in mind, and which we had now the opportunity of realising. Was it too much to hope that, with the chairman of the improvement committee as Lord Mayor, the present year would see a beginning made to reach such an eminently desirable consummation?

In the course of a brief discussion,

Mr. Charles Rowley said that, without entering into the merits of the Infirmary site, he somewhat agreed with the view expressed by the reader of the paper. The Infirmary site had been before the people of Manchester since he could remember as a sort of burning question. He felt personally interested in the beauty of the city, and he thought it would be much better to adopt some such scheme as that laid before the meeting than to enlarge on the Infirmary site, which seemed to him impracticable. Inasmuch as some years ago the value of the land occupied by the Infirmary was stated to be 750,000*l.*, it might safely be put at a million of money to-day. Considering that Oxford Road was the main street leading out of Manchester, he thought anything more hideous than that thoroughfare beyond the railway arch could not be found in any great city. The shabbiness of the whole situation was disgraceful. Some such scheme as that proposed would certainly give a fillip to the improvement of the whole of that side of the city. Mr. Salomons threw out a fascinating idea when he suggested that the various intellectual developments of the city should be focussed, as it were, in one line. We had some extremely beautiful buildings in Manchester, but they were utterly ruined by the dirt and filth of the atmosphere. If anything could be done in the future to cleanse the town a scheme like that proposed might have a practical chance of being considered, if not carried out. If some more statesmanlike view were taken of the improvement of the city it would be better than our present rather peddling manner of carrying out that kind of work.

Mr. Plummer, a member of the City Council, said he held as lofty an ideal of what Manchester might become as any man present, and could he have had his own way in the matter he should have laid down, upon Mr. Salomon's ideal, a Manchester which might possibly have taken a hundred years to realise. It did not follow that they need despair if they could not carry out such a scheme as that suggested by Mr. Salomons in one day. When the question of the removal of the free reference library was mooted the committee first fixed upon the site in Oxford Street now occupied by the warehouse of the Tootal Broadhurst Lee Company. It would have been an admirable site, and they did their utmost to press it forward; but they met with the very faintest appreciation and support, and were told by men who were also interested in the city that it was too far out. If that were so, what chance was there of Mr. Salomons's scheme being carried into effect? There was also offered to the authorities on very advantageous terms a large portion of the Whitworth estate for the new technical school. That, however, was utterly scouted, and therefore, while he looked at the plan prepared by Mr. Salomons with something like envy and admiration, he was very sorry to say that he felt it was not at present realisable. He had also to say that he thought Mr. Salomons had taken a very modest view of the cost of the work. At the present time Manchester was very heavily burdened in the matter of rates, and in the state of the public finances and the present apathetic condition of the public mind he felt that the scheme would hardly receive the recognition which it merited.

Mr. Salomons, in reply, said he anticipated a great deal of the difficulty that would arise in carrying out the scheme he had brought forward, but he thought perhaps by laying it before the public the Corporation might be induced to adopt a little different mode of carrying out improvements in Manchester. He had carefully gone through the question of expense, and he had no hesitation in saying that in the course of a few years it would be actually a profitable and not a losing scheme. He was not prepared to say that his was the best scheme, but he did say that there should be some large scheme to work upon, instead of the present method of making improvements in little details.

Mr. Salomons was thanked for his paper.

EARLY CHRISTIANITY IN SHETLAND.

CHRISTIANITY, says the *Scotsman*, was introduced into Orkney and Shetland by King Olav Tryggveson towards the close of the tenth century, and at the point of the sword. He arrived at South Ronaldsay and invited Earl Sigurd and Hind, his son, on board his ship. On their arrival he said to the earl, "You are now completely in my power. You must, together with all the people in your dominion, either accept Christianity, be baptized and yield me homage, or immediate death and eternal punishment await you." The earl calmly replied that he could not be induced either by choice or fear to forsake the religion of his fathers and deny the established worship of the gods, nor did he know in what respect the adoration the king demanded exceeded his own. The king then drew his sword and seizing Hind said, "Now I shall keep my word. Unless you and all your people profess yourselves the servants of the God I revere, your son shall perish before your eyes, and one common destruction shall follow." Earl Sigurd and his son and the people then submitted to baptism. The king shortly afterwards, with Hind as a hostage, sailed for Norway to proclaim the success of his mission, and sent Segismund Bretteson, a Faroese, to baptize, according to the royal method, the heathen of Shetland. In subsequent reigns inquiries were made into the spiritual condition of the islanders, but until the twelfth century was far advanced the reports were very discouraging.

The spirit of Christianity was so utterly opposed to the spirit of the ancient religion with which the minds of the Scandinavian settlers in Shetland and their descendants were so deeply imbued, that conversion in its truest and highest sense must in any case have been slow, and the introduction of Christianity in such an un-Christian manner made it slower still. The period was the most heroic in the history of the northern world—the age in which the mutual jealousies and hostilities of the Scandinavian nations began to be most accentuated, and war, conquest and plunder occupied the minds of men. It was the god of battles and not the prince of peace that men felt inclined to worship, and there was so little of peace and conciliation in the system as introduced by the king that the people saw no difference between the old religion and the new. The conduct and method of King Olav and the early pioneers of Christianity in the northern groups must have been keenly felt and resented, and may account for the fact that in the customs and lives of the people the tenets of an earlier religion continued to exercise a more powerful influence, and to exert a more willing obedience, than those of the Church.

At the same time, the claims of the Church were incompatible with the odal rights of the people. What the Udallers adhered to most tenaciously was their odal or natural rights. They maintained that the king was the lord of the people, but not of the soil, and the utmost that ever he had been able to squeeze out of them was a tax on their hill pastures. Their odal or enclosed lands they held from God and had managed to keep them inviolate. It was the invasion of their odal lands by the Church that intensified the hostility of the Udallers to the establishment of Christianity. The question of free land played much the same part as that of free religion in the seventeenth century. The priests met the claim of Divine right in land made by the Udallers by a counter claim. They asserted that the Church was a fief of St. Olav, that his power as king on earth and saint in heaven resided in the see of Throndheim, under whose authority they acted, and that their claims were a last will and testament. The Udallers also regarded their rights invaded in another sense. The temple was to them an important institution. When they took possession of the islands, their first public act was to build a temple, and they called themselves by its name. The temple thus became the nucleus of the new community. As soon as a sufficient number of independent temples were erected, the Althing was formed, and the foundation of the general government was laid. Priest and chief were synonymous terms, and continued so until a ban was placed on laymen interfering in Church affairs. That ban deprived the chiefs not only of their authority and influence, but of their birthright. Between the chiefs and the Church a state of war existed, and each was resolved to conquer. Had suavity and tact been employed at first, much might have been done, but even in the management of his personal affairs King Olav knew little of either. He wished to marry Sigrid the Haughty, the Queen-Mother of Sweden, in the belief that he would thus unite Norway and

Sweden against Denmark. His one condition was that she should embrace Christianity. On her refusal he struck her on the face, saying, "Why should I marry thee—a heathen jade?" His missionaries acted on the same principle, and offered to fight everyone who hesitated to submit to baptism. It is a fact, and a strange one, that from the first, with one or two exceptions, the outside influences brought to bear on Shetland have, through the agencies employed, tended more to repress and compel, often to fleece, than to foster, encourage and elevate.

The resistance of the Udallers to the claims of the Church continued, but as time rolled on the mythology of the north lost its hold on the public mind, and the wives and daughters of the Udallers came to prefer the love and gentleness and forbearance the Gospel enjoined, to the storms and conflicts and bloodshed their ancient system encouraged, and they did far more for the propagation of Christianity than the agents of either the king or the Church. It was for a generation or two the one great question, and as soon as the fury of the Udallers began to show symptoms of abating, the prospect of granting as many souls seats in heaven as the churches they built contained seats for the people was held out to them. Valhalla offered no higher prospects of authority and future union, and kirk building became the order of the day. Every district had its church, and every rich Udaller had a kirk on his homestead for his family and dependents and a family priest to conduct the service. In the thirteenth century there were upwards of one hundred kirks in the islands.

The monastery and headquarters of the Church was at Sound of Weisdale. There seems to have been a monastery or something like it at Cross Kirk, Northmairne, and at Unst; but that of Weisdale was the chief. The situation of the Sound of Weisdale was favourable. It was on the highway between the east and west, was on the centre of the mainland, and missionaries from there could with more ease visit any district where their services, either in religious or secular matters, were required. The monastic buildings must have been of an imposing character in their day. They furnished building materials early in the last century for a large mansion-house, garden walls, piers and other erections for a wealthy landowner and merchant, and the ruins of the kirk were used in building a churchyard wall about forty-five years ago. The kirk was an awmus winner as late as 1840.

Tingwall in pre-Christian times was the headquarters of heathendom in Shetland, and that may have been one of the causes for the selection of Weisdale as the seat of the Church. It was attacking the lion in his den. Tingwall was the seat of the ancient lawting, and there were at least three heathen temples within its bounds. One stood near where the parish church now stands, and was the sanctuary which men condemned to death by the lawting tried to reach; another was on the west side of Whiteness Voe, opposite Wormadale; and the third was in the valley of Weisdale. Weisdale was early selected by the priests of Odin for a settlement, and from that circumstance the district derives its name—the dale or valley of religion or worship.

The Church offered prospects of ease and respectability to young men, and in consequence priests were numerous. To their other duties, as soon as they were licensed, that of schoolmaster was added. The priest who kept the best school was appointed to the first vacant church. They taught reading, writing, Latin and the canon law. The scholars were young men preparing for the Church and the sons of rich Udallers, but the sons of poor parents were admitted if they gave evidence of abilities and were anxious to learn. Many of the priests were excellent penmen, but Latin occupied the first place in the schools. On great occasions, when the bishop addressed the people he spoke first in Latin and then translated his speech into Norse. The Latin phrases still used by old people in remote districts must have been handed down as heirlooms from that distant period.

Reverend was not a designation applied to the priests at that period. Sir was prefixed to their names when they were licensed, and when a bishop was consecrated he became a lord. Bishops were held in high repute, especially when canonised. They answered prayers, performed many miraculous cures and did fully more good dead than alive. Prayers to the saints were constantly made by both priests and people in all cases of sickness and difficulties. The saints on whose prompt assistance the greatest reliance was placed were deceased bishops who had been locally canonised. Priests from Norway sometimes refused to recognise saints who had not been acknowledged by the archbishop and bishops in Throndheim, but in such cases the refractory priest was soon taken ill, and continued so until he repented and prayed to the saint he had despised. When King Eric was on his way to a council of kings he was becalmed for several days. Prayers were made to many saints without effect. At last an island priest advised the king to pray to the late bishop of his diocese—a saint who was always "swift to hearken to prayers." The king did so, and immediately a fresh breeze carried him to the harbour he wished to reach. The names of several persons are still preserved who were miraculously cured by prayers to the saints. When ordained, the priests were examined as to their knowledge and fitness, and an inquiry was made into their past lives. If they were the acknowledged fathers of illegitimate children no objection was made, but if they had unacknowledged children, severe penalties were inflicted. It sometimes happened that a father and his illegitimate son worked as priests in the same district. The severest examining tests applied to the priests were those of reading and chanting. Failure in those subjects was fatal. The archbishop and chapter advised that when vacancies occurred in Shetland they should, if possible be filled by Shetland men, as they understood the people better than strangers. That sage advice still holds good.

The clergy were ever on the move towards Norway. Scarcely a ship sailed from Shetland in summer and harvest that did not have a clergyman on board, and their stay in Norway was often prolonged. Sometimes they went on their own account, at other times on the affairs of the Church, but more often they were the agents employed by the authorities in their appeals to the archbishop. The disputes among themselves had all the animus of the same class of disputes as in the present day. They tried to undermine and outwit each other, and their agents were sometimes sent as privately as possible by different ships on the same day. The archbishop always treated the provincial priests kindly, invited them to his table, engaged tutors to teach them the canon law, and decided in favour of those who had most tact and kept closest to him.

The revenues of the Church were drawn from various sources, such as tithes, fines, gifts, alms, burials, trade and loans. The principal church in every parish lent money on interest, and anyone could borrow if they left gold or refined silver in pawn. If repayment was not made the Church kept the deposit, and those unredeemed pledges formed a large source of income. The tithes, the banking system, the fines, gifts and alms were adopted by the reformed Church, and continued until the present century was well under way. After the Poor-law Act was passed the alms went to the missionary societies, and many are the crowns and half-guineas these societies have received from successful whale-fishers. Marriages were a fertile source of income to the Church. It is difficult to get at the exact ancient forms, but the consent of parents, the feast, the ring and the cup of mead of which the bride and bridegroom drank were essentials. A man could not marry a near relative, but he could marry his brother's widow. When the fathers were priests in their own right stranger priests were not necessary, and all they had to do at any time was to see that the ancient rites were observed. The Church placed all such marriages under a ban, and all marriages were declared illegal that were not performed according to the rules and ceremonies of the Church. Heavy fines were levied in each case, but the resistance offered was so strenuous that marriages according to the ancient rites continued to be celebrated for centuries. Many of the old ceremonies still linger. Fines for offences were often heavy. In one case a man was sentenced to pay a sum equal to his own weight in silver, and he paid it.

Fixing the tithes was a most important matter, and the cause of numerous disputes between the wealthy Udallers and the Church. The usual plan was to appoint an equal number of priests and laymen to value a certain property, and if the owner considered the valuation too high the Church threatened to excommunicate him, and compelled him to submit. Excommunication was a most powerful weapon. One valuation did not suffice, but valuations were made as often as improvements were made on a property. A value of 7,200 ells of wadmal more than he was paying tithes for was once put on a man's property—a value equal to the market price at that time of 150 merks of land. In another case the Church had come into possession of two-thirds of a certain property and wished to have the whole. The owner of the remaining third refused to sell. He was excommunicated and compelled to dispose of it to the Church as a perpetual possession. The Church came into possession of a large amount of property in land in Shetland. Some of it was likely lost about the period of the Reformation, but in 1814, when the teinds were valued and paid in money, it was found that more than one-fourth of the land in the islands belonged to the Church. The teinds varied in the different parishes. In some they were valued at 500*l.* per annum, and in others at 89*l.*

The Metropolitan Tabernacle rebuilding committee announce that the lower hall is ready for occupation, and will be opened for public worship on New Year's Day. The hall, they say, is an extremely fine building, is sufficiently high, comfortably warmed and lighted by electricity. There are temporary vestries, a bold platform and a baptistery. The total seating capacity is nearly 2,000. The contract of Messrs. Higgs & Hill, Limited, for the erection of the main building at a cost of 32,550*l.* has been accepted, but other items will raise the total expenditure to 44,576*l.* 14*s.* After allowing for the amount received for insurance and by subscriptions, there will still be required about 16,000*l.*

ARCHITECTURAL ACOUSTICS.*

THE acoustic problem by which the architect of an auditorium is confronted is threefold—that of securing the greatest loudness throughout the hall of a sound produced at some chosen place, proportional loudness of all component notes, and the greatest distinctness of successive enunciations. These three are the necessary, as they are the entirely sufficient, conditions for good hearing. Each, however, can be secured only at the partial expense of the others. The solution of the problem is therefore essentially a compromise. Moreover, it is a compromise that must be met differently according as the hall is to be used for speaking or for music, and if for music differently for different kinds. It is in the solution of this problem that I hope to be of service.

The simplest auditorium is, of course, the open air. In this case, however, the sound diminishes rapidly in intensity, as it spreads uninterruptedly to a greater and greater distance. A wall immediately behind the speaker would reflect to the audience the portion of sound otherwise lost in that direction. A ceiling overhead, side walls and a wall behind the audience would save even more. Should these surfaces be perfect reflectors, no matter how they might be placed, all the sound reflected from wall to wall would ultimately reach the audience. In fact, however, walls though good are not perfect reflectors, and there is more or less loss. Moreover, the sound that has suffered many reflections and has travelled far will arrive too long after the sound coming directly to be of service in reinforcing it. It is desirable, therefore, to so shape the room, so turn the walls, and so incline the ceiling, as to reflect the sound direct on the audience. Surfaces not so available should be deadened into being poor reflectors. These considerations lead immediately to the following recommendations, which, however, are not always practically available. A wall immediately behind the speaker, angle walls cutting off the corners of the room at each side of the speaker, and a sloping ceiling, not high, immediately above him are advantages. A curved ceiling over the audience, or one with sloping sides, is favourable. On the other hand there is no especial advantage in an ellipsoidal shape, as is often stated. An accurately ellipsoidal shape, with the speaker at one focus—an often recommended arrangement—would profit but one particular point in the room, the other focus, and would make of the whole a whispering gallery. Again, a room shaped like a paraboloid, and this also has been proposed, would be positively bad, unless the axis of the paraboloid were very much inclined to the horizontal—never part of the plan. Indeed, the conic surfaces have been merely words to conjure by. There is no simple, geometrical surface ideal for this purpose; for the variables—reflection, diffraction and absorption—make the problem very complex. Each case must be worked out on its merits. To return, a curved ceiling over the audience, reaching low behind the speaker and at the rear and sides of the hall, is good; but a curved ceiling, having the speaker at the centre of curvature, is the very worst possible. The rear wall and the more distant side walls are, on account of distance, likely to be valueless or worse than valueless, except to the audience near them. They may, therefore, to advantage be low, or occupied by galleries, which when furnished with cushions or filled with people are poor reflectors.

In considering any special case it is to be borne in mind that the sound coming directly from the speaker is diminished in intensity not merely on account of the distance, but also from absorption by the garments of the audience over which it passes. Therefore, if the ceiling be very low, hearing, while good in front, will be bad in the rear of the hall. This is especially true beneath a low gallery. Here there is a double disadvantage; the sound enters the opening in front diminished in intensity by travelling over the audience, and screened by the gallery, this part of the house gets no benefit from the reflection by the ceiling. The impression of persons occupying such positions is that the sound seems smothered. On the other hand, the sound that enters the gallery, having travelled further above the audience, has lost less by absorption and is more reinforced by reflection from the ceiling. The hearing in the front rows of the gallery is therefore excellent, and the gallery may well have a greater depth than the balcony below it. In both the seats should rise more rapidly than on the floor in front not merely for seeing but for hearing purposes, and also to avoid leaving bare walls to reflect prejudicial sound to other parts of the hall. In even the gallery the depth cannot much exceed the clear height above it without giving cause for complaint.

Throughout all speculation in regard to reflecting surfaces there is one point that must not be lost sight of. Reflection from any extended surface is regular only when the minor inequalities, as ceiling decorations, panelling, ornamental niches, recesses of doors and windows, are small in comparison with the wave length of the sound; otherwise the reflection is diffused.

The next phase of the architect's problem is much more intricate, and only an outline may be here attempted; in scientific acoustics it is called "interference." Up to this point the direct and the reflected sound have been spoken of as if always reinforcing each other when they come together. A moment's consideration of the nature of sound will show that as a matter of fact it is entirely possible for them to oppose each other. Thus the sounding body in its forward motion sends off a wave of condensation, which is immediately followed through the air by a wave of rarefaction produced by the vibrating body as it moves back. These two waves of opposite character taken together constitute a single sound wave. The source continuing to vibrate, these sound waves follow each other in a train. Bearing in mind this alternating nature of sound, it is evident that should the sound, travelling by different paths—by reflection from different walls—come together again, the paths being equal in length, condensation will arrive at the same time as condensation and will reinforce it, and rarefaction will similarly reinforce rarefaction. But should the one path be a little shorter than the other, rarefaction by one and condensation by the other may arrive at the same time, and at this point there will be comparative silence. The whole room may be mapped out into regions in which the sound is loud and regions in which it is feeble. When there are many reflecting surfaces the interference is much more complex. When the sound changes in pitch the interference system is entirely altered in character. These are not merely theoretical considerations. A room in the Harvard Physical Laboratory has been partly mapped. This room, known as the constant-temperature room, is of the simplest possible character. The four walls, the ceiling and the floor are plain, there being no windows and the door being flush with the wall. This room has been of great service during the past three years as a place in which to try preliminary experiments on a small scale before passing to the more complicated conditions of a large hall. One occurrence in this room will illustrate the point under consideration. The source of sound was a middle C organ pipe, blown by a steady wind pressure. The observer, on changing the position of his head by 10 or 12 inches, could hear the note change in the most positive manner from middle C to the C an octave above. The explanation is simply this. The organ pipe did not give a single pure note, but gave a fundamental middle C, accompanied by several overtones, of which, in this case, the strongest was the octave C. Each of these notes has its own interference system, and near the observer the region of silence for one system happened to coincide with the region of reinforcement in the other, and *vice versâ*. Thus the observer in one position heard the fundamental note and in the other the overtone. The confusion that this phenomenon is capable of producing in the complex and rapidly changing sounds of the human voice is evident. Such is the pathology of "interference," but I am unable to propose a cure for it that would be generally applicable, although in the case of one hall it was possible to relieve somewhat this particular difficulty. Until recently it seemed possible to formulate a general line of procedure, but this now seems doubtful.

The third phase of the problem, while in many ways not so intricate as the last, deserves careful consideration, because in it lie the most frequent and needless failures. Sound, being energy, once produced in a confined space, will continue until either transmitted by the bounding walls or transformed into some other kind of energy, generally heat. This process of decay is called absorption. Thus in the lecture room of Harvard University, in behalf of which this investigation was undertaken, the absorption was so slight and the residual sound was audible so long after the source of sound had ceased, that it was quite impossible by speaking loudly or gently to make one's self understood at the other side of the room. Even a very deliberate speaker would utter twelve or fifteen syllables during the audibility of one. With a large audience present it was not so bad, but was still intolerable. Such a misfortune as this may arise from two causes. If it occurs in a room when the audience is small the prominence of the defect may be due to the absence of sufficient absorbing power in the material and the furnishing of the room; if the defect continues when a large audience is present it arises also from a failure to have so shaped the room as to adequately employ the great absorbing power of an assemblage of people. In this particular case, the appearance of the room being very attractive and the lighting excellent, alteration of shape was out of the question, and it was desirable that any permanent device should be inconspicuous. It was requested that some accurate numerical measure of the acoustical quality of the room should be secured, and that the investigation should be conducted in as quantitative a manner as possible. The resulting experiments have extended, more or less interruptedly, through the past three years. The first method for determining the rate of decay of the sound, and therefore the amount of absorption,

* A paper read at the convention of the American Institute of Architects by Mr. W. C. Sabine, assistant professor of physics in Harvard University.

was by means of a sensitive manometric gas flame measured by a micrometer telescope. Later, photographing the flame was tried; but both methods were abandoned, for they both showed, what the unaided ear could perceive, that the sound, as observed at any point in the room, died away in a fluctuating manner, passing through maxima and minima. Moreover, they showed what the unaided ear had not, but immediately afterward did recognise, that the sound was often more intense immediately after the source ceased than before. All this was interesting, but it rendered impossible any accurate interpretation of the results obtained by these or similar methods. It was then found that the ear itself, aided by a suitable electrical chronograph for recording the duration of audibility of the residual sound, gave a surprisingly sensitive and accurate method of measurement. For example, in the constant temperature room of the physical laboratory it was possible to detect by this method the alteration of the rate of absorption of sound produced by a piece of hair felting a foot square placed anywhere on the floor; it was easy to detect the difference between the effects produced by a man or a woman coming into the room, and to detect, though with considerable difficulty, even a slight difference made by a change in the clothes of the observer. Thus, failure to record the clothing worn in a certain series of experiments made it necessary to discard over 3,000 observations. In a large auditorium, of course, such small differences could not be noticed, but the method was one of remarkable delicacy. It was also very constant in its results, provided the experiments were undisturbed by outside noises. Proper conditions could be secured only at night between twelve and four o'clock, and all the experiments were performed at that time. Considerable additional accuracy is gained by taking the average of a large number of observations in each case, instead of relying upon a single one. This method in the hands of different observers gives almost identical results, provided they practise sufficiently and are not of abnormal hearing. Three gentlemen have devoted the necessary time to test this point. Experiments have been carried on in the following rooms belonging to the University—the large lecture-room above referred to, two rooms in the physical laboratory, of which one is the constant temperature room, Sanders Theatre, Appleton chapel and four rooms in University Hall, including the faculty room; also Steinert Hall in Boston, devoted to chamber concerts, and the First Parish Church in Brighton.

The relative absorbing power of various substances was tested in the following manner:—Having determined the duration of the residual sound in some room when entirely empty, a small amount of some standard substance was brought into the room, and the duration of the residual sound was again determined. This was repeated as more and more of the substance was brought in. The results were then plotted on co-ordinate paper, giving what might perhaps be called a calibration curve of the room. For example, in the lecture-room, whose plan of elevation is shown in fig. 1, the duration of the sound was 5·62 seconds. Hair cushions of high grade were obtained from Sanders Theatre. On introducing 27 running feet of these cushions the duration of the residual sound fell to 5·33 seconds; 56 feet brought it down to 4·94

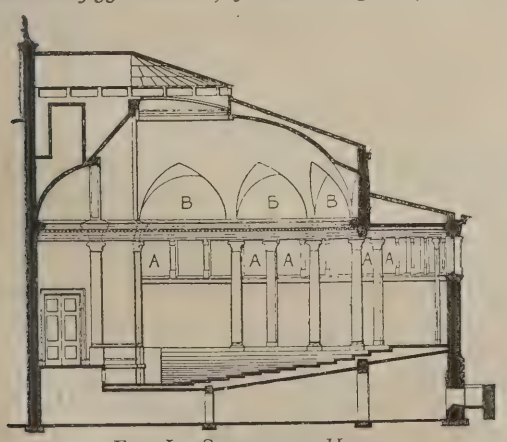


Fig. 1.—Section of Hall.

seconds. This process was continued until 1,500 feet had been gradually introduced into the room, and the cushions covered all the chairs, the aisles, the platform and, hanging from the ceiling, they covered the wall at the back of the room. The duration of the residual sound fell to 1·14 seconds. These results when plotted gave the curve shown in fig. 2. This experiment, requiring of course several nights' work, having been completed, all the cushions were removed, and the room was in readiness for the test of other absorbents. Curtains of chenille, 45 inches wide and 56 feet in total length, were draped in two of the spaces between the columns. This reduced the duration of the sound to 4·51 seconds. Referring to the curve it is obvious that this amount of chenille, when so draped, is equivalent to 100 feet of cushions. The curtains were then removed, draped in front of the rear wall and again tested. They were then draped beside the platform. From these experiments, in which the curtains occupied first one part and then another of the hall, the result was deduced that on an average 23 square yards of chenille draped as a curtain were equivalent to 15 square yards of cushion. Oriental rugs of the highest grade, thick, heavy Herez Demirjik and Hindustanee, were tested in a similar manner. Cretonne cloth, canvas and hair felting were tried with the comparative results indicated in the table:—

Relative Absorbing Power.

Hair cushion on seats	per square yard	2·03
Heavy Oriental rugs on floor	,, ,,	·56
Chenille draped as a curtain	,, ,,	1·32
Cretonne cloth hanging flat	,, ,,	·33
Canvas ,, ,,	,, ,,	·71
Hair felting on the wall:—		
,, ½ inch thick	,, ,,	1·0
,, 1 ,,	,, ,,	1·8
,, 2 inches thick	,, ,,	2·4
Audience, per person		1·3
Individual man, sitting clear		1·8
,, woman ,,		2·2

Some observations were also made on the effect of cushion coverings; experiments in the laboratory with rubber gossamer showed that the covering, no matter how impervious to air provided it be soft and flexible, had no effect on the absorbing power of the cushions. This result was confirmed in Appleton chapel. After testing this room with the leather-covered cushions in their ordinary positions they all were turned over, thus exposing a canvas covered side. The difference in the duration of sound was scarcely perceptible. Perhaps the most interesting of these results is the one measuring the absorbing power of an audience. It was obtained through the kindness of 121 persons, who in the summer of 1897 submitted to the experiment. Of this number sixty-five were women and fifty-five were men. The experiment was not performed so late at night as might be desirable, but this was partly compensated for by having two observers. Their results agreed almost exactly. The result given in the table is the average absorbing

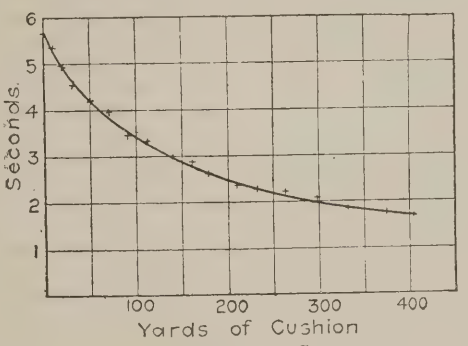


Fig. 2.—Effect of Cushions.

power per person, without distinction between men and women. Other experiments on individuals were made in the laboratory in the fall, when heavier clothing was worn, and gave on the average as the absorbing power for man 1·8 and for woman 2·2. Here, unlike the preceding case, the individuals were not screened by neighbours and near chairs. Another result is interesting as a partial answer to a question that is frequently asked in regard to the effect of beams and girders. An openwork scaffolding, consisting of about 400 feet of plank and 600 feet of scantling, gave almost no appreciable absorbing effect. It may have had another effect, but that is a subject too intricate and tedious to be discussed here.

It must not be thought that an absorbent is always desirable, or if desirable that it is so at any point.

This completes the independent discussion of the three factors in the architect's problem, loudness, interference and distinctness, and brings us again to the initial proposition that the solution of this problem as a whole is necessarily more or less a compromise. Loudness—all the loudness, it is safe to say, that an architect can secure, provided it be as uniform as possible over the hall—is desirable. Interference, with its consequent distortion of chords and complex sounds, is, with equal positiveness, undesirable. Loudness can be obtained only by the superposition of direct and reflected sound, and superposition of sound cannot be had without the danger of interference. In this dilemma the architect would do well to devote himself to the consideration of loudness alone. Interference is practically a less noticeable evil than either deficient loudness or excessive residual sound. Residual sound, always an evil in a hall used for speaking, can be

reduced to a minimum by so inclining surfaces as to bring all the sound by one reflection upon the audience—always the most active absorbent factor in a room. This will also make the loudness a maximum. In order that the hall may remain good when the audience only partly fills the hall, the chairs should be provided with cushions—the next most active absorbent material on our list. While the residual sound should be a minimum in a room devoted to speaking, to military music, perhaps also to orchestral music, it probably should not be a minimum in a room designed for chamber concerts, and especially if designed for piano music. In the latter case the effect of the residual sound is to increase the fulness of tone of the instrument, and to diminish its staccato effect. A suggestive incident occurred in the recent investigation conducted by the Department of Music of Harvard University to determine whether a certain room was suitable for a series of chamber concerts to be given in connection with one of its courses. The test, by a very select audience of experts, was made with piano music, and was conducted under such conditions, size of audience and so forth, that the duration of the residual sound was 2·5 seconds. The room was pronounced satisfactory. On the whole, however, this use of the auditorium as a contributor to the æsthetical value of the musical production rather than as a vehicle of exact transmission, is a too serious complication of the problem.

The preceding suggestions have been on the supposition that the architect could control his design by acoustical considerations alone. This is of course not the case. The artistic appearance of the hall, adherence to conventional forms, as a lofty ceiling in a church, adequate and pleasing lighting by day and by night, adequate and uniform ventilation, all make demands at times incompatible with acoustically ideal conditions. A hall having proved faulty under trial, it may become necessary to diagnose the case and prescribe the remedy. There is no simple treatment that can cure all cases. There may be inadequate absorption and prolonged residual sound; in this case absorbing material should be added in the proper places. On the other hand, there may be excessive absorption by the nearer parts of the hall and by the nearer audience, and the sound may not penetrate to the greater distances. Obviously the treatment should not be the same. There is such a room belonging to the university, known locally as Sever 35. It is low and long. Across its ceiling are now stretched hundreds of wires and many yards of cloth. The former has the merit of being harmless, the latter is like bleeding a patient suffering from a chill. In general, should the sound seem smothered or too faint it is because the sound is either imperfectly distributed to the audience or is lost in waste places. The first may occur in a very low and long room, the second in one with a very high ceiling. The first can be remedied only slightly at best, the latter can be improved by the use of reflectors behind and above the speaker. On the other hand, should the sound be loud but confused, due to a perceptible prolongation, the difficulty arises from there being reflecting surfaces either too far distant or improperly inclined. The most immediate remedy in this case is covering these surfaces with some absorbent material—curtains or hair-felting. The lecture-room referred to above may be taken in illustration. Hair-felting ¾ inch thick was placed in the fourteen vertical rectangular places marked A, beside the windows, covered with thin tinted asbestos paper, and protected by wire guards. Hair-felting 1½ inch in thickness, similarly protected, was placed in the seven vertical, semicircular onsets in the dome marked B. The platform was covered with carpet doubly lined.

The above is a partial account of perhaps the first quantitative experimental investigation of this subject. There is a little more that might be given, and there is a great deal more that might be investigated, but a further research would be laborious and very expensive.

Correspondence

Workmen's Compensation Act.

Sir,—It is to be regretted that County Court judges are disagreed as to the practice which should prevail under this important Act, and that in some districts injured workmen are encouraged to go directly to the county court for compensation before they have attempted to come to terms with their employers, either personally or through the intervention of an arbitrator other than the County Court judge. When the Bill was under discussion in Parliament efforts were successfully made to provide means for disabled workmen to obtain compensation in a prompt and easy manner without unnecessary delay or friction, and without the necessity of having to go to a court of law or to seek legal assistance. For claimants, therefore, to proceed at once to the County Courts for the relief provided by the Act seems distinctly contrary to the intention of the Legislature. The Home Secretary and the Colonial Secretary told the House of Commons that it was the desire and hope of the Government that committees would be established between employers and workmen to settle all questions under the Act, but if there was no committee, and the parties did not agree, the matter should be settled by a suitable arbitrator appointed by the parties, or, in the absence of agreement, by the County Court judge. The Attorney-General said, "The arbitration contemplated is intended to be something in the nature of a domestic forum, which shall settle matters in a cheap and expeditious manner." Yet we see workmen resorting immediately to the county court before endeavouring first to come to terms with their employers, either by mutual agreement or by means of the arbitration specially provided for by the Act. In this respect the Scotch sheriffs seem to have a more accurate conception of their new duties than some of the English County Court judges. In a case recently decided at Glasgow a question arose as to the proceedings antecedent to the bringing of a claim into Court. The learned sheriff gave a remarkable decision, which, if upheld by the superior Courts, will show that our County Court judges are wrong in entertaining a claim under the Act before they are satisfied that there has been a genuine attempt made to settle the claim by mutual agreement or arbitration. The Court held that a formal application should be sent by, or on behalf of the workman to the employer, stating the claim which is advanced, and, of course, if the employer agrees to pay the amount demanded there is an end to all proceedings. If, however, the demand is resisted it rests upon the parties claiming relief to make overtures as to the appointment of an arbitrator, and it is only if an arbitrator cannot be mutually agreed upon that the sheriff or County Court judge can be asked to act as arbitrator. On reference to the second subsection of the second schedule it clearly appears that, as an antecedent preliminary to coming into Court a bona-fide effort must be made to see whether the parties cannot mutually agree upon an arbitrator. The first subsection contemplates an arbitration committee representative of employers and workmen, and to them it is proposed that the post of arbitrators shall be given where such committee is in existence. The next subsection then goes on:—"If either party so objects, or there is no such committee, or the committee refers the matter, or fails to settle the matter within three months from the date of the claim, the matter shall be settled by a single arbitrator agreed on by the parties, or, in the absence of an agreement, by the County Court judge." "Therefore," said the sheriff, "it seems that petitions brought in this Court should set forth that there has been a failure to agree upon an arbitrator, which necessarily infers that some bona-fide attempt has been made to that end." This decision is likely to tend towards the establishment of a better understanding between employers and men as regards immediate relief to disabled workmen, and if our county courts take the same view of the arbitration clauses of the Act as the Scotch courts do, it is probable that there will be less friction and litigation between the employers and workmen than the enemies of the Act anticipated.—I am, &c.,

M. Roberts-Jones, County Coroner.

Cardiff.

General.

An Exhibition of Drawings by the late Sir Edward Burne-Jones will be opened at the Burlington Fine Arts Club on January 2 next.

Mons. G. Dumont has been elected president of the French Society of Civil Engineers for the coming year.

Mons. Roty has received a commission from the Paris Municipal Council for a medal to commemorate the construction of the new prison at Fresnes. His fee will be 12,000 francs for the die.

Mons. Normand, the architect, has been elected vice-president of the Académie des Beaux-Arts for 1899.

A Monument to Bishop Butler, the author of "The Analogy of Religion," in Durham Cathedral will be unveiled in a few days. This monument is a gift from Lord Northbourne, and the inscription is from the pen of Mr. Gladstone. Butler is buried in Bristol Cathedral, where there is a monument to him, with an inscription by Southey.

Mons. Guillaume, the French sculptor, is not likely to be formally received at the Académie Française before the end of February or the beginning of March. The discourse he has prepared for the occasion would fill a volume, and will have to be reduced.

The Paris Municipal Council has voted 500 francs towards the cost of erecting the memorial of the late Charles Garnier, the architect.

INDEX.

Articles:—

Academy Picture Sales, 94
American Institute of Architects, 222
American Library Buildings, 124
Ancient Bookbinding, 149
Ancient Egypt, 180
Ancient Roman Hospital in Switzerland, 14
Antique Furniture in France, 103
Archæological Forgeries in Berlin, 368
Archaic Charioteer, an, 421
Architects' Benevolent Society, 13
Architectural Acoustics, 430
Architectural Association, 243, 297, 322, 364, 397, 411
Architectural Association of Ireland, 279
Architectural Composition, 195
Architectural Experiment, an, 223
Architecture at King's College, 238
Art in Benin, 183
Artists' Copyright, 22, 39, 60
Art Museums, 95
Arundel Castle, 153
Assam Earthquake, 191, 197
Association School of Design, 246
Australian Copyright, 191
Basilica, the, 199
Birmingham Archæological Society, 87
Birmingham University, a, 20
Boadicea Statue, the, 295
Bridgman, the late H. H., 205
British Association, 164
British School at Athens, 276
Brook Hospital, the, 268, 373
Building By-laws and their Administration, 389
Building on Christ Church Site, Birmingham, 293
Burne-Jones, Sir Edward, 315
Cambrian Archæological Society, 132
Cambridge Engineering School, 268
Charterhouse, the, 278
Church of the Redeemer, Jerusalem, 252
City and Guilds of London Institute, 87
Cockerell on the Mausoleum, 84
Colour, Perception of, 61
Connaught Cabins, 142
Continental Museums, 90
Cowdroy House, 148
Crichton Parish Church, 407
Criticism which Helps, 357
Cumberland and Westmoreland Archæological Society, 155
Derbyshire Archæological Society, 121
Draughtsmen, Instruction for, 141
Durham Archæological Society, 127, 223
Early British Earthwork, 173
Early Christianity in Shetland, 429
Edinburgh Archæological Society, 343
Edinburgh Architectural Society, 279, 308, 342
Edinburgh Cockburn Association, 14
Edinburgh Museum, 103
Edinburgh, New Board School, 77
Edinburgh School of Applied Art Exhibition, 357
Egypt, Department of Antiquities, 407
Egypt Exploration Fund, 328
Egyptian Barrage Weirs, 101
Electric Railways and Observatories, 189

Articles—*continued.*

English Art in the Eighteenth Century, 12
English Bookbinding, 181
Esher and Claremont, 11
Fireproof Materials, 227
Fire, Security against, 108
Florence, Demolitions, 380, 407
Florence, Rebuilding of, 22
Florence, Water-Supply, 43
Fortifications of Tiryns, 189
Fountains Abbey, 199
Franks Bequest, the, 138
Fraser Bequests, 260
French and British Art, 69
Frescoes in the Houses of Parliament, 31
Fuller, the late Thomas, 295
Gibraltar, 59
Gilbert, the late Sir J. T., 294
Glasgow and West of Scotland Technical College, 415
Glasgow Archæological Society, 407
Glasgow Architectural Association, 219, 256, 282, 311, 368, 391
Glasgow Institute of Architects, 287, 295
Haigh Hall Library, 154
Hamilton Beattie, the late, 379
Hawick Archæological Society, 342
Hawick Architectural Society, 14
Highest Office Building in New York, 70
"Hinged" Masonry Arches, 55
Historical Exhibition of Drawings and Prints, 267
Historic Society of Lancashire and Cheshire, 303, 342
Hutton Castle, 100
Immersion Font, an, 415
Indian and Chinese Industries, 44
Innerpeffray Church, 219
Institution of Civil Engineers, 301
Interior Decoration, 375
Italian, French and German Bindings, 165
Jefferson as Architect, 190
Kildare Archæological Society, 198
Lambeth Palace, 69
Lancashire and Cheshire Antiquarian Association, 256, 375
Leatherhead, Mickleham and Dorking, 250
Leighton House, the, 55, 110
Leighton's, Lord, Drawings, 13
Leeds and Yorkshire Architectural Association, 334
Lithography, Centenary of, 211
Lockwood Memorial, 61
London Building Act and Official Supervision of Buildings, 393
London Building Regulations, 302
Lucerne, Old Bridge, 380
Malmesbury Abbey, 119
Manchester, Development of, 427
Manchester Society of Architects, 303, 391
Marden Park and Godstone, 259
Michelham Priory, 207
Micronesian Venus, the, 391
Microscope and Rock Studies, 109
National Gallery, 14, 23
National Portrait Gallery, 68

Articles—*continued.*

National Portrait Gallery, Edinburgh, 175
National Portraits, Catalogue, 254, 279
New Zealand Architecture, 294
Norman London, 308
Old London, a Register of, 125
Old Unity Club, the, 419
Open Air Sanatoria, 294
Ordnance Survey, 277
Papyrus, the, 91
Parthenon Marbles, the, 317, 334
Peterborough, Archæology of, 52, 73
Playing-card Designs, 119, 231
Plymouth Architects and Corporation, 53
Plymouth, Tavistock Road Competition, 395
Pompeii, Recent Discoveries, 251
Portraits at Kensington, Catalogue, 260
Professional Etiquette, 102
Progress in Prehistoric Periods, 169
Public Health and the British Medical Association, 87
Public Works in New South Wales, 122
Pueblo Masonry, 45
Regularity in Forms, 23
Reigate, the Manor of, 205
Roman Remains at Box, 203
Roman Villas, 46
Romans' Sanitary Work in Lincoln, 156
Royal Academy Schools, 390
Royal Archæological Institute, 71
Royal Dublin Society, 140
Royal Exchange, 100
R.I.B.A., 14, 373, 404
Royal Manchester Institution, 278
Royal Society of Antiquaries of Ireland, 101
Sanitary Institute, 221, 234
Sanitation in Ireland, 139
Science and Art Exhibitions, 119
Science and Art Museums, 12
Science and Art Report, 82
Sculpture in America, 73
Shakespeare, Droeshout Portrait, 374
Silchester Remains, 68
Society of Antiquaries of Scotland, 380, 396
Society of Arts, 29
Somerset Archæological Society, 171, 186
South Kensington Art Library, 180
South Kensington Museum, 7, 116, 223, 421
Southwell Minster, 185, 196, 213
Stratford-on-Avon Church, 39, 52
Sussex Archæological Society, 103
Temple of Thermon, 215
Terra-cotta in Architecture, 157
Truro Cathedral, 295
Usher Hall, 231
Usher Hall, Site, 267
Venice and Florence Demolitions, 421
Ventilation, Tests of, 107
Venus of Milo, the, 21
Waverley Abbey, 390
Welsh Antiquities, 71
Westminster Accident, the, 9
White Horse of Berkshire, 118
Windowless Buildings, 227

Articles—*continued.*

Window Tax, the Old, 110
Wood, Some Peculiarities of, 381
York Minster, 127
Zurich Polytechnicum, 86

Contract Reporter:—

Abbey Mansions, Sept. 30, Oct. 21
Advertisement Hoardings, July 22
Alhambra Theatre, Blackpool, Aug. 26
Amalgamated Society of Engineers July 1
American Fire Protection, Sept. 2
American Slag &c., Cement, Aug. 12
Archbishop's House, Dec. 23
Architects and Consulting Engineers, Nov. 18
Artesian Wells, July 22
Art Wall Papers (Knowles), July 1
Arts and Crafts (*see* "Articles"), Nov. 25
Auctioneers' Benevolent Fund, Oct. 28
Auctioneers' Institute, Sept. 2
Australian Factory Legislation, July 22
Aviemore Railway, Sept. 2
Balmoral Castle, Electric Lighting, July 8
Barry Development, Dec. 30
Barry Docks, Sept. 23
Belfast City Hall, Nov. 11
Belfast Electric Lighting, Oct. 21
Bembridge Land Sale, Sept. 16
Berlin Pavements, July 22
"Besto" Glass, Sept. 16
Billing's Gas Burner, July 1
Birmingham Association of Mechanical Engineers, Nov. 18
Birmingham Sanitary Congress, Aug. 5, Aug. 26
Bolton Master Builders' Association, Dec. 30
Bradford Church Congress, Sept. 9
Brickmasters' Employers Liability, Sept. 16
Brighton and Hove Sewers, July 1
Bristol Docks, Sept 9
Buchanan Street, Glasgow, Aug. 19
Builders' Benevolent Institution, July 29
Building By-laws in Birmingham, Nov 18
Building in Glasgow, Dec. 9
Building Sites in Japan, July 15
Building Stones, Tests of, Dec. 9
Cabot Tower, Sept. 23
Cast-iron Pipes, July 15
Centenary of Gas Lighting, Sept. 2
Central London Railway, Oct. 21
Christ Church, Birmingham, Sept. 2
City Land, Value of, July 1
Civil and Mechanical Engineers' Society, Dec. 9
Collegiate Church, Jerusalem, Oct. 28
Colston Hall, Sept. 16
Conciliation Councils, Aug. 26
Cork Pavement Company, July 8
Coronet Theatre, Dec. 9, 16
Cost of Main Sewers, Liability, Sept. 2
Crown Theatre, Nov. 4, 11

Contract Reporter - *continued.*

Danville Asbestic, Aug. 12
Deal, Sea Encroachment, Aug. 19
Deansgate Goods Depôt, July 8
Demolition of Buildings, Sept. 23
Deptford Fund House, July 8
Dibble, S. & Son, Nov. 11
Douglas Sewerage, Sept. 23
Duffy's Wood Paving, Dec. 9
Durham Shire Hall, Aug. 12
Eastwood's Barge Match, July 1
Edinburgh and Leith Master Builders' Association, Dec. 16
Edinburgh Building Trades Exchange, Nov. 11
Edith Weston Stone, Dec. 2
Electric Lamps, Renewal of, July 15
Electric Motors, Sept. 30
Electric Power, Application of, Sept. 23
Employers and Employed, Sept. 9, 16
Employers' Liability, Aug. 26, Dec. 23
Engineers' Strike, Aug. 19
Engineers' Wages, Nov. 11
Expeditious Brickwork, Aug. 12
Fire Extinction, Sept. 30
Fireproof Construction in America, July 22, 27
French Convalescent Home, Sept. 30
German Cement Tests, Oct. 28
Glasgow Building Trades' Exchange, Nov. 11
Glasgow New Bridge, Sept. 9
Govan Building Disaster, Oct. 14
Grand Theatre, Luton, Dec. 9
Grangemouth Dock, Sept. 2
Granville Theatre, Sept. 9
Guildhall School of Music, July 15
Health Exhibition, Aug. 26, Oct. 7
Height of Glasgow Buildings, Nov. 18
Holborn to Strand, Nov. 11
Homes for the Poor, Dec. 2, 9
Hooley Estates, Nov. 11
Hôtel Cecil, Nov. 18
Hunslet Baths, Dec. 23
Ideal London, Dec. 9
Industrial Conciliation, Sept. 23
Inglis Memorial Hall, Aug. 12
Institute of Civil Engineers, Oct. 21
Iron and Steel Institute, Aug. 19
Jones's Knife Sharpener, Dec. 23
Ketton Stone, Dec. 9
Kew Bridge, Nov. 4
Liverpool Dock Improvements, Aug. 19
Liverpool Post Office, Nov. 18
London as it is, July 15
London Board Schools, Aug. 12
London County Council Works Department, Dec. 16
London, Growth of, Nov. 18
London Water Supply, Nov. 4
Manchester Association of Engineers, Dec. 2
Marylebone Coal Depôt, Aug. 12
Matchless Gas-Lighter, Oct. 21
Metallic Castings, Oct. 7, 14
Metropolitan Improvements, Dec. 30
Metropolitan Tabernacle, Sept. 30
Missing Assessments, Nov. 18
Morecambe Sewerage, Oct. 21
Municipal Trading, Sept. 16
Municipal Trading in Electric Power, July 29
New Central Railway, Dec. 9
New Markets, Dec. 30
Non-inflammable Wood, Aug. 5, Dec. 16
Northern Architectural Association, Nov. 4
Novel Colonisation Scheme, Dec. 2
Orders from Sanitary Inspectors, Nov. 4
Orme, Evans & Co., Aug. 26
Parliament Street, Dec. 9
Patent and Merchandise Marks, Sept. 2
Philippine Houses, July 15
Plumbers' Registration, Dec. 30
Plymouth Waterworks, Sept. 9
Poor Law Buildings, Dec. 30
Protecting Pile Heads, Nov. 18
Public Works in Egypt, Nov, 11
Railway Extension to North Cornwall, July 22
Registration of Plumbers, Aug. 26, Sept. 23, Oct. 21, Dec. 2
Royal Institute of Architects of Ireland, Dec. 23
Royal Institute of British Architects, Nov. 25
St. Mary's, Bolsover, Sept. 23
St. Stephen's Schools, Dec. 2
Salisbury Electric Light, Dec. 30
"Samson" Sash Line, Nov. 11
Sanitary Association of Scotland, Sept. 2
Sanitary Inspectors' Association, Sept. 9, Oct. 21, Nov. 11
Sanitary Institute, July 1, 22, Oct. 28
Sandeman Library, Oct. 28
"Scagliola," Aug. 5

Contract Reporter—*continued.*

Scottish Building Trades Federation, Nov. 4
Scottish Plumbing Congress, Aug. 12
Sheerness Naval Barracks, Sept. 9
Shernbourne Church, Dec. 30
Shrewsbury New Theatre, Dec. 30
Simplon Tunnel, Aug. 19
Sir Tatton Sykes's Churches, Sept. 30
Slag Bricks, Aug. 12
Sledmere Church, Oct. 28
Smedley Building Scheme, Dec. 16
Smoke Nuisance, Oct. 21
Society of Architects, Nov. 25
Society of Engineers, July 22, Nov. 11, Dec. 9
Spitalfields Market, July 8
Superannuation of Municipal Officers, Oct. 7, Nov. 4
Surveyors' Fees, Dec. 2
Swivel Windows, Sept. 2
Taunton Technical Institute, Sept. 9
"Teba" Auto-Geyser, Oct. 28
Tenement Houses, Dublin, Dec. 23
Timber Seasoning by Electricity, Dec. 9
Trinity Hospital, Leicester, Sept. 2
University College Hospital, July 1
Usher Hall, Sept. 23
Vauxhall Bridge, Aug. 19
Veneered Doors, Sept. 9
Ventilation of the Houses of Parliament, Dec. 16
Vestries and Electric Lighting, July 8
Victoria Station, Nov. 4
Wages in the Metropolis, Aug. 5
Wallach's Humidifier, July 8
Water Gas, July 15
Waterloo and City Electric Railway, July 15
Wellingborough Technical Institute, Oct. 7
Welsh Watering-places, Aug. 19
West Bangor Lunatic Asylum, Aug. 12
Wireless Telegraphy, Aug. 26
Widening of Holborn, July 22
Working Class Dwellings, Oct. 21
Working Class Dwellings, Dublin, Aug. 26
Workmen's Compensation Act, Aug. 5, 19, Oct. 7
Works at Willesden, Dec. 30
Year's Building in Glasgow, Sept. 30

Correspondence :—

Amsterdam Post Office, 288
British School at Athens, 304
Dry Rot, 304
Ketton Freestone, 400
Roman Remains at Hayling Island, 304
Sanitary Inspectors' Association, 304
Warning to Architects, 256
Workmen's Compensation, 288, 432

General :—

16, 32, 48, 64, 80, 96, 112, 128, 144, 160, 176, 192, 208, 224, 240, 256, 272, 288, 304, 320, 336, 352, 368, 384, 400, 416, 432

Illustrations in Text :—

Architectural Acoustics, 431
Bayeux Cathedral, 331
Bernières Church, 311
Bromberg Theatre, 339, 340, 341
Caen, St. Etienne, 329, 331
Caen, St. Jean, 330
Caen, St. Pierre, 329
Caen, Trinity Church, 329
Chartres Cathedral, 361, 362, 363, 364, 377, 378
Cockerell on the Mausoleum, 84
Coutances Cathedral, 345, 346
Le Mans Cathedral, 409, 410, 425
Maison des Bateliers, Antwerp, 5
Peterborough Cathedral, 25, 26, 27
Public Works, New South Wales, 122, 123
Rouen Cathedral, 310
St. Ethelwold, Shotton, 185
St. Ouen, 310
St. Pierre-sur-Dives, 163
St. Remi, Dieppe, 309
Southwell Cathedral, 162, 229, 230
Winthorpe, Plan, 120

Leading Articles :—

Archæology and Oddfellowship, 66
Architecture in Quebec, 356
Arcisse de Caumont, 67
Artilleryman and Archæologist, 371
Artists and Artisans, 337
Arts under William III., 179
Athens, the History of, 6
Bohemianism and Architecture, 370
British Museum, the, 130
Burke, Edmund, 34
Christmas, 402
Cradle of a Great College, the, 227
English Habitations, 105
Garnier, Charles, 98
Gerard on Taste, 50
Gleyre, Charles, 307
Greek Stage, the, 35
Grounds of Walls and Paintings, 131
Heinrich Heine on French Painting, 114
High Buildings of the Ancients, 41
Ideal in Art, the, 99
Landscape Painting, 57
La Rochelle, 3
Lewis, T. Hayter, 386
Limours, 419
London Architects in 1816, 323
Lord Iveagh's Gifts, 418
Michel Angelo's Poems, the Mystery of, 403
Mousquetaires, the Paris of the, 290
New Public Offices, the, 50
Noyon Cathedral, Chronology of, 338
Orchard Street Case, the, 2
Paintings in Churches, 322
Palladio, 121
Panænus the Painter, 19
Peterborough Cathedral, 25, 83, 147
Prehistoric Art, 178
St. Albans Cathedral, 258, 281, 231, 324
St. Mary Redcliffe, Bristol, 265, 232
St. Pierre sur Dives, 163
Scott on the Architectural Garden, 306
Sculpture in Wood, 242
Sixteenth-Century Contracts, 210
Southwell Cathedral, 162, 228
Stone in Old Bow Church, the, 146
Summer Holidays among French Cathedrals, 233, 249, 309, 329, 345. 361, 377, 409, 425
Swiss Museum, Zurich, 18
Unrest in Architecture, 226
Ventilating and Warming, 201, 217, 236, 253, 270, 284
Ventilation, Tests of, 195
Vignola, 85
Waxen Images, 4
Weald of Essex, the, 37
Westminster in November, 355

Legal :—

Bridewell Hospital *v.* Paton & Charles, 1
Finch *v.* Woodrow, 401
Jordeson *v.* Sutton, 104
Marrow *v.* Flimby, 97
Payne *v.* Stevens, Sept. 16 *
Peareth *v.* Great Central Railway Company, Nov. 18 *
Peters *v.* Moore & Wright, 1
Pethick *v.* Trenchard, 81
Reynolds *v.* Holloway, 81
Wandsworth Board of Works *v.* Brett, 209
Woolliscroft *v.* Kirk & Randall, July 22 *
Young *v.* Perth Gas Commissioners, 145

* Contract Reporter.

Notes and Comments :—

Académie des Beaux-Arts, 264
Acetylene Gas, 428
Allen Bequest, 232
American Architects, 184
American Institute of Architects, 184, 328
American Iron and Steel, 216
Ancient Cross found in Bath, 72
"Ancient Lights," 344
Architects in Obscurity, 264
Architectural Competitions in Germany, 168
Architecture of the Renaissance, 280
Art Directors, 40
Baccelli, Signor, 424
Balzac Statue, 328
Baroness Hirsch Gift, 424
Belfast Pro-Cathedral, 312
Berik Sanatorium, 328
Birmingham New Hospital, 408

Notes and Comments—*continued.*

Birmingham Sewers, 328
Brighton Picture Gallery, 168
Buddha in Ireland, 184
Building in Paris, 312
Burne-Jones in Birmingham, 72
Business Premises, 296
Californian University, 184
Cambridge Museums, 120
Canons, Ashby, 168
Chadwick, Sir Edwin, 248
Chavannes, Puvis de, 280
Coker, Mr. E. G., 232
Colmar Church, 104
Corneille's House, 216
Cour des Miracles, 360
Croyland Abbey, 200
Decoration of Houses, 152
De Morgan's Excavations, 344
Deperthes, the late M., 88
Disease, Causes of, 88
Disraeli on Art, 392
Doges' Palace, Venice, 408
Ecole des Beaux-Arts, 136, 264, 328
Electric Scene Shifting, 216
Esplanade des Invalides, 40
Florence, 24
Garnier, Bust of, 424
Garnier Statue, 168
Geology, 168
Glasgow School of Art, 136
Gordon College, 360
Grove Hospital, 408
Harrison, Frederic, 56
Hideous Hoardings, 136
Historical MSS., 56
Hopkinson, Dr. John, 152
Irish Antiquities, 104
Jacobson, M., 344
Judge, Mr. Mark H., 360
Kew Bridge, 312
King René's Honeymoon Cabinet, 264
Leeds and Yorks Architectural Society, 360
Lion of Chæronea, 280
Liverpool Architectural Society, 88
London Crude Sewage, 72
Malmesbury Abbey, 424
Mangotsfield Church, 232
Mazas, 136
Mexico Legislative Palace Competition, 72
Modern Opera Houses, 264
Musée Galliera, Paris, 392
National Portrait Gallery, 424
New South Wales Public Buildings, 152
New South Wales Public Works, 264
Northern Artworkers' Guild, 216
Nuremberg New Theatre, 408
Opéra Comique, Paris, 376
Panthéon, 152
Panthéon Wall Decoration, 312
Paris Exhibition, 8, 56
Paris, Growth of, 376
Paris, Inspecting Architects, 120
Paris, Premiated Architects, 344
Paris Strike, 248
Parliamentary Plans, 392, 408
Party Walls, 280
Pascal, M., 136
Pavillon de Flore, 104
Peterborough Cathedral, 296
Ponte Vecchio, Florence, 360
Post Cards, 40
Prix de Rome, 248
Queen of Holland's Jewels, &c., 120
Reclus's, M., Globe, 8
Redland Antiquities, 184
Registration of Plumbers in New York, 72
Rochester Bridge, 424
Ruskin and Wagner, 8
St. Albans Cathedral, 8
St. Louis, Poissy, 232
St. Patrick's Cathedral, 296
St. Peter's Church, Liverpool, 344
St. Pierre, Montmartre, 312
St. Werburgh's Vaults, 184
Sala Regia, 56
Salomon Scholarship, 72
Salons, the, 40
Sanitary Officers' Qualification, 136
Scott, Mr. Wm., 280
Simon, Statue to Jules, 312
South American Prehistoric Architecture, 24
Spanish Pictures, 88
Stock Bricks, 248
Street, the late G. E., 56
Surface Wells, 88
Sydney National Gallery, 232
Treviso, 280
Tron Church, 152
Uffizi, the, 24
Venetian Mast-base for New York, 104
Ventilation, 376

Notes and Comments—*continued.*
West Australian Architecture, 216
Winchester Cathedral, 312
Wind in Quebec, 408
Wind Pressure, 296
Wooden Conduits, 296
Wooden Cottages, 200
Workhouse Grounds, 120
Workmen's Compensation, 344

Reviews :—
Alphabets, Old and New, by Lewis F. Day (B. T. Batsford), 360
Book Prices Current (Elliot Stock), 232
Law of Light and Air, the, by Alfred A. Hudson and Arnold Inman, Barristers-at-Law (London : F. P. Wilson), 83
Modern Opera Houses and Theatres : examples selected from playhouses recently erected in Europe, by Edwin O. Sachs, architect ; volume iii., including three supplements, with 20 plates and 860 illustrations (London : B. T. Batsford), 330
Notices et Discours, par Eugène Guillaume, de l'Académie Française et de l'Académie des Beaux-Arts, Professeur d'Esthétique et d'Histoire de l'Art au Collège de France (Paris : Société Française d'Editions d'Art), 274
Pocket Dictionary of Hygiene, by C. T. Kingzett, F.I.C., & D. Homfray, B.Sc., 200

Tesseræ :—
Adam's Architecture, 16
Ancient Saws, 191
Anglo-Saxon Characteristics, 319
Antique Tripod, the, 48
Arcades, 176
Arches on Columns, 263
Architectural Abuses, 192
Architectural Ornament, 343
Architecture, New Style of, 400
Argei in Rome, the, 175
Art in England, Obstacles to, 383
Art, Invention in, 112
Artists' Self-Praise, 16
Art, Patronage of, 208
Art, Prejudice in, 319
Art, Rules of, 262
Arts, Standard of, the, 400
Arts, the, and Religion, 192
Backgrounds, Treatment of, 128
Beautiful in Art, the, 208
Bernini's Sculpture, 127
Bonomi, Joseph, 143
Bookcases of the Ancients, 62
Botticelli, Sandro, 79
Bridge of St. Angelo, Rome, 191
Buddha, Portrait Studies of, 31
Castle Howard, 263
Cathedrals, French and English, 247
Chambers, Sir W., and Horace Walpole, 31
Charles II. and the Arts, 159
Chartres and Le Mans, 399
Classic Architecture and Furniture, 335
Contorniate Medals, 246
Correggio, 319
Corrodies, 144
Cosway, R., House of, 32
Criticism, Advantages of, 247
Cyclopean Walls, 78
Dance of Death, the, 208
Da Vinci and Modern Art, 423
Decorated Characteristics, 359
Dionysius, the Ear of, 416
Doors, 160
Early English Characteristics, 343
Early Engraving, 239
Early Oil Paintings in Venice, 336
Early Renaissance in Italy, 191
Early Stained-Glass, 240
Edwardian Influence in Western France 303
Electric Dischargers, Primitive, 287
English Gardens, 48
Etruscan Tomb Paintings, 144
Figure-heads, 343
Fitness and Proportion, 240
Florentine, Roman and Venetian Styles, 143
Foot Rules, 112
French Academy in Rome, 207
Fresco Secco, 336
Gardens, Treatment of, 416
Goethe and Art, 215
Gold and Silver, 422
Gothic and Classic, 15
Gower's Monument, 415
Greece, Mind's-eye Views of, 423
Greek and Roman Stables, 62
Greek Cella, the, 288
Greek Masonry, 96
Greek Stage, Arrangements of the, 359
Greek Theatres, Sites of, 111
Hague, The, 416
Harmony of Colours, 240
Hieroglyphic Writing, 111
Homeric Greece, 415
Horns as Title Deeds, 215
Houses, New and Old, 335
Irish Tenures, Ancient, 303
Italian Piazza, the, 215
Italian Style, Universal Applicability of the, 359
Jamesone, George, 62
Jones's, Inigo, Disinterestedness, 240
Laguerre, Louis, 159
Land Bocs, 239
Lausanne Cathedral, 383
Leech's Sketches in Oil, 359
Lines, Expressiveness of, 160
Mantegna, Andrea, 192
Medusa's Head, the, 358
Michel Angelo as a Colourist, 78
Michel Angelo's Method, 175
Memorial Brasses, 303
Memorial Columns, 112
Merton College Glass, 79
Monasteries, Eastern, 422
Monastery of Yuste, the, 319
National Taste, Effects of, 95
Nature and Art, 287
New Styles, 48
Norman Characteristics, 336
Painters and Poets, 262
Painting and Sculpture, Devices in, 62
Painting, Background in, 287
Painting, Contrast in, 128
Painting, General and Particular, Ideas in, 159
Painting, Invention in, 79
Painting of the Ancients, 207
Painting, Perspective in, 112
Painting, Province of, 96
Painting, Selection of Subjects in, 47
Palladio's *Teatro Olimpico*, 64
Palma, Jacopo, 247
Parmigiano's *St. Jerome*, 111
Pegna, the, 207
Perpendicular Characteristics, 383
Plant Forms and Ornament, 79
Polychrome Bronze, 263
Proportion, Canons of, 78
Quasi Transepts, 336
Raphael's Ideal Figures, 144
Ratisbon Cathedral, 358
Reynolds and Bonomi, 423
Reynolds's Influence on Portraiture, 399
Richardson, Mr, sen. and jun., 262
Roman and British Early Roads, 399
Roman Concrete Walls, 320
Roman Cottages, 112
Roman Gardens, 247
Roman Houses, Costliness of, 358
Roman London, 319
Roman Sestertius, the, 287
Roman Surveyors, 175
Roman Work in France, 399
Rome, Inundations in, 247
Royal Patronage in England, 96
Rubens as a Colourist, 143
Runciman's Wall Paintings, 63
St. Evasio, Monteferrato, 175
St. Peter's, Monkwearmouth, West Doorway, 319
Sacred Subjects in Sculpture, 208
Scamozzi, 160
Scottish Early Paintings, 63
Senses, the, and the Arts, 47
Single Figures and Groups, Treatment of, 176
Sketches on Canvas, 63
Society of Arts, 384
Soul's Awakening in Artists, the, 160
Spanish Architecture, 343
String Course, the, 64
Symbols on Tombs, 78
Symmetry in Objects, 127
Temple and Grove of Daphne, 384
Temple of Jupiter Serapis, the, 423
Temples of Siva, the, 127
Theban Corinthian Order, the, 78
Titian's "Bunch of Grapes," 304
Torre Neuva, the, Zaragosa, 303
Training of the Eye, 215
Treasure Trove, 111
Tree Coffins, 320
Triple Windows, 262
Tudor Sumptuary Laws, 192
Turrets, 175
Vanbrugh and Blenheim, 47
Vasari, Georgio, 96
Vase Production, Ancient, 111
Vatican, the, 176
Via Sacra, Rome, the, 336
Winckelmann and Mengs, 96
Window, a, as a *Casus Belli*, 61
Windows, Figure and Canopy, 159
Whitehall Palace, Jones's Design for, 15

The Week :—
American Institute of Architects, 337
Anderson, Sir Wm., 385
Arc de Triomphe, 321
Architects in Quebec, 225
Architects in Russia, 257
Architects' Plans, Value of, 17
A.A., 113
A.A. Conversazione, 273
"Architectural Photography," 17
Architectural Students, 225
Architecture and Poetry, 145
Architecture at the Church Congress, 209
Architecture of the Renaissance, 305
Auctioneers' Institute, 305
Bath Antiquities, 177
Bidston Court, 49
Birmingham Architectural Association, 337
Birmingham Art Gallery, 321
Birmingham Council House, 417
Birmingham University, 17
Blackpool Hotels, 129
Blashill, Mr. Thomas, 273
Book Sales, 289
Bradford Fire Brigade Station, 401
Bread Crumbs *v.* Rubber, 401
Bridewell Hospital Fire, 1
Bridge House Estates, 289
British Association, 113, 177
Brook Hospital, 369
Brussels Botanic Gardens, 417
Building in Glasgow, 97
Building in Johannesburg, 65
Building in Mexico, 257
Buquet, M., 49
Californian University, 225, 257
Canterbury Municipal Buildings, 177
Cernuschi Museum, 241
Chambers, the late A. M., 145
Charles, Miss Ethel Mary, 369
Chantilly, 225
Chavannes, the late Puvis de, 273
Christ Church, Leeds, 305
City and Guilds Institute Report, 273
City Hall, Port Hopetoun, 33
Clark, the late J. F., 257
Clark, the late Latimer, 289
Commons Preservation Society, 337
Constant, Benjamin, 1
Crane, Mr. Walter, 97
Delaborde, Comte Henri, 33
Drew, Mr. Thomas, 401
Droeshout Shakespeare, 385
Dublin Fire-brigade Station, 369
Dublin Housing Question, 129
Ebers, Professor George, 97
Finch *v.* Woodrow, 401
Footpaths, 193
Fowler, the late Sir J., 337
French Archæological Society, 33
French Pictures at the Guildhall, 17
Fulham, 33
Gardeners as Artists, 145
Garnier, Madame, 353
Glasgow Building Regulations, 321
Glasgow University Engineering Society, 337
Glastonbury Lake Village, 177
Hawkins, Mr. Justice, 33
House of Commons Sanitation, 97
Horton Manor Asylum, 49
Hymns to Apollo, 49
Insanitary Property, 417
Institute of Civil Engineers, 353
Kelmscott Press, the, 81
King John's Castle, 81
Lambeth Palace Library, 113
La Scala, 113
Lenepveu, Jules E., 273
Liverpool Architectural Society, 305
Liverpool University College, 257
London County Council and the Building Act, 241
London County Council Architect, 369
Lucerne Kapellbrücke, 417
Macclesfield Parish Church, 225
Manchester Workmen's Dwellings, 209
Marrow *v.* Flimby, 97
Metropolitan Water Supply, 289
Millais Memorial, 49
Monasterboice Crosses, 65
Mont St. Michel, 65
Moscow School of Music, 353
New National Art Club, 97
Opéra Comique, Paris, 1, 193
Paris Exhibition, 65
Paris Opera House, 113
Paris Theatres and Fire, 113
Pastor's Autobiography, 161
Peters *v.* Moore & Wright, 1
Pethick *v.* Trenchard, 81
Public Buildings in War, 161
Reynolds *v.* Holloway, 81
Rome, Lighting of, 193
Rothschild, the late Baron, 401
Royal Academy of Arts, 209
Royal Baths, Stafford, 17
R.I.B.A. and the Government Offices, 65
R.I.B.A. Examinations, 33
Royal Society of Antiquaries of Ireland, 241
St. Clement's Church, Belfast, 353
St. David's Cathedral, 129
St. Maur-de-Glanfeuil, 193
Salisbury Cathedral, 33
Salle des Séances, Paris, 161
Scientific Education, 145
Shell Fonts, 305
Society of Arts, 305, 324
Society of Oil-Painters, 289
Southsea Common, 225
Strand-Holborn Street, 17
Technical Education in Cheltenham, 161
Tombstone at Fittleworth, 97
Usher Hall, 241, 273
Usher, the late Mr. Andrew, 289
Vauxhall Bridge, 97
Wandsworth Board of Works *v.* Brett, 209
Westminster Disaster, 17
Wind Pressure, 161
Workmen's Compensation Act, 1, 353, 369, 385, 401
Worthing Groynes, 225
Young *v.* Perth Gas Commissioners, 145

INDEX OF ILLUSTRATIONS.

*** The Lithographed Illustrations will be found opposite to the pages quoted.

Baldwin Street, Bristol, 376
Ball Room, Amsterdam Palace, 264
Bank Buildings, Reading, 169
Birmingham, New Premises, 360
British Linen Bank, Belfast, 296
Burgh Hall, Bathgate, 88
Canterbury Cathedral, Communion-table, 392
Claridge's Hotel, 344, 376
Coach and Horses, Clerkenwell, 408
College of Arms, Office, 153
Cottages at Eton, 88
Dame Owen's Statue, 312
Decorative Panel, 169
Eastcote, Pinner, 280
Exhibition of the National Sculpture Society, 72
Guardian Angels' Church, 40, 153
Hôtel Metropole, Folkestone, 328
House, Champs-Elysées, 120
House, Rue Vernet, 120
House, West Finchley, 169
Inglis Memorial Hall, 57
Kelsey, Beckenham, 216
Kingston Vale Church, Reredos, 184
Lambeth Walk, 104
Lewisham Jubilee Clock Tower, 120
London and Westminster Bank, 200
Memorial Schools, St.-Mary-of-the-Sea, Hastings, 40
Methodist Church, Weston-super-Mare, 296
Morley House, St. Margaret's Bay, 40
Mount Street (34), 344
Nottingham, General Post Office, 312
National Provincial Bank of England, 8, 24
Offices, Bishopsgate Street, 104
Oxford Municipal Offices, 296
Oxford Street (47), 312
Park Lane (16), 248
Peterborough Cathedral, 8, 24, 40, 56, 72, 88, 104, 120, 136, 153
Port Sunlight, 408, 424
Post Office, Amsterdam, 248
Putney, new Church, 424
Queen's Sitting-room, The Hague, 216
Roxborough Mansions, 424
Royal Hospital for Children, Edinburgh, 376
St. Albans Cathedral, 280, 296, 312, 328, 344, 360, 376, 392, 408, 424
St. George's Church, Stockport, 232, 264, 280
St. John the Baptist, Norwich, 344
St. Paul's Church, Camden Square, 8
Savoy Hotel Fountain, 328
Savoy Hotel Waiting-Room, 392
Shoreditch Public Baths, 360
Small Houses, Whitton Park, 120
Southwell Cathedral, 169, 184, 200, 216, 232, 248
State Ball-room, The Hague, 232
Thurstonville, Beckenham, 184, 200
Villa at Barton-on-Sea, 88
Villa at Canner, 72
Villas, Grove Park, Chiswick, 376
West Calder Co-operative Society, 200
Winthorpe, Epsom, 120

ARCHITECTS AND ARTISTS.

Albury & Webb, F.R.I.B.A., 168
Austin & Paley, 232, 264, 280
Belcher, A. H., A.R.I.B.A., 104
Blomfield, Sir A. W., A.R.A., 8, 392
Bodley, G. F., R.A., 184
Brooker, J. W., 408
Browne, G. W., A.R.S.A., 376
Bryan, H. Dare, 296
Bryce, David, 296
Carter, E., A.R.I.B.A., 120
Cattermole, R., 152
Cobb & Bottrill, 136
Collcutt, T. E., 328, 392
Cutler, T. W., 328
Doncaster & Rogerson, 88
Douglas & Fordham, 424
Durville, A., 120
Eastwood, J. H., A.R.I.B.A., 40, 152
Fairley, J. Graham, F.R.I.B.A., 88, 200
Frampton, J., A.R.A., 312
Gordon, Lowther & Gunton, 312
Hare, Henry T., 360
Hoffman, Paul, 424
Hooper, Francis, 184, 200, 216
Hunt & Steadman, 120
Hunt, F. W., F.R.I.B.A., 200
Lethbridge, George, 248
Mountford, E. W., 424
Newton & Cheatle, 360
Owen, William, 408
Ower, C. & L., 57
Palgrave & Co., 376
Peters, C. H., 283
Poley, E. W., A.R.I.B.A., 104, 168
Ryan-Tenison, A.R.I.B.A., 88
Scott, G. G., 344
Sedille, R., 136
Smith, W. H. Seth-, 280
Stephens, C. W., 344, 376
Stevenson, G. D., 40
Stockley, A., 72
Tanner, Henry, 312
Thornton, Edward, A.R.I.B.A., 88
Turner, E. H., 168
Wade, Fairfax B., 344
Waterhouse, Alfred, R.A., 8, 24
Webb, G. W., F.R.I.B.A., 296
Yabbicom, T. H., A.M.I.C.E., 376

THE

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In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the above Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," 175 Strand, London, W.C.

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BRADFORD.—April 14.—Designs will be invited for the erection of the Bradford Corporation Cartwright Memorial Hall, at a cost of 38,000*l.* Three prizes will be offered, value 150*l.*, 100*l.* and 50*l.* respectively. Particulars will be found in another column.

BURNLEY.—Jan. 14.—The Burnley School Board invite designs for a new higher-grade school and pupil-teachers' centre, to be erected in Ormerod Road, Burnley. Competition is limited to architects having offices within 60 miles of Burnley. Mr. E. Jones, clerk, Town Hall, Burnley.

HARROGATE.—Jan. 2.—Competitive designs are invited for erection of a pump-room, &c., the cost of which must not exceed 8,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* Mr. Samuel Stead, borough surveyor, Municipal Offices, Harrogate.

HULL.—Jan. 2.—Designs are invited in competition for a central public library in Albion Street. Premiums 50*l.*, 30*l.* and 20*l.* Mr. Sidney R. J. Smith, 14 York Buildings, Adelphi, W.C.

CONTRACTS OPEN.

BARNES.—Jan. 10.—For erection of a fire-station in the High Street, Mortlake. Mr. G. Bruce Tomes, surveyor, Council Offices, High Street, Mortlake.

BARNSTAPLE.—Jan. 6.—For alterations and additions to a house in Bear Street, and for the erection of stables, carriage-house, &c. Mr. Arnold Thorne, 16 Cross Street, Barnstaple.

BARNSTAPLE.—Jan. 6.—For erection of stables, &c. Mr. Arnold Thorne, architect, 16 Cross Street, Barnstaple.

BIRKENHEAD.—Jan. 3.—For erection of pay gates and buildings at the entrance at Rock Ferry Pier. Mr. Charles Brownridge, borough engineer, Town Hall, Birkenhead.

BRADFORD.—Jan. 10.—For erection of new Inland Revenue offices at Bradford, for the Commissioners of H.M. Works and Public Buildings. Mr. Flew, 11 Popplewell Chambers, Bradford.

BRIDGWATER.—Jan. 3.—For structural alterations and improvements at the workhouse. Mr. W. Coles, 2 Grosvenor Villas, Wimbledon Road, Bridgwater.

CARLISLE.—For erection of two houses at Brampton. Mr. J. S. Thompson, solicitor, 18 Bank Street, Carlisle.

CARTMEL.—For alterations to the Cavendish Arms. Messrs. Settle & Farmer, architects, County Square, Ulverston.

COCKERMOUTH.—Jan. 6.—For erection of two bridges over Hope Beck in Brackenthwaite. Mr. J. B. Wilson, architect, Cockermouth.

DERBY.—Jan. 6.—For extension of Institute Buildings, for Midland Railway Company. The Company's Architect, Cavendish House, Derby.

DEWSBURY.—Jan. 4.—For erection of eighteen houses, reading-room, outbuildings, boundary wall railing. Messrs. Holtom & Fox, architects, Westgate, Dewsbury.

DRAYTON.—Jan. 3.—For erection of cottage at Tern Hill, near Market Drayton, for Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

ELGIN.—Jan. 2.—For erection of cottage at Altyre and cottage at Gordonstoun. Messrs. A. & W. Reid & Wittet, architects, Elgin.

ELGIN.—Jan. 2.—For erection of a villa to be erected in Reidhaven Street. Messrs. A. & W. Reid & Wittet, architects, Elgin.

FAREHAM.—Jan. 16.—For construction of concrete foundations, erection of brick, steel and concrete superstructure of new infirmary wards, sanitary blocks, boiler-house, tall chimney shaft, &c., at County Lunatic Asylum, Knowle. Mr. W. J. Taylor, county surveyor, the Castle, Winchester.



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GRAYS.—For erection of a cast-iron bandstand and an ornamental shelter in the public park, Grays, for the Grays Thurrock Urban District Council. Mr. A. C. James, surveyor.

HALIFAX.—Jan. 11.—For erection of an infants' school and manual instruction centre at Mile Thorn, and alterations to Queen's Road Board school. Mr. Joseph F. Walsh, architect, Lancashire and Yorkshire Bank Chambers. Halifax.

HANDSWORTH.—Jan. 17.—For enclosing and laying-out the new burial-ground, including making roads, &c., and erecting a chapel and boundary walls, &c. Mr. Edmund Winder, jun., surveyor, Corn Exchange Chambers, Wharf Street, Sheffield.

HANWELL.—Jan. 13.—For erection of a block of school buildings and appurtances for infants on the site adjoining existing schools, Cuckoo Lane Messrs. T. J. Newman & Jacques, architects, 2 Fen Court, London, E.C.

HORSHAM.—Jan. 9.—For erection of infirmary and administrative block to workhouse. Mr. C. H. Burstow, architect, 6 West Street, Horsham.

HUDDERSFIELD.—For erection of offices for the Prudential Assurance Company, Limited. Messrs. A. Waterhouse & Son, architects, New Cavendish Street, London, W.

HUDDERSFIELD.—Jan. 5.—For erection of Sunday school, adjoining the Primitive Methodist chapel, Highburton. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

IPSWICH.—Jan. 2.—For erection of a drinking fountain, &c., at the junction of Princes Street and Portman Road. Mr. Frederick Wheeler, 6 Staple Inn, London, W.C.

KEIGHLEY.—Jan. 9.—For erection of five dwelling-houses and four houses and shops in Oakworth Road. Messrs. W. H. & A. Sugden, architects, Keighley.

KIDDERMINSTER.—Jan. 11.—For erection of fire-engine station. Mr. Arthur Comber, borough surveyor.

LEAMINGTON.—Jan. 2.—For erection of entrance lodge to Victoria Park. Mr. Frederick G. Cundall, 41 Parade, Leamington.

LEEDS.—For erection of a studio in Rowland Road. Mr. Harry Swanwick, architect, 6 Upper Fountaine Street, Leeds.

LLANDRINDOD WELLS.—For erecting stables, coach-house and cottage at Llandrindod Wells. Messrs. Swash & Bain, architects, London and Midland Bank Chambers, Newport.

LONDON.—Jan. 11.—For pulling-down and removal of buildings abutting on the site of the electric-lighting station. Mr. Wm. F. Dewey, vestry clerk, Vestry Hall, Upper Street, N.

LYMINGE.—Jan. 4.—For alterations to old administrative block of buildings at the workhouse, Lyminge. Mr. G. S. Wilks, architect, 2 Cheriton Place, Folkestone.

MANCHESTER.—Jan. 4.—For alterations at Leaf Street baths. The City Surveyor, Town Hall, Manchester.

MICKLEOVER.—Jan. 9.—For erection of two new wards and sundry other works at the Derby County Asylum at Mickleover, near Derby. Mr. J. Somes Story, county surveyor, County Offices, Derby.

MORECAMBE.—Jan. 7.—For erection of an arcade at Sandyland, Heysham. Mr. A. Lancelot Lang, architect, 12A Pedder Street, Morecambe.

MORLEY.—Jan. 2.—For alterations and extensions to the Cross Hall Board schools, Fountain Street. Messrs. T. A. Buttery & S. B. Birds, architects, Morley.

NELSON.—Jan. 7.—For erection of two semi-detached villas at Reedley. Mr. Jas. T. Landless, Station Buildings, Nelson.

NEW BARNET.—Jan. 12.—For erection of a school to accommodate about 860 children at Victoria Road. Mr. W. Pywell, architect, 40 Great James Street, Bedford Row, W.C

NOTTINGHAM.—Jan. 3.—For erection of superstructure of the workhouse. Mr. Arthur Marshall, architect, King Street, Nottingham.

PRESTON.—Jan. 17.—For erection of a police-station, dwelling-houses, &c., at Huyton. Mr. Henry Littler, architect, County Offices, Preston.

ROCHDALE.—Jan. 17.—For erection of buildings for electricity works. Mr. J. Leach, town clerk, Town Hall, Rochdale.

SCOTLAND.—Jan. 3.—For erection of station-house, platform covering, &c., at Inverurie, for the Great North of Scotland Railway Company. Mr. W. Moffatt, secretary, Aberdeen.

SCOTLAND.—Jan. 8.—For erection of Pringle Memorial Free Church at Fochabers. Messrs. D. & J. R. M'Millan, architects, 211 Union Street, Aberdeen.

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SCOTLAND.—Jan. 14.—For erection of two semi-detached villas in Sanquhar Road, Forres, and for supply of railing, grates, &c., required in connection therewith. Mr. John Forrest, architect, High Street, Forres.

SELBY.—Jan. 11.—For erection of public baths. Messrs. W. Hanstock & Son, architects, Branch Road, Batley.

SHEFFIELD.—For erection of a villa residence at Tinsley. Mr. J. P. Earle, architect, Norfolk Row, Sheffield.

TADCASTER.—Jan. 7.—For erection of tramp wards at the workhouse. Messrs. Bromet & Thorman, architects, Tadcaster.

WAKEFIELD.—Jan. 7.—For alterations, additions, new stabling, &c., at the Cock and Crown hotel, Crofton. Mr. B. Wood Higgins, architect, Oulton, near Leeds.

WALES.—Jan. 5.—For altering and improving the Ynyswen Board schools. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WELLINGTON.—Jan. 10.—For erection of a church and school, Waterloo Road. Mr. F. W. Roberts, architect, 2 Hammet Street, Taunton.

WEST HAM.—Jan. 7.—For enlargement of hospital at Southern Road. Mr. Edwin T. Hall, architect, 57 Moorgate Street, London, E.C.

WINGATE.—Jan. 28.—For erection of a shop near Trimdon Station. Apply to the Secretary.

IN the ventilation of the large new warehouses erected in Ingram Street, Glasgow, for Messrs. J. & W. Campbell & Co., and designed by Messrs. Baird & Thompson, architects, Cousland's improved "Climax" patent direct-acting turret ventilators have been used, being supplied by the "Climax" Ventilating and Heating Company, Glasgow.

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TENDERS.

ATTLEBOROUGH.

For cleaning, colouring and painting, &c., the inside of the workhouse at Rocklands, near Attleborough, Norfolk.

J. Tooke	£145 0 0
A. D. Boddy	135 0 0
Watson & Kirby	128 0 0
G. B. Ketteringham	105 14 0
Adcock & Sons	104 0 0
W. R. Codman	84 15 0
W. PEEKE-VOUT, Caston (*accepted*)	78 10 0
W. Knights	76 15 0
Balls & Wright	68 0 0

BARNSLEY.

For erection of an additional wing to the infants' school, Lamb Lane, Monk Bretton. Messrs. WADE & TURNER, architects, 10 Pitt Street, Barnsley.

Accepted tenders.

J. K. Taylor & Son, Barnsley, builder	£381 10 0
W. Hammerton's Exors., Worsbroughdale, joiner	185 0 0
M. Fleming, Barnsley, plasterer and slater	65 10 0
Snowden & Son, Barnsley, plumber, glazier and painter	45 8 0

For erection of additions and alterations at the Malt Shovel inn, Darton. Messrs. WADE & TURNER, architects, 10 Pitt Street, Barnsley.

Accepted tenders.

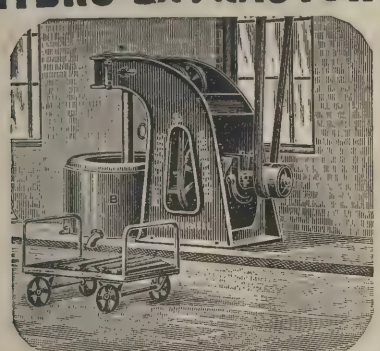
G. Haigh, builder	£164 0 0
J. Thornley, joiner	54 10 0
W. Dawber & Son, slater	11 2 0
M. Fleming, plasterer	11 15 0
B. Denison, plumber	10 15 0
C. Whitwell, painter	6 3 0

BICESTER.

For erection of an additional classroom at Crockwell infants' school. Mr. A. M. MOWBRAY, architect.

Grimsby & Son	£203 10 0
J. W. Smith	200 0 0
T. Grimsby	150 0 0

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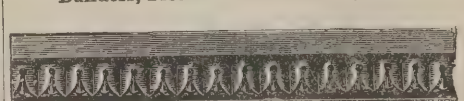
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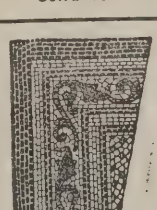

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For erection of ten houses on the Hilderthorpe Hall Estate, Bridlington Quay. Mr. D. Petch, architect, Scarborough.

Accepted tenders.

T. Blackburn, Ashleigh, excavator and mason.
F. Flintoft, Bridlington Quay, joiner.
J. H. Jervison, Liversedge, plumbing, glazing and hot water.
H. Cookson, Heckmondwike, plasterer.
Dawber & Co., Limited, Bridlington Quay, slating.

CASTLEFORD.

For alterations and additions at the Station hotel. Messrs. J. Holmes, Greaves & Co., architects, Carlton Street, Castleford. Quantities by architects.

Excavator, mason, &c.

A. North	£500	0	0
W. Thompson & Sons	416	0	0
R. Walker & Sons	413	8	3
T. Thompson, 7 Hugh Street, Castleford (*accepted*)	297	2	0

Joiner and carpenter.

R. Gillatt & Sons	140	0	0
W. Thompson & Sons	130	0	0
J. Perry & Sons, Lock Lane, Castleford (*accepted*)	124	11	8

Plumber, &c.

J. Powell	150	10	6
W. Wilson & Sons, Eastfield Works, Castleford (*accepted*)	140	14	0
G. Bateson & Sons	139	9	6
N. H. Pennington	138	0	0

Slater.

S. Evison	30	0	0
W. R. Allison, Lansdowne Villa, Castleford (*accepted*)	23	17	8

Plasterer.

T. Smithies & Son	54	5	6
T. W. Senior, Walkergate, Pontefract (*accepted*)	45	10	0
J. Lockwood	37	0	0

DURHAM.

For making carriage ways and relaying channels and crossings (footpaths already made) in several streets. Mr. George Ord, architect, 16 The Avenue, Durham.

J. Carrick, The Avenue (*accepted*).

CHESTER-LE-STREET.

For construction of sewers in the parishes of Washington and Usworth, consisting of 850 yards of 12-inch, 360 yards of 9-inch and 130 yards of 6-inch sanitary pipes, with manholes, ventilators, &c. Mr. Geo. Symon, surveyor, Birtley.

Tough Bros.	£667	12	0
P. C. Hetherington	639	5	0
J. Carrick	617	0	0
J. Thompson, Gosforth and Newcastle (*accepted*)	574	8	6

EARLSHEATON.

For laying new causeways and kerbing and channelling in Wakefield Road and Syke Lane. Mr. T. Collins, surveyor, Council Offices, Town Street, Earlsheaton.

W. Knowles	£270	13	1
Eastwood & Co.	238	4	3
J. Buckley	237	18	7
J. Scott	233	17	6
G. Scott	231	10	1
J. Overend, Ravensthorpe, near Dewsbury (*accepted*)	197	14	8

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For construction of Milburn water supply. Messrs. Geo. Watson & Son, engineers, Penrith.

G. Carruthers	£710	0	0
G. Smiley	561	16	11
J. Bowerbank	530	17	4
J. & W. Scott	515	0	0
J. Jackson, Penrith (*accepted*)	479	19	9

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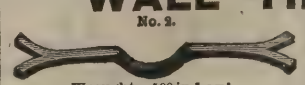
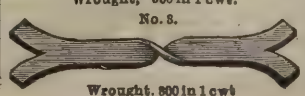
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T. Adams	5,367	9	8
G. Bell	4,184	0	0
Ballard & Co.	4,163	7	10
Wimpey & Co.	4,076	0	0
Wilkinson Bros.	4,042	0	0
C. Ford	3,898	0	0
E. Bloomfield	3,625	0	0
Dupont	3,389	0	0
G. R. MANN, High Street, Edgware (*accepted*)	3,278	2	0

FALKIRK.

For erection of a manse, Cemetery Road, Camelon. Mr. ALEXANDER GAULD, architect, Melville Street, Falkirk.

Accepted tenders.

J. Abercrombie, mason.
J. Main, joiner.
A. Cairns, plumber and gasfitter.
Martin & Neish, slater.
J. Millar, plasterer.
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Somervail & Co.	£2,652	8	9
A. Penny & Co.	479	5	10
F. Morton & Co.	417	0	0
J. O. Brettel	365	8	7
STEAVENSON & Co., London, E.C. (*accepted*)	322	17	9

Contract No. 2.—*Road.*

A. Penny & Co.	2,790	0	0
P. J. O'Malley	796	5	0
T. B. Joyce	735	0	0
M. WALLACE, Maam, co. Galway (*accepted*)	699	11	6

HAMPTON-ON-THAMES.

For additions to the infants' side of the Station schools. Mr. FREDK. G. HUGHES, architect, Hampton-on-Thames.

A. G. Oundell	£729	0	0
A. Gimson	635	16	0
J. Pavey	599	0	0
F. Wake	550	9	6
J. Wright	550	0	0
J. Singleton	486	0	0
H. Bishopp	465	0	0
J. C. Snell	455	15	0
J. HEBBLETHWAITE, Pimlico (*accepted conditionally*)	425	0	0

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For enlargement—boys, 60, and removing and refixing boys' lavatory basins, Gravel Lane.

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Marchant & Hirst	599	0	0
F. T. Chinchen	544	0	0
W. Akers & Co.	539	0	0
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W. King & Son	£8,288	0	0
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O. Craske	7,354	0	0
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E. Triggs	£9,331 0 0
J. Carmichael	9,326 0 0
C. Miskin & Sons	9,251 0 0
G. E. Wallis & Sons	9,086 0 0
J. & M. Patrick	8,990 0 0
W. Downs	8,946 0 0
F. & H. F. Higgs	8,922 0 0
W. King & Son	8,850 0 0
E. Parsons & Co.	8,706 0 0
J. Marsland	8,660 0 0
B. E. Nightingale	8,656 0 0
W. Johnson & Co., Limited	8,519 0 0
Lathey Bros.	8,137 0 0
Edwards & Medway	7,769 0 0
W. Smith *	7,579 0 0

For converting schoolkeeper's old house into a manual training centre, Penrose Street.

E. Triggs	£286 0 0
W. Downs	272 0 0
W. V. Goad	272 0 0
H. & G. Mallett	270 0 0
J. Garrett & Son	265 0 0
J. Marsland	265 0 0
T. Hooper & Son	249 0 0
J. F. Ford *	203 0 0

For providing and fixing Kindergarten gallery in infants' department, East Lane.

Johnson & Co.	£250 0 0
Rice & Son	171 0 0
S. Musgrove	146 15 0
Jones & Musgrove	136 10 0
T. Cruwys	134 0 0
E. Triggs	129 0 0
E. B. Tucker	129 0 0
H. Lane *	111 0 0

* Recommended for acceptance.

LONDON SCHOOL BOARD—*continued.*

For fitting-up old modelling-room as a physical laboratory and providing partition to form a balance-room, Upper Hornsey Road.

R. A. Yerbury & Sons	£317 0 0
Marchant & Hirst	297 0 0
G. S. S. Williams & Son	284 0 0
F. Britton	275 0 0
Gardner & Hazell *	255 0 0

For rebuilding the offices (all departments) further away from the school building; refitting the teachers' closets inside the buildings; alterations to lavatories, new drainage scheme and provision of drainage for higher standard rooms, Monson Road.

H. Somerford & Son	£3,153 0 0
J. & C. Bowyer	3,151 0 0
J. Garrett & Son	3,147 0 0
W. Aker & Co.	3,126 9 0
E. Triggs	3,100 0 0
F. G. Minter	2,869 0 0
W. Hammond	2,847 0 0
Lathey Bros.	2,765 0 0
W. V. Goad	2,750 0 0
G. Parker *	2,671 0 0

For providing covered playgrounds for the boys and girls departments, Wellington Street.

W. Hornett	£1,170 0 0
E. Lawrance & Sons	750 0 0
J. Grover & Son	635 0 0
G. Barker	610 0 0
W. Shurmur	535 0 0
F. Bull	520 0 0
Marchant & Hirst	495 0 0
F. T. Chinchen *	448 10 0

For converting schoolkeeper's old rooms into a classroom—infants' department, Boundary Lane.

W. V. Goad	£221 0 0
J. Marsland	215 0 0
J. Garrett & Son	214 0 0
Jones & Groves	192 0 0
F. R. Blaxton	175 0 0
J. F. Ford *	162 0 0

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Westminster Engineering Co., Limited	880 0 0
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For heating, Ellerslie Road.

H. C. Price, Lea & Co.	£215 0 0
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J. & F. May	137 0 0
J. C. & J. S. Ellis, Limited	133 0 0
W. G. Cannon & Sons	129 0 0
J. Grundy	126 0 0
Palowkar & Sons	117 10 0
Stevens & Sons	113 0 0
Duffield & Co.	110 0 0
C. Kite & Sons *	95 0 0

* Recommended for acceptance.

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For erection of club premises in Baxter Gate. Mr. W. T. HAMPTON, architect, Swan Street, Loughborough.

J. Gorvett	£3,169 0 0
C. Orton	3,073 0 0
W. F. Harding	2,975 0 0
W. Tailby	2,960 0 0
Moss & Son	2,940 0 0
C. Dobson	2,870 0 0
Kirk & Fletcher	2,860 0 0
W. Corah	2,850 0 0
Watson & Lovett	2,825 0 0
Main, Kendal & Main	2,795 0 0
T. BARKER & SON, Loughborough (*accepted*)	2,775 0 0

MAIDENHEAD.

For sewering Penyston Road. Mr. PERCY JOHNS, borough surveyor.

Lee & Sons	£341 10 0
C. W. Cox & Son	286 0 0
Free & Son	260 0 0
TALBOT, Reading (*accepted*)	243 0 6

For repairing part of Grenfell Road. Mr. PERCY JOHNS, borough surveyor.

Bentham	£833 2 3
F. Talbot	714 12 3
Free & Son	699 17 6
W. LEE & SON, High Wycombe (*accepted*)	579 0 0

MITCHAM.

For alterations to the drainage system at the Holborn Union schools. Mr. A. SAXON SNELL, architect, 22 Southampton Buildings, Chancery Lane, W.C.

H. Wall & Co.	£87 0 0
F. R. Blaxton	69 17 0
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T. G. HAWKINS, Mount Pleasant, W.C. (*acceptea*	62 0 0

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For erection of six houses at Dogsthorpe.

F. Colls	£893 0 0
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G. Brown	845 0 0
R. J. Nichols	815 0 0
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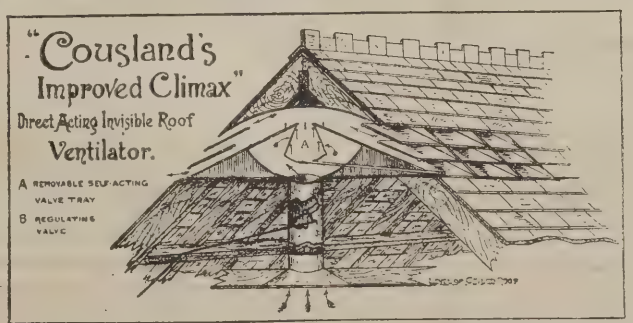
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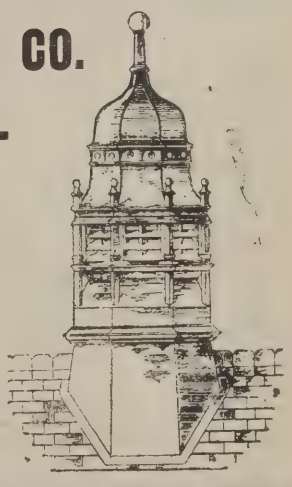
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For erection of a public elementary school in Stamshaw Road to accommodate 600 boys, and for converting the existing Stamshaw Board school into a school for girls and infants. Mr. A. H. BONE, architect, Cambridge Junction, Portsmouth.

J. H. Corke	£19,370	0	0
W. R. Light & Son	18,897	0	0
H. Clark & Son	18,700	0	0
T. B. Hall	17,529	0	0
E. & A. Springings	17,500	0	0
H. Jones	17,250	0	0
J. Perkins	17,141	0	0
J. CROCKERELL, Southsea (*accepted*)	16,592	0	0

RIPON.

For erection of gasholder and tank at the gasworks.

HOLMES, Huddersfield (*accepted*)	£3,046	0	0

SHEFFIELD.

For erection of George Woofindin convalescent home at Fulwood. Messrs. HEMSOLL & PATERSON, architects, 18 Norfolk Row, Sheffield.

DAWSON & JONES, Huddersfield and Sheffield (*accepted*)	£13,193	0	0

Note.—Reduced, owing to omission of laundry, &c., from £15,987.

WARENFORD.

For erection of cottages and byre on Twizell estate. Mr. GEORGE REAVELL, jun., architect, Alnwick.

ELLIOT BROS., Preston, Chathill, Northumberland (*accepted*)	£590	0	0

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For construction of permanent outfall sewage works and for oil-engines and pumps, Abram.

Holme & King	£5,866	13	7
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T. & H. Houghton	5,089	15	3
E. TEMPEST, Oak Dene, Marple (*accepted*)	4,735	17	7

VARIETIES.

EXTENSIVE plans for the destruction of old and the opening up of new streets in Berlin have been prepared. The chief improvements are contemplated in the neighbourhood of the royal castle and the Kaiser Wilhelm memorial. A new street is to be constructed with magnificent buildings, and is to be called the Prachstrasse. The cost of the improvements is estimated at 50,000,000 marks.

THE opening ceremony at the new buildings added to the Hampstead Workhouse, at a cost of about 20,000*l.*, was performed on the 22nd inst. by Mr. B. A. Lyon, chairman of the Guardians. The addition provides a new dining-hall, dormitories and day-rooms for aged and young women, night and day nurseries for children, and other offices, there being altogether total accommodation for 153 additional inmates.

NEW buildings have been added to the Wakefield Workhouse, which will be opened on January 19, and comprise a new infirmary and a steam laundry. These additions were designed by Mr. Wm. Watson, of Wakefield. The infirmary will accommodate 150 patients, with the requisite staff. The buildings, which are in the rear of the workhouse, consist of a central administrative block, with waiting-rooms and a surgeon's room on the right, with the kitchens and pantries behind. The men's pavilion is on the left, at a distance of 42 feet from the central block, with which it is connected by a covered corridor. The women's pavilion is on the right. Substantial brick walls have been built to entirely surround the workhouse premises. The laundry block is near the eastern boundary of the site, and is 45 feet by 200 feet.

THE old parish church of Eckford, situated on the banks of the Teviot, near Kalemouth, which has been closed since May last in order to allow of extensive internal alteration and improvement, was reopened for public worship on the 18th inst. The scheme of restoration embraced the entire reseating of the church, the removal of the east gallery and the forming of a chancel at that end, the insertion of a new Romanesque window in the east gable, the introduction of a modern system of heating, a new pulpit and communion-table. The alterations proceeded upon plans furnished by Messrs. Sidney, Mitchell & Wilson, architects, Edinburgh, and the various branches of the work have been satisfactorily carried out by local tradesmen at a cost of about 600*l.*

ON Wednesday of last week the parish church of Mertoun, near St. Boswells, which has been for some time closed for

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extension and improvement, was reopened for service. The church, which is cruciform in shape, has been entirely reseated, while the north wing has been extended to make up for the accommodation lost by the removal of the galleries. A handsome new pulpit, in Decorated Gothic style, has been put up, and a large rose-window has been inserted in the belfry gable. The work of renovation has been carried out by local tradesmen to plans by Messrs. Hardy & Wight, Edinburgh.

AT a meeting of the Wolverhampton Guardians the Board had under consideration the report of the new workhouse committee, and the chairman proposed that the amended plans for the new workhouse be adopted and sent to the Local Government Board for approval. He congratulated the committee on having effected a saving in the estimates of 12,003*l.* Mr. Sankey seconded. On the motion of Mr. Sawyers, however, it was decided that a day be appointed for the inspection of the plans in the Board-room, and that the architect (Mr. Marshall, of Nottingham) be asked to attend and give any explanation of them that may be required.

THE new parish church at Morven was opened on the 18th inst. by Dr. Norman Macleod. It has been erected from designs by Mr. P. Macgregor Chalmers, of Glasgow, and has cost upwards of 1,000*l.* It has been erected on the site of the old one, close to the ruins of the Mediæval church and the tall and beautifully sculptured cross. In taking down the old church a large fragment of a cross shaft was discovered, as well as other parts of moulded and enriched stones, which belonged to the ancient foundation, and which proved it to have been of rich and elaborate design. These have been carefully preserved. The style of the new church is Norman. It is built of whinstone, rough-cast on the exterior, with all the corners, windows and doors and all interior stonework of red freestone. The design comprises a chancel for the oak communion-table and elders' seats, and a nave seated to hold about 200 persons. The vestry opens off the side of the chancel. The roofs throughout are all of open timber. The church has been richly and comfortably furnished.

MR. J. SCOTT FRASER, F.R.G.S., delivered last week a lecture in the Fairfield Hall, Beech Street, Liverpool, on the subject of "Life in Old Rome during the Augustan Period." The Rev. Mr. Fyffe presided, and there was a large audience. In the course of the lecture, which was a vivid description of life in Imperial times, illustrated by views of the city restored, Mr. Scott Fraser exhibited a photograph of the interior of St. George's Hall, Liverpool, with the wooden flooring removed, which he mentioned was designed after the central Bath of Caracalla, Rome, but only one-quarter the size. This view showed the original pavement, the sides being raised some 18 inches or 2 feet above the central part of the hall, forming a platform round it. The central part of the floor much resembles a bath some 2 feet deep, executed in examples of ornamental tiles, figures of sea-nymphs and dolphins inlaid in brilliant colours. Harvey Lonsdale Elmes, the talented architect, was only twenty-four years of age when his design was accepted by the Liverpool Council. The anxiety and enormous responsibility which this stupendous work demanded of him was more than he could sustain, his health completely broke down, and he died in the island of Jamaica before the building was completed. St. George's Hall stands to-day a magnificent monument of his genius, described by Mr. Shaw Lefevre as "the finest example of Classical architecture of modern times in Europe;" but it was, the lecturer said, a great reflection on the generous character of Liverpool citizens that the work of this talented young man should not have received public recognition in some form or other, such as by the erection of a statue, or even by a medallion or tablet, to him in the building itself; in fact, he believed that his name is not even engraven on any part of it. Mr. Scott Fraser concluded his reference to this with a strong appeal that some effort would yet be made to suitably recognise the magnificent work of Elmes.

EVEN under the most favourable circumstances the work of an expert chimney climber is very hazardous, and requires great care and strong nerves. Several years ago it was considered a marvellous accomplishment, says the *Liverpool Courier*, for the Vauxhall chimney to have been ascended in a period of about six hours, the height being 312 feet. The ladder system then used by Mr. W. J. Whitehead, whose work in this direction has made him somewhat famous throughout Lancashire, was the most perfect available. The ladder was constructed so that the ascent might be made from the inner space between the ladder and the wall, and each section was arranged at regular intervals of 6 feet by firm iron brackets. It was made in sections, and blocks of wood and ropes were necessary in affixing it to the chimney so as to give security to the climber. That, perfect in its time, has, however, become a thing of the past. A new system has been invented which was put into operation this week at the sugar refineries of Messrs. Crossfield & Barrow, in Vauxhall Road. The chimney in this case is about 200 feet in height, and it was necessary for the protection of the stack and surrounding buildings for the

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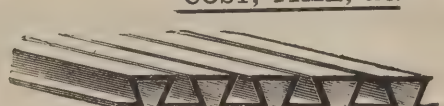
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lightning conductor to be repaired. To do this an ascent was essential, and Mr. W. J. Whitehead was entrusted with the task. Quite a sensation was caused while the ascent was in progress, and the ease with which it was made caused considerable surprise to the hundreds of people watching the experiment. The new ladder is a very ingenious one. It is affixed within a few inches of the brickwork to the chimney, and the worker proceeds by longer sections, two holdfasts being driven up a distance of about 30 feet, where four spikes were previously required for 10 feet. The ladder is of iron, and the sections are so securely fastened together that on its completion it is really a solid whole, and enables the ascent to be proceeded with at the minimum of danger and the maximum of speed. In 2½ hours the ascent was made, and although the height was 100 feet less than the celebrated Vauxhall chimney, the ascent occupied so short a time that it is considered to be a record feat on the part of the well-known steeplejack.

"WOODINE."

"Woodine" is the name given to a composition for making flexible moulds for casting Portland cement in high relief. Hitherto it has not been possible to make satisfactory castings owing to the rapid shrinkage which takes place in the usual mould made of gelatine, and also to the action of acids in the cement destroying the face of the moulds. With "Woodine," however, these objections do not arise, as the moulds made with this material remain unaltered for weeks. We have inspected some that have been in existence for three months, and the decrease was so slight as to be of very little consequence. From these moulds some dozens of casts have been made. It is hardly necessary to point out the many uses to which Portland cement cast in high relief may be adapted, both for the enrichment of the exterior and interior of buildings. We are informed that eight pilasters, each weighing 1½ cwt., and being 6 feet long with moulded base and carved capitals, have been made from one "Woodine" mould, and that if necessary four casts per day for a month could have been taken without spoiling the mould.

There can be no doubt that "Woodine" moulds are more durable, tougher and yet more flexible, and are in every way superior to those made of gelatine, and after use may be remelted several times. Further particulars may be obtained of Mr. John R. Wildman, 17 Albion Street, Leeds.

ILLUSTRATIONS.

CATHEDRAL SERIES.—ST. ALBANS: GENERAL VIEW.

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TRADE NOTES.

The firm of Horne, Son & Eversfield has been long familiar to builders and contractors and property-owners in the Metropolis. As Mr. Horne, senior, retired some years ago, Mr. W. Edgar Horne, the head of the firm, has altered the title to "Horne & Co." He has also taken into partnership Mr. William Vincent Jull and Mr. John Roy Lancaster, who have for several years assisted him in the conduct of business. The offices will remain at 85 Gresham Street, City, and 19 Great George Street, Westminster. We wish the renowned firm under its new title a continuance of the success gained by experience, technical knowledge and devotion to clients' interests.

Messrs. Chatwood's Patent Safe and Lock Company, Limited, have received a letter *re* the recent massacres in Crete, of which the following is a translation :—

10 Rue de la Métropole 10 Athènes :
Chatwood, Esq. December 17, 1898.

Sir,—During the massacres and pillage in Candia, while all the other safes have been destroyed, only two safes escaped destruction and those have been manufactured by your firm. The safes belonged to two merchants and contained considerable sums of money. The Basizibuzuks having made desperate attempts, did not succeed to open them. One of the above-mentioned safes has been brought to the Piræus, and one might see on it the marks made with the implements of the pillagers. This fact has caused general astonishment. I have also had the opportunity of seeing the safe. Being myself an editor and a Cretan, I have thought it my duty to announce this important fact, which is a real triumph to your honourable firm, and congratulate you. I beg to enclose a copy of the paper of which I am one of the editors.—Yours faithfully, Signed, John Condilakis, Editor.



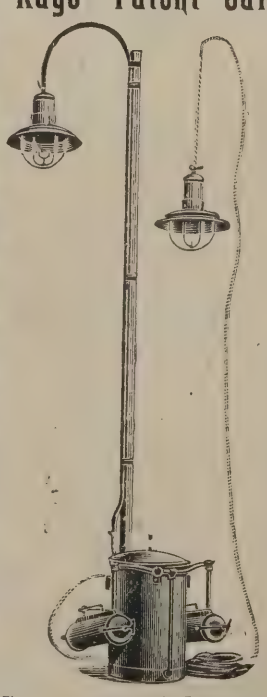
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THE County Hospital, Bedford, is being warmed and ventilated throughout by means of Shorland's patent double-fronted Manchester stoves with descending smoke flues.

BUILDING AND BUILDERS.

THE chapel which has been erected in the grounds of the Salisbury Union Workhouse for the use of the inmates having been completed, was dedicated to St. Thomas the Apostle by the Bishop of Salisbury on the 21st inst. The style of architecture is Gothic. The sitting accommodation is for 150 persons. The seats are of pitch pine, and comfortably constructed and arranged. Dr. Bourne very kindly gave the altar and retable, the material for the latter being cut from a piece of oak 700 years old, and brought from Stockton.

RICHARD STOCKTON, aged thirty-two years, residing at 22 Salisbury Street, Great Lever, and employed as a bricklayer by Messrs. Gornall & Sons, contractors, fell from a scaffold at Burnden Bleachworks on Tuesday, and sustained severe injuries to the head. He was removed to the infirmary in a critical condition, and died there on Wednesday.

JOHN MAXWELL, builder, 18 Canniesburn Road, Glasgow, was fined 10*s.* 6*d.*, with the alternative of seven days' imprisonment, in Glasgow Maryhill Police Court, for having, on December 14, caused a quantity of building material to be laid down in Cumloden Drive, Glasgow, not under the powers of any local Act of Parliament, or by the authority of the Dean of Guild, or by the written consent of the master of works. Bailie Fife, who tried the case, complimented the police at the end of it upon the manner in which they were looking after the proper regulation of the street traffic.

THE completion of the restoration of Bourne Abbey Church is being undertaken with energy. Over the last section of the restoration, the chancel, 1,000*l.* was spent. The present effort is directed to the restoration of the roof of the south aisle and the south porch. The abbey church is historically interesting as the abbey of Augustinian canons. Robert de Brunne, the "Patriarch of English Grammar," who lived here from 1307 to 1349, was one of the canons.

DR. G. D. THOMAS held an inquest at the Islington Coroner's Court on Tuesday with reference to the death of Henry Goulding, fifty-one, a scaffolder, lately residing at 140 Bayham Street, Camden Town. The deceased was in the employ of Messrs. G. Longden & Co., of London and Sheffield, building contractors, who are now erecting the Empire Theatre of Varieties in the Holloway Road. A workman's scaffold over 40 feet high, standing in the centre of the interior of the building, was, Mr. Webber (the clerk of the works) said, properly built. On Saturday morning last it became necessary to fix a "jenny wheel" to a jib projecting from one of the cross beams at the top of the scaffold, so that bags of cement might be raised by means of the rope passing over the wheel. The deceased volunteered to fix the "jenny" and proceeded to do so, while a labourer named Jeffreys stood on a platform beneath to receive the rope as it fell, and lower it to the bottom. The latter said he did pull the rope to the bottom, and then he saw the deceased as he passed him in his fall. At first the conjecture was that Goulding fell whilst standing upon the broad gangway of the scaffold trying to adjust the rope, and because, in reaching too far forward, he overbalanced himself. The coroner and jury, however, viewed the premises, and found that a narrow plank had been rested on the horizontal bar and the jib, and that it was while the deceased was standing upon this plank and adjusting or fixing the "jenny" that he somehow fell to the ground, after first striking a girder. The injured man was removed to the Great Northern Central Hospital, where he died a few hours after. The jurors further found that the wheel had not been tied. In the result the jury returned a verdict of accidental death, adding that the plank on which the deceased stood was insufficient for the purpose he was trying to execute.

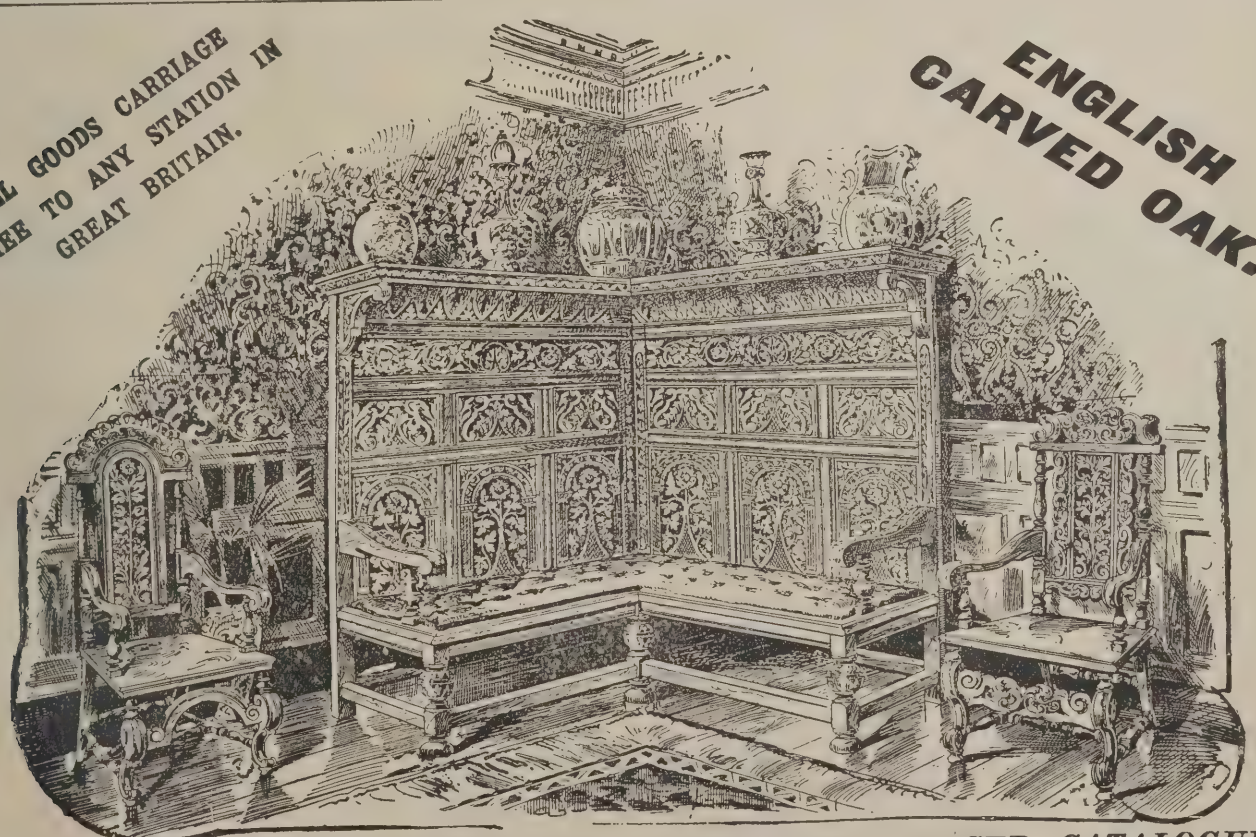
ELECTRIC NOTES.

THE Birmingham City Council having acquired the powers of the Electric Supply Corporation have decided to introduce the electric light into the council house. The entire building will be so lighted, the cost of the work for which will be, it is anticipated, nearly 2,000*l.* The installation will be carried out with all the economy consistent with proper efficiency; and, so far as possible, the present fittings and pendants, many of which are very handsome and valuable, will be utilised for the new lights.

THE shareholders in the Sheffield Electric Light and Power undertaking met last week to complete arrangements for handing over the concern to the Corporation. Under the special

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Act of Parliament the Corporation undertook to buy up the company on the basis of 220*l.* of 2½ per cent. redeemable stock for every 100*l.* of capital properly expended by the company, or as an alternative 213*l.* 8*s.* in cash for each 100*l.* The chairman of the company (Alderman Franklin) explained that as municipal securities had been deteriorating in the markets the directors had no difficulty in deciding to take the purchase price in cash, and it would be paid on the 31st inst. He estimated that for every 7*l.* share the holders will receive from 17*l.* 10*s.* to 18*l.*, in addition to a 10 per cent. dividend on the year.

PLUMBERS' REGISTRATION BILL.

A DEPUTATION of those interested in the promotion of the Parliamentary Bill for the Registration of Plumbers waited on the Secretary for Scotland, Lord Balfour of Burleigh, at his chambers in Parliament Square, Edinburgh, on Tuesday last, for the purpose of representing to him the desirableness of making the Bill a Government measure.

Ex-Bailie Crawford briefly explained the objects of the movement and the necessity felt for legislative sanction for it. The movement had now been in existence for fifteen years, and a Bill had been read a second time by three successive Parliaments, and had twice passed through committees of the House of Commons. The Bill did not seek in any way to create a monopoly. Its aim was solely to establish a thoroughly representative general council, which would have certain discretionary powers, and the Bill would also prohibit under a penalty the use by any one of the term "registered" who was not registered under the Act.

Lord Burleigh, in reply, expressed his sense of the importance of the deputation, which he observed was fairly representative of Scotland. He also gave expression to his complete sympathy with the movement for introducing a higher standard of qualification and a higher code of honour among those to whom the responsible work of the plumbering and the drainage of dwelling-houses was entrusted. He was satisfied that the movement did not aim at any monopoly. While he was not in a position to commit the Government at that stage, he would undertake to report immediately on his return to London in the beginning of the year the representations which had been submitted to him, and to confer with the representatives of the Local Government Board for England as to possible assistance towards securing the passage of the Bill into law.

On the motion of Mr. James Hyslop, Dumfries, a cordial vote of thanks was given to Lord Balfour for his reception of the deputation.

SHERNBOURNE CHURCH RESTORATION.

ON Saturday afternoon the Prince and Princess of Wales, the Duke and Duchess of York, Princess Victoria of Wales, Prince Alexander of Teck, Sir Dighton and Lady Probyn, Sir Francis and Lady Knollys, Miss Knollys and Commander the Hon. Seymour Fortescue attended the reopening service of Shernbourne Church, Norfolk, situate on the Sandringham estate. Amongst the clergy present were the Dean of Norwich, the Rev. Canon Hervey (rector of Sandringham), the Rev. Percy de Putron (curate), Rev. H. J. Hare, of Docking (rural dean), Rev. F. J. W. Girling (vicar of Shernbourne), Rev. F. A. S. Ffoulkes (rector of Wolferton), Rev. David Jones (rector of Anmer) and the Rev. J. C. Girling (rector of Coltishall).

Shernbourne Church (dedicated to SS. Peter and Paul), and stated to have been the second founded in East Anglia by St. Felix the Burgundian (that of Babingley, now in ruins, claiming the premier honour), has for upwards of two years been closed for restoration, which has been effected at a cost of about 2,000*l.* Up to the time of this much-needed restoration being taken in hand the church consisted only of a small and insignificant nave, and for many years past presented every evidence of decay and ruin. It has, however, principally owing to the munificence of H.R.H. the Prince of Wales, who recently became the purchaser of a large portion of the parish (which adjoins Sandringham), undergone such an external and internal transformation as to compare favourably with any village church of similar size throughout the country, being the latest instance of the care and attention which the Heir-Apparent has always shown in the churches attached to his estates.

During the restoration of the old walls, and in the process of excavations being made, the foundations of the original aisle and chancel were discovered, and these indications have inspired the lines on which the work has been conducted, the church now consisting of nave, chancel, south aisle and porch, and the fabric at the close of the nineteenth century must now be very similar to its appearance in the fourteenth.

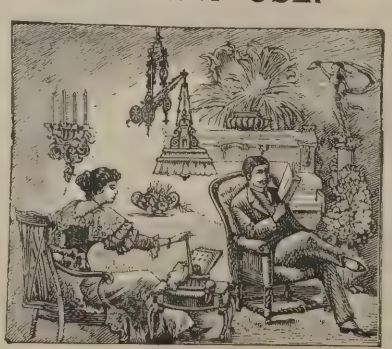
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retained (and several remains were recovered) has been hidden from view. Although the walls have been partially rebuilt, such judicious use has been made of the old material (flint and rubble) as to redeem them from the appearance of raw newness almost inseparable from such work, while the retention of the ancient stonework in doorways, windows and arcading considerably enhances the appearance of age.

Externally the roofs of nave and chancel are covered with Broseley tiles, a stone cross surmounting the east gable, and a bell turret the western. The roofs to south aisle and porch are covered with lead. An addition has been made to the churchyard, and all enclosed by a flint and carr stone wall, with an oak entrance gate, while the churchyard itself, formerly a scene of desolation, has been levelled, turfed and the memorial-stones regulated.

Internally the change is no less marked, the chancel having a waggon-headed roof in oak, treated with moulded ribs and carved bosses, those to nave and south aisle being of a plainer character, but equally effective. The piers to the south arcade (of the Decorated period), after being walled in for centuries, again divide the nave from the south aisle, the eastern end of which is intended for the future organ chamber, an ancient doorway giving access to the chancel. The floors of nave and aisle are of wood blocks, the sacrarium and chancel being laid with tiles and stone steps. The pulpit (on stone base) and the choir stalls are in oak, of appropriate design, and the font (reputed the oldest in England) has been refixed on a stone slab. The only remaining brass, together with the Purbeck marble slab to which it is attached, have been restored and refixed in an upright position in the north wall of chancel. This probably commemorates Sir Thomas and Lady de Sharnborne, who Blomefield in his "History of Norfolk" states were buried beneath the high altar in the ancient chancel.

All the memorial mural tablets have been retained. The windows throughout are glazed with cathedral glass. The contractors entrusted with the execution of the work have been Mr. Geo. Riches, of Dersingham, who restored the fabric of the building; Mr. John Boddy, of Harpley, being responsible for the roofs, floors and internal fittings; and Mr. A. W. Hall, of Norwich, who restored and reinstated the ancient stonework, together with the new masonry throughout.

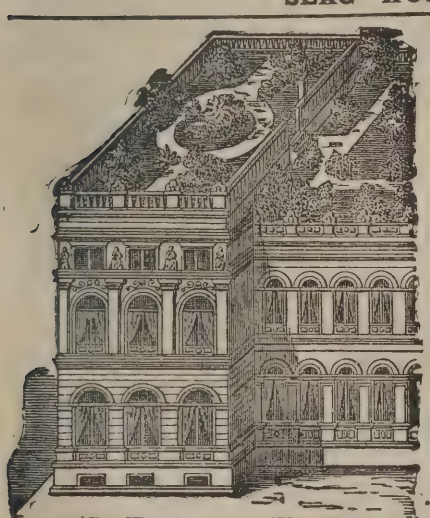
Sir Arthur Blomfield, of London, has acted as consulting architect, and the work has been carried out from the designs and under the superintendence of Mr. Herbert Green, of Norwich.

ELECTRIC LIGHT IN SALISBURY.

THE formal opening of the new electric-lighting station at Salisbury took place on the 19th inst., and was a function of considerable ceremony. The actual switching on was performed by the Earl of Pembroke, and the switch used was a copy of one lately made for the royal waiting-rooms at Windsor station, and has been made up as a paper weight, with a suitable inscription, for Lord Pembroke to retain as a memento of this interesting occasion. The works have throughout been designed by Messrs. Edmundson and carried out by them. Mr. L. A. Hards, who acted as their resident engineer, is now engineer to the Salisbury company. The site is the old Town Mill, about half an acre in extent, which was the property of the Dean and Chapter of the cathedral for seven centuries. At the east end is a new two-storeyed building, used as an office and show-room, with a store and workshop below. The next building is the old four-storey mill, having on the ground floor the eel-trap, tank and storm-water gate at one end, and further storage room at the other. On the first and second floors are the accumulators. The upper floors are empty. The engine-room is a new building containing the turbine, engine and dynamos. The boiler-house is at right angles to the engine-room, and the triangular-shaped room between is intended to hold the condensers when the loan on the steam plant warrants the cost of adding these. The whole of the engine and boiler-house are built of fireproof materials, the roof being iron, glass and tiles; the walls are built for the most part of flints set in cement.

A siding of the L. and S. W. R. adjoins the company's property. Some day no doubt this will be of great value, but for the present, as the consumption of coal will be small, it will be carted to the works. Mr. E. Doran Webb is the architect. The builder of the works was Mr. E. Hale, of Salisbury, and of the chimney Mr. J. Thompson, of Peterborough. The chimney is octagonal, 100 feet high and 6 feet diameter inside. There are at present in place a 60 horse-power vortex turbine and dynamo, one Babcock and Wilcox boiler of 1,218 heating surface, two Worthington feed pumps, one of Joseph Wright's Excelsior feed heaters, and a Bellis Parker set of 84 kilowatt output, 180 ampere and 460 volts. Space has been left and all provision made for adding another boiler and engine set when required. The steam pipes are on the usual ring main principle, and the feed pipes, &c., in duplicate. A galvanised iron tank capable of holding 2,000 gallons is supported by

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an arch high up in the boiler-house, to give supply by gravitation to the feed heater. The supply in Salisbury is at present being given from the turbine which has been made by Messrs. Gilkes, of Kendal, with revolving wheel 8 feet 6 inches diameter, and is capable of giving 60 horse-power with 5,883 cubic feet per minute working under a 7-feet head. It runs at 28 revolutions per minute, and drives the dynamo at 850 revolutions by gearing and belting. The turbine is fitted with movable guide blades for adapting the entrance orifices to any quantity of water below the full supply. These are fitted with gearing for adjusting them. The hand wheel for this purpose is placed in the centre of the switchboard. As the plates of the turbine are very massive, it is quite hard work to close them, and an electric motor is to be fixed to give the switchboard attendant a quicker and easier control. The dynamo driven by this turbine is composed of two machines coupled together, each capable of giving an output of 100 amperes at 230 volts, one machine being connected each side of the three-wire system. On the ends of the dynamos are coupled the boosters, to add the extra pressure for charging the accumulators. The armatures of the boosters are wound on a slieve and slipped on to the end of the spindles of the dynamos. In the event of the turbine being out of use this machine can be used as an an ordinary balancer booster combination by the removal of the belt. The switchboard was made by Thos. Parker, Limited, to Messrs. Edmundson's designs. It is divided into three parts. On the left hand are the switches, ammeters, auto-cut-outs, &c., for the combination dynamo and booster, also the battery regulating switches and ammeters, the throw-over switches, zero indicators, &c. On the right-hand panel are the feeder, ammeters and duplex cut-outs, the dynamo ammeters, auto-cut-outs, fuses, &c. The centre panel carries the recording volt-meters, recording ammeter on the earth connection to the neutral wire and cut-outs, switches, &c., for testing the insulation of the main. Through the centre of this panel projects the spindle of the gear for opening and closing the blades of the turbine, and an indicator is fixed showing the position of the blades and also the level of the top and bottom water, so that at a glance the attendant can see the position of affairs. Two Kelvin large dial volt-meters, one on each side of the system, are fitted on the side wall, so that they can be seen when standing in front of the switchboard, or any part of the engine-room. The pressure of the consumers' lamps is 210 volts. Thomson-Houston meters are fitted on the output of the dynamos and on the battery circuits; these latter read forwards when charging and backwards when discharging, and therefore give the energy lost in the cells. There are 230 accumulators, D.P. type, 715 ampere-hour capacity, 80 ampere at 420 volts for 9 hours or 119 ampere for 4 hours. At present the turbine runs for about 18 hours daily, in the morning for charging and in the evening with the cells to supply the light required. The water-power varies very considerably, but even in the driest weather of last autumn there was always about 15 horse-power available, the average amount is 25 to 30 horse-power, and when the river is flowing full 50 to 60 horse-power. With the aid of a large battery this power is sufficient for a large percentage of the demand in a town of the size of Salisbury, and is of great advantage as regards the cost of supply. The mains are of Messrs. Callender's jute insulated lead-covered and armoured type, the feeders being concentric and the distributors 3-core. The lengths are:—Feeder No. 1, 117 yards; feeder No. 2, 711 yards; sub-feeder, 567 yards; distributor, 892 yards, .100, 584 yards, .075, 5,285 yards, .05. Already considerable extensions of the mains have been laid owing to the demand for light in the residential district of the city.

WORKS AT WILLESDEN.

THE reports of Mr. O. Claude Robson, the engineer to the Willesden District Council, should be filed in all libraries to which students of municipal engineering have access, for they will be found to be encyclopædic in character. Although primarily intended for the information of the ratepayers, yet care is taken to introduce any information which comes under Mr. Robson's notice, and is likely to be of use to borough engineers and surveyors.

For instance, when recording the reduction of the number of years in which loans for wood-paving must be repaid, viz. five instead of ten years for ordinary Baltic fir blocks, whether plain or creosoted, and ten instead of twelve years for Australian hard wood, thus considerably affecting the annual expenditure by local authorities for this description of work. Mr. Robson adds :—"The comparative merits of hard and soft wood paving have, I think, yet to receive more detailed consideration than has yet been possible by experience of their respective wear. In our own district we have certainly not had sufficient time to arrive at a satisfactory conclusion

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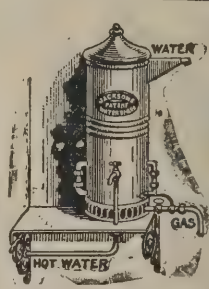
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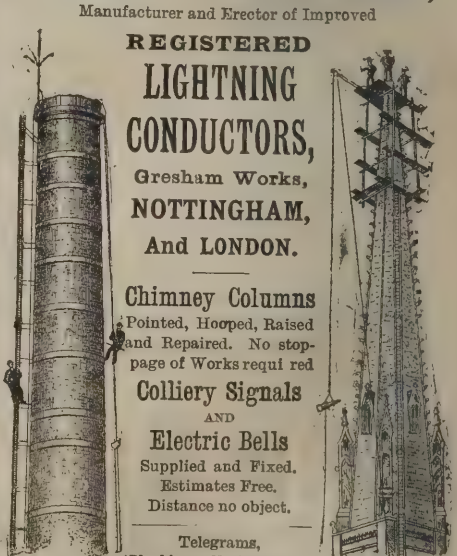


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as to the most desirable timber to adopt. Outside the question of durability, however, there are other matters to be considered relating to comfort, amount of expansion and contraction, antiseptic qualities, &c. It is also possible that one description of wood may be adaptable for one locality that would not be so desirable in another. Thus where quietude is not an absolute necessity and where durability is the primary question, as would be the case in crowded business centres, it is likely that the hard wood would be adopted, as doubtless its life is longer and less interference with the busy traffic of the locality would take place by its longer period of existence. In more residential localities, on the contrary, the creosoted timber may be preferred as a more noiseless material, although its life is shorter."

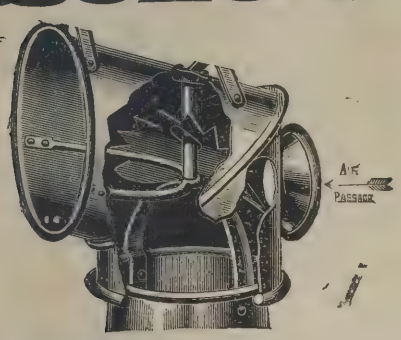
It suggests the care taken in all departments when we find it stated that in the watering of wood-paved roads a small amount of antiseptic fluid has been introduced into each van load of water. In a roadway thus paved, with any amount of traffic thereon, it is an absolute necessity in addition to the careful cleansing of the surface that some disinfecting medium should be used, otherwise most sickening odours arise that are not only unpleasant, but it has been stated by some medical experts that throat trouble may arise therefrom. Especial attention has therefore been paid to this question when hot weather prevails.

The part of the report relating to buildings is interesting. The Brent district appears to be sought after for houses of a rental value of 40*l.* a year and under, while the better-class houses are generally erected in the metropolitan district. It was found necessary to serve 280 notices for contravention of by-laws, but in the preceding year the number was 486. The difficulty of supervision is described as follows :—

The by-laws involving the largest number of notices were those relating to brickwork, the erection of buildings of combustible material, and for failing to give notice as to commencement and completion of buildings. In the matter of brickwork every endeavour is made to insure good materials and sound work. It must however be remembered that each inspector has possibly 100 to 200 houses for supervision, that they are scattered about in various localities, and office work has also to be performed. The prevailing use of the mortar mill is also an unfortunate element where other material than sand is sanctioned for use. To efficiently supervise the composition of mortar for every building would necessitate the constant attendance of one man upon every block of buildings, which it may be readily understood is impossible, yet there are those who consider that the same amount of supervision should be accorded by the public authorities as that given by the clerk of works upon a special building for which he and the architect are specially paid. This detailed supervision could only be carried out by the public being willing thus to place and pay for a separate inspector continually attendant upon each building in the district, the cost of which would of course be quite beyond reason. The work of supervision by the inspectors in the employ of the Council is, so far as time and facilities extend, excellently carried out, every endeavour being made to secure sound work in the carcases of the buildings. Were it possible to specify sand and lime only as the material for mortar purposes, great assistance would be rendered in the supervision and less likelihood would occur of inferior materials being used, as there would be no excuse for the existence of any other aggregates than sand being upon the work. In this respect the work of the special clerk of works is facilitated, as probably sand only is thus specified, whilst with the inspectors brick rubbish, clinker, or other similar material is sanctioned, involving some controversy as to the suitable character of such varied material. Thus the duties of the inspector are much more arduous than the question of supervision of brickwork, both as to extent of building operations and the discretion to be used in sanction of material, than are the duties of the clerk of works constantly upon a building forming the subject of a contract, and it is consequently most unreasonable to expect the same result from public supervision of buildings as that accorded to a contract with special and constant supervision from the architect and his clerk of works. I have, perhaps, dealt with this matter at undue length, but I have upon so many occasions received complaints as to alleged "neglect" in supervision of brickwork, especially by reason of the use of brick rubbish in mill mortar, that I am desirous of recording in these pages the absolute unreasonableness of such complaints, as brick rubbish of proper quality is sanctioned under the by-laws, and as the inspector is not ubiquitous he cannot be standing over every mill or batch of mortar to insure every particle mixed being of proper quality. The public supervision can be but intermittent, and if at any time during supervision inferior material is discovered action is taken to remove the work which is built with this material, as is evidenced by the service of seventy-two notices and six summonses with regard thereto. In addition many verba

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cautions are given by the inspectors and attended to without necessity for the service of notice.

PROPOSED NEW MARKETS IN LONDON.

THE copy of a Bill which will be introduced into Parliament next session has been deposited for the purpose of incorporating a company with powers to establish markets at Millwall and Shoreditch. The Millwall market, which will adjoin the Millwall Dock, is intended to be "for the sale of cattle, horses, sheep, pigs, poultry and other live-stock imported from Ireland," whilst the market at Shoreditch is proposed to be confined to "the sale of British, Irish and colonial butchers' meat, fish, poultry, game, eggs, corn and other cereals, hay, straw, fodder, roots, fruit and vegetables and other produce." The capital which it is estimated will be required to carry out this scheme is 3,000,000*l.*, of which 600,000*l.* will be raised by mortgages on the markets.

METROPOLITAN IMPROVEMENTS.

THE London County Council at the end of last week deposited in the Private Bill Office their Improvements Bill for promotion in the ensuing session, for the construction of a new street and for several important street widenings in the County of London. The Bill includes provision for the formation of the new street from Holborn to the Strand, the widening of Southampton Row, the widening of High Street, Kensington, the reconstruction of the Cat-and-Mutton Bridge, Shoreditch, the widening of Wandsworth Road, Lambeth, and the reconstruction of the Old Gravel Lane Bridge. The net cost of all these improvements, without deducting contributions, is 1,154,700*l.*, and the estimated net cost to the Council, after deducting contributions but not betterment, is 1,105,700*l.* The annual charge on the rates for interest on and repayment of debt calculated on the net cost will be 49,145*l.*, equivalent to a rate of ·321*d.* in the pound, the annual charge of interest decreasing annually by 515*l.*

The most important of these improvements is the scheme for the formation of the new street from Holborn to the Strand, the proposal being much the same as that recommended by the improvements committee in 1892 and 1895. The scheme provides for the formation of a street from High Holborn at Little Queen Street, opposite Southampton Row, proceeding in a southerly direction intersecting Great Queen Street, Sardinia Street, Vere Street and Stanhope Street. To this point it is practically the same as that proposed on former occasions, but at Stanhope Street, instead of continuing in a direct line to the Strand, the street bifurcates.

The western branch, of the same width as the main street, 100 feet, passes in a south-westerly direction, crossing Drury Lane and entering Catherine Street and the Strand close to Wellington Street, so as to form an approach to Waterloo Bridge. The eastern branch, also of the same width as the main street, passes from Stanhope Street through New Inn to the Strand at St. Clement's Danes Church. The scheme also provides for the widening of the Strand for a considerable distance on the north side of St. Mary's Church, and for the acquisition of the whole of the site within the area bounded by the Strand and the two branch streets.

It is not intended to ask for the removal of the church of St. Mary-le-Strand. The Institute of British Architects has pointed out that an objection to the scheme submitted to the Council in 1896 was that this church would not form a good architectural termination to the main street, as the church was designed for effect when seen from the west, and it was alleged that the plan of the spire being an oblong its appearance from the north would be thin and unsatisfactory. The scheme now proposed, however, will provide a handsome architectural termination to the new avenue, for the whole of the triangular space (nearly 4 acres) between the Strand and the two branch streets will form one of the most central positions in London, and it is claimed that the architectural effect of the buildings which will be erected on the site, when regarded in concert with the Law Courts, the flanking garden and the two churches (Holywell Street, of course, being demolished), will constitute one of the finest street views in London. The formation of the new thoroughfare and the subsidiary streets proposed will displace about 3,030 persons of the labouring class, and in the Bill adequate means are provided for rehousing. The gross cost of the necessary property is estimated at 4,442,000*l.*, and the recoupment at no less a sum than 4,088,300*l.*, leaving the net cost of 354,200*l.* The estimated net cost for works is 120,000*l.*, and for rehousing persons displaced 300,000*l.*, making the total estimated net cost of the scheme 774,200*l.*, which estimate may be somewhat reduced by the receipts from levying an "improvement charge," which it is contemplated to apply to certain portions of the scheme. The net cost of the scheme will involve a charge on the rates of ·226*d.* for the first

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year. This will diminish gradually, but it is not anticipated that the first charge on the rates will accrue until three or four years hence.

Powers for the improvement cannot be obtained until July 1899, after which about two years will probably be occupied in the making of the initial valuation for the improvement charge, the formulation of a scheme for rehousing the displaced persons of the labouring classes, and the receipt of claims consequent upon the service of notices to treat. For the first few years from the commencement of the improvement the capital expenditure will be very large, and as a considerable proportion—indeed, nearly the whole—will in time come back in the shape of recoupment from the disposal of building leases for the large area to be cleared, application has been made for a suspension of the sinking fund, and the Treasury has consented that, in view of the temporary nature of the capital expenditure, payments to the sinking funds shall be suspended for a period of seven years. This is a large concession, and will effect a considerable saving. It is understood to be the first occasion on which such power has been granted in connection with an improvement Bill. The widening of Southampton Row is almost a necessary corollary to the formation of the new street. It is to be carried out on the eastern side, commencing at Vernon Place and Theobald's Road, and terminating at Holborn, exactly opposite the northern end of the proposed new street. There is also to be a widening of Holborn on the northern side, commencing at the southern end of Southampton Row and to extend some 50 yards eastward from the centre of that thoroughfare. The estimated net cost of the Southampton Row widening is 162,000*l.* The total net cost of the street improvements which are contemplated in this district, and which will be carried to completion on Parliamentary sanction being given for the new Holborn to the Strand thoroughfare, will be 1,721,000*l.*, made up as follows:—Strand widening at Holywell Street, 569,000*l.*; clearance of insanitary district at Clare Market and Drury Lane, 216,000*l.*; Southampton Row widening, 162,000*l.*, and the proposed new street from Holborn to the Strand, 774,000*l.* This, compared with 2,246,000*l.*, the estimate of 1892 for the same general scheme, shows a difference of 525,000*l.*

The proposed widening of High Street, Kensington, power for which is sought under the Improvements Bill, is to be executed on the northern side of the thoroughfare, the total net cost of the scheme being 81,000*l.*, towards which, it is anticipated, contributions will be received from the local vestries. The proposed widening of Wandsworth Road is to be executed between Vauxhall Cross and Nine Elms Lane. The estimated net cost of this improvement is 55,000*l.*, and no contributions will be asked from the local authorities, it being considered that the widening of the road is needed, not by local traffic, but by general through traffic to and from all parts of London. In connection with this improvement the Council are asking Parliament to exempt them from the operation of section 92 of the Lands Clauses Consolidation Act, 1845, which provides that where the promoters of a public undertaking, acting under statute, require to take a part of a house, building or manufactory the owner shall have the right of calling upon them to take the whole. This exemption is asked for because the widening proposed will only necessitate the acquisition of the forecourts of a large number of houses on the route.

POOR-LAW BUILDINGS IN LONDON.

IN addition to the new block of buildings, costing 50,000*l.*, opened by the Marylebone Board this summer, the guardians are erecting another block in Marylebone Road, and several other boards are engaged in extensive building operations. The Islington Guardians are spending 250,000*l.* on a large infirmary at Highgate, capable of holding 800 patients. The Board has been charged with extravagance in spending so much money on this building. But the position of Islington is a peculiar one, showing as it does that the population of inner London is rapidly shifting outwards. Since 1880 the poor of Islington has increased at a fast rate, so that the infirmary accommodation has become utterly inadequate. The cause is not far to seek, for Shoreditch and Holborn are gradually becoming covered with warehouses, and the poor who formerly lived in those districts are being forced into Islington. The St. Olave's Guardians are leaving their riverside "house" and have acquired 35 acres of land at Ladywell, Lewisham, where new Poor-law "homes" are to be erected in blocks at a cost of 195,000*l.* Cottage homes are to be provided for the children who are to be removed from the Sutton barrack school, and new union offices have been erected in Tooley Street. Altogether for these works a sum of about 268,000*l.* is required. The St. Saviour's Guardians and the St. George's Board are also contemplating the building of new workhouses, and the Camberwell Guardians are proceeding at once to erect additional infirmary buildings, while other boards have expen-

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sive works in hand. These huge buildings involve a severe tax upon the ratepayers of the districts concerned, and there is a considerable feeling in favour of a further equalisation of rates throughout London with regard to workhouse buildings. The poor are gravitating in large numbers to certain districts, as in the case of Islington, causing an unduly large burden of expense to fall upon those districts, and the difficulties thus caused by the shifting of the population are being brought to the front with the view of obtaining relief from the Common Poor Fund to which the richer districts contribute.

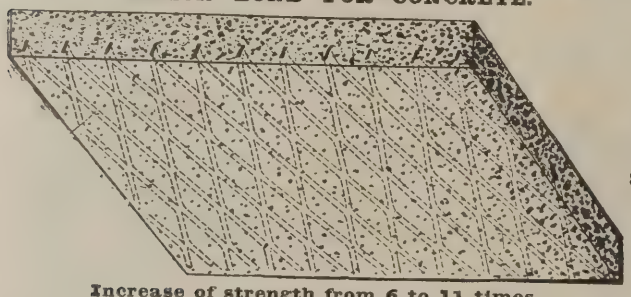
BOLTON MASTER BUILDERS' ASSOCIATION.

The annual dinner in connection with the Bolton Master Builders' Association was held at the Swan Hotel on the 15th inst. There were about seventy gentlemen present, and Mr. J. H. Marsden, president of the Association, occupied the chair, being supported by Alderman Tong, Councillor Maginnis, Councillor J. Higson, Mr. John Dickinson, Mr. James Roocroft, Mr. Jos. R. Vose (secretary to the Association), and leading members of the local building trades. The usual loyal and patriotic toasts were submitted from the chair, appropriate reference being made to what the Army had accomplished recently in the Soudan. Mr. Isaac Jones responded for the Army, Navy and Auxiliary Forces, and the proceedings concluded with the singing of the National Anthem. The musical arrangements were in charge of Mr. W. Townson. The vocalists included Mr. Stanley Jackson (whose amusing sketches were much appreciated by the assembled company), and a glee party composed of Messrs. F. Sandham, D. Warbrick, W. Townson and Vernon Bailey, with Mr. A. Entwistle as pianist.

THE NEW DOCK WORKS AT LEITH.

During the year good progress has been made in the construction of the various works for the enlargement of the harbour and docks at Leith. It will be remembered that the works were undertaken by the Commissioners to meet the requirements of the larger class of steamers which in these days are being constructed for the Transatlantic and Eastern trades, and some of which have now attained to gigantic proportions, carrying seven, eight, nine and even ten thousand tons of cargo in one journey. Vessels of this capacity, of course, require a greater depth of water than vessels of a smaller size, such as hitherto have frequented the port, and to meet this want the new dock is being constructed to a depth of 40 feet, which will give a depth of about 30 feet at high water of ordinary spring tides. The works necessitated the reclamation from the sea of upwards of 75 acres, which was accomplished a year or two ago. Since that time good progress has been made with the construction of the new dock itself, the walls of which are nearly all up to coping level, and nearly the whole of the excavation has been completed. At the present rate a few months will see the whole of the walls finished, and sufficient of the quays formed to enable sheds and cranes and other works to be proceeded with in the course of the ensuing year. A most important part of the work—the construction of the massive dock gates for the entrance lock—is now in hand. These gates have been constructed wholly of steel and fine iron, and each pair will weigh close upon 300 tons, and they will be moved by hydraulic machinery, the whole of which is now being made by the firm of Sir W. G. Armstrong & Co., Newcastle-on-Tyne. An important feature in connection with the new dock is the construction of a passage between it and the present Albert Dock. This work is now well advanced, the walls being up to fully half their height, and it is apparent that in the course of two or three months these walls will be completed and be ready for the dock gates being placed in the passage. When this work is done vessels of deep draught will be enabled to enter the Albert and Edinburgh docks through the new dock, which will be a matter of great convenience to all shippers by facilitating the entrance and working of the vessels. The east wall of the new dock is not at present being completed to its full extent. Arrangements have been made so that when desired the dock can be extended to nearly twice its present length at a very small expense, and the work can be carried out in a very short time. In view of the growth of trade which may take place, the importance of this cannot be over-estimated. The dock, as now being constructed, is 1,100 feet long and 550 feet wide, so that vessels can easily swing in it. Of late years the increasing size of the vessels and the advantages of being able to store imported goods in close proximity to the discharging berths, made it apparent that a greater width of quay than had hitherto been deemed necessary would be desirable, and this requirement has been fully kept in view in the laying out of the

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new dock, where the width of ground on either side of the dock is upwards of 400 feet, or almost exactly double the width of the quays on the sides of the Edinburgh Dock. An adjunct of the new dock, and which is placed at the south-west corner of the Edinburgh Dock, is a large new red-brick building with a high tower, in which additional hydraulic engines for working the coal cranes and machinery are now being placed. These engines will be of great power—double the power of those at present in use at the docks. An additional coal hoist has been ordered which will be one of the largest and strongest yet constructed, being capable of lifting waggons 20 tons to a height of 50 feet. The present coal hoist in the Edinburgh Dock has a lift of 33 feet. The construction of all this machinery, with the dock gates, has been a very heavy work, and has been undertaken to be entirely completed during the ensuing year, and it is expected that the new dock works, sheds, &c., will be finished and open for traffic within two years from the present time. At the last meeting of the Commissioners it was intimated that the new Leith lines of the Caledonian Railway Company from Bonnington to Seafield and the Edinburgh Dock would shortly be commenced, and that the railway would be completed by the time the new dock was opened. These lines will greatly increase the facilities for the conveyance of goods to and from all the docks.

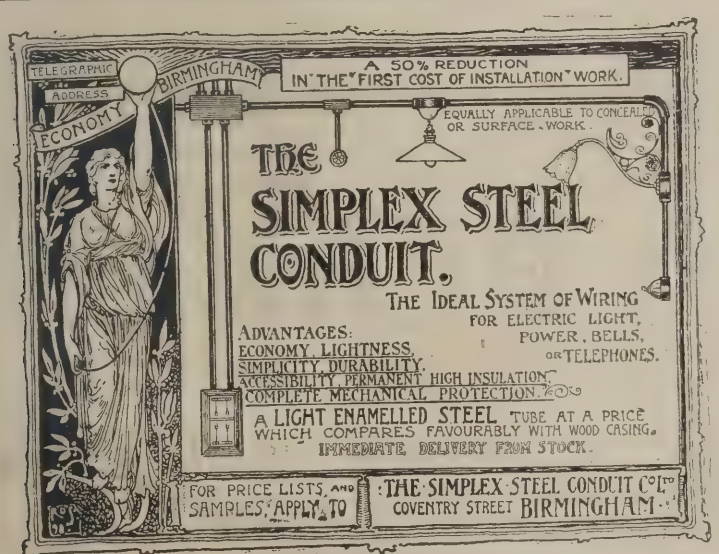
NEW THEATRE, SHREWSBURY.

THE old and obsolete Theatre Royal, Shrewsbury, having undergone a very complete metamorphosis in accordance with the designs and under the superintendence of Mr. John P. Briggs, of Arundel Street, Strand, W.C., presented a brilliant appearance on the 12th inst. on the occasion of its inauguration. The building is constructed on modern principles, and the two tiers above the pit are supported by massive cantilevers, so that there is no obstruction to the view. The seating is well arranged, the stalls immediately behind the orchestra and pit at the rear having a good slope towards the stage. The dress circle consists of two private boxes and tip-up seats, upholstered in crimson velvet. The upper circle has divided seats upholstered in crimson moquette, and a spacious gallery with raised seats is also provided. The stage is large enough to accommodate the heaviest productions, and is fitted with approved appliances for scenic effects. There is ample dressing-room accommodation, all heated by hot water, and a plentiful supply of hot and cold water is laid on, thus securing the comfort of actresses and actors. The whole building is supplied with the electric light, and the front elevation, with the two bold arc lamps and the illuminated canopy with coloured glass, has a fine effect.

The principal entrance is approached from Shoplatch through a pair of carved mahogany doors. Its decorated ceiling, with paintings representing *Glory*, ornamental pay-office, mosaic floor and fernery containing palms and glow-lamps, make an attractive scene. The wide stone staircase with decorated ceiling and walls covered with Japanese paper, leads to the crush-room, and from this the ladies and gentlemen's cloak-rooms are reached; the refreshment-room is also here. A suite of rooms is provided for the management, and communication with all parts of the theatre is secured by speaking-tubes and electric bells. The upper circle is approached by a wide staircase, and in connection with this ladies and gentlemen's retiring-rooms and cloak-rooms are provided.

The pit is a large one, and is comfortably arranged with seats upholstered in crimson carriage cloth. The walls are covered with glazed porcelain tiles and filled in above with a warm-tinted wall-paper, and the ceiling is decorated with panels and scrolls. Ample retiring-rooms are provided for this important part of the house, and a spacious and well-fitted saloon bar has also been constructed. The gallery is approached from the road at the side of the theatre. A wide stone staircase leads directly to it, and the comfort of the occupants has been carefully studied. The stage has been made the most of, and adjoining it are the necessary property-rooms, &c. There is all the customary machinery for stage work, and the grid is at such a height that all scenes can be taken up without rolling. The stage is separated from the auditorium by a brick wall carried up through the roof, and the opening may be shut off with a steel and asbestos fire-resisting curtain.

The exits from all parts are good, and are so arranged that the auditorium can be cleared in the space of a very few minutes. All doors are made to open outwards, and are fitted with patent automatic panic bolts, no other locks or fastenings being necessary. A feature of the building is the handsome canopy which forms a shelter for the early arrivals, and also shields the carriage patrons from inclement weather. A novel means for advertising the week's play has also been introduced. The theatre is heated throughout by hot water on the low-pressure system, with American radiators. Hydrants and



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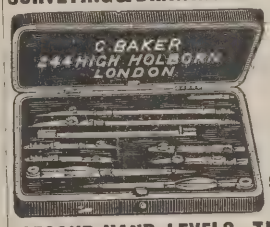
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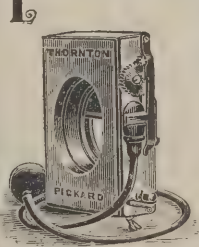
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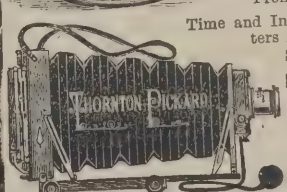
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DEVELOPMENT OF BARRY.

Everywhere in Barry building is going on rapidly; one of the largest new buildings, the offices of the Barry Dock and Railway Company, will be a palatial structure, worthy of being the headquarters of such a powerful and enterprising company. Schools, hospitals, hotels and public offices are either being arranged for or in course of construction; land has been laid out and houses built in all directions to meet the demand of those having work at the docks and in the neighbourhood. The country round is so pretty and healthy that the district is growing as a residential suburb. Many business men who have their work in Cardiff reside at Barry, and now that the Barry Railway Company has risen to the occasion and reduced the season tickets many more people are flocking to the neighbourhood, and there is great demand for good-class villa property in the better parts of the town. The district, fortunately, is administered by those who have the good of the neighbourhood at heart; they have been careful to see that good water is provided—the Council has been far-seeing enough to purchase and administer the gas and water services itself; parks and open spaces have been reserved, roads well laid out, drained and planted with trees, and good by-laws enforced to insure the new buildings being properly put up. Thus the district is a remarkably healthy one, a fact well attested to by the reports of the medical officer of health. From one portion in particular much is anticipated, for it is not only convenient to the town and has frontages to the new main Tynewydd Road, which gives access to the Holton Road, the principal business thoroughfare of Barry Dock, but has also frontages to the Barry Road, one of the principal high roads of the district, and the new road from Cadoxton will almost abut upon it. Beautiful views are obtained up and down the Channel and across to the Somersetshire coast, and although practically near to the town, yet the site is far enough away to escape the dust from the coal-tips and smoke from the engines, &c. Taking the past progress of the town as a guide, it naturally will only be a short time before this land is all buil upon. Messrs. J. P. Jones, Richards & Budgen, of 18 St. Mary Street, Cardiff, who are acting as the agents, announce that it is intended to charge a very moderate ground-rent and to keep the fees and charges unusually low so as to foster the erection of better-class property, which the position commands and the growing population requires.

PATENTS.

[*This List of Patents is compiled specially for this Journal by Mr. G. H. Rayner, of the firm of Rayner & Co., Consulting Patent Agents, 37 Chancery Lane, London, W.C., from whom all particulars and information relating to Patents may be had gratuitously.*]

Applications for Patents.

26216. Wilhelmina Houben, for "An improved manufacture of hard and elastic material for use in covering floors, walls, mouldings, &c."

26414. Alexander Mann, for "Improvements in and relating to the quarrying of granite, freestone and the like."

26415. William Oliphant, for "Improvements in and connected with apparatus for heating conservatories, houses or other buildings."

26441. Henry Procter and Henry Taylor, for "Improvements in inlaid ceramic art decoration."

26468. William Phillips Thompson, for "Improvements in or connected with the building or construction of houses or the like."

26532. John Barrett House, for "An improvement in a bricklayer's stock tool."

26661. John Pickford, for "Climax brick and tile for fixing tiles to the outside walls of dwelling-houses and other buildings."

To Inventors.—Patents for Inventions, Trade-marks and Designs secured; every assistance given to inventors. Specialists in Building matters. Information free.—Messrs. Rayner & Co., Patent Agents, 37 Chancery Lane, London, W.C.





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.—ST. ALBAN'S: GENERAL VIEW.





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ROXBURGH MANSIONS, KENSINGTON COURT, W.

PAUL HOFFMANN, Architect.

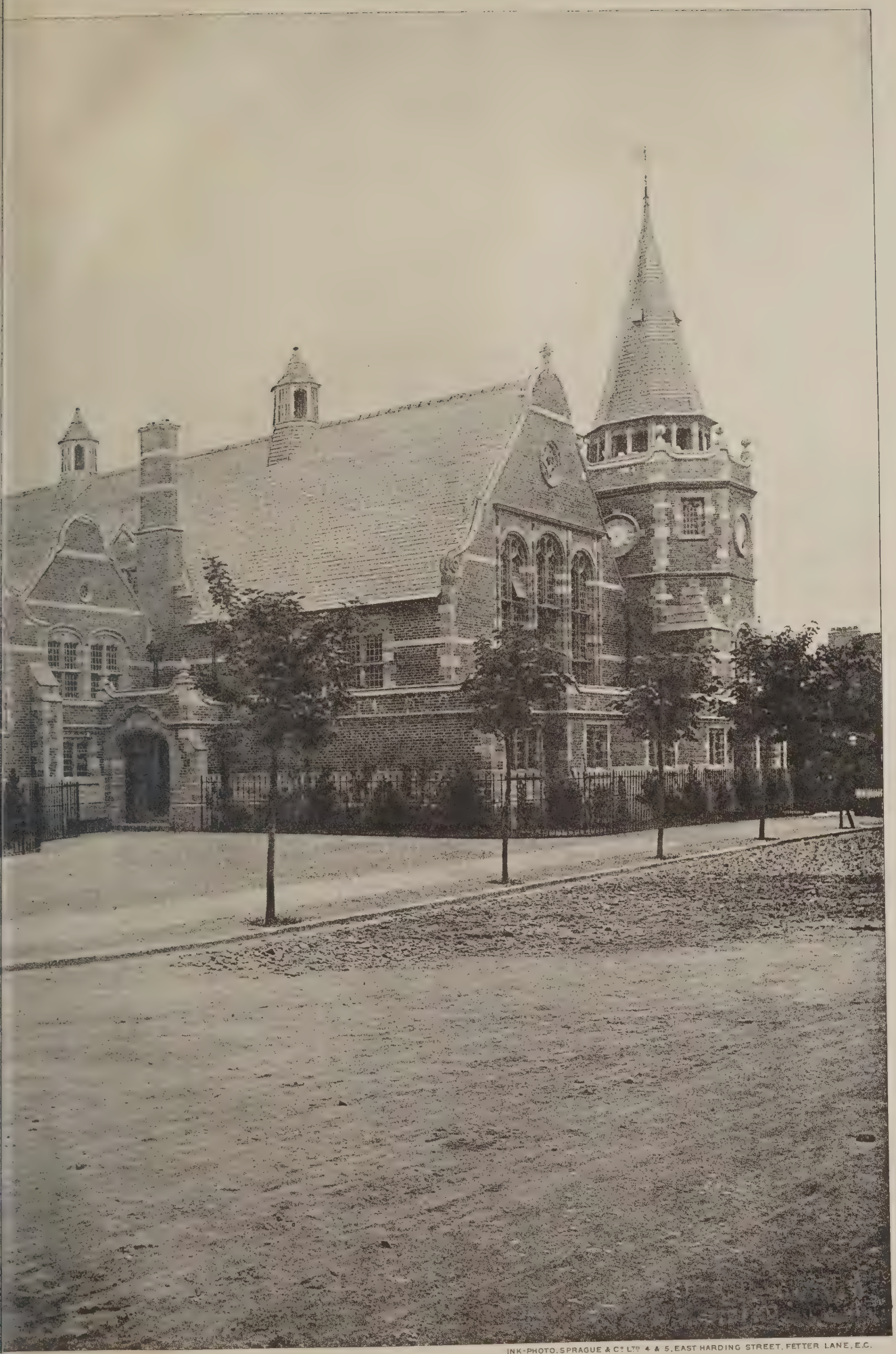


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, PORT SUNLIGHT, BIRKENHEAD.

AS & FORDHAM, Architects





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CHURCH, UPPER RICHMOND ROAD, PUTNEY.

E. W. MOUNTFORD, Architect.

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